
**A STEP TOWARDS A BROADER UNDERSTANDING OF
COMPLEX TRAUMATIZATION IN VICTIMS OF CRIME:**

**Psychological and Physical Health Impacts and
Implications for Psychological Interventions and Treatment Evaluation**

Birgit Elisabeth Pfitzer

Submitted in Fulfillment of the Requirements for the Degree of
Doctor of Philosophy

July, 2008

School of Psychology, The University of Adelaide, South Australia

Introduction

This dissertation describes the complexity of problems faced by victims of crime. As part of this undertaking, psychological and physical sequelae of victimization are investigated. Further, it is examined how these impacts might be accommodated in a psychological treatment program.

The following considerations should be taken into account in order to gain a full understanding of the nature and course of the project: The project reflects an academic and personal *journey* involving steps that were not always planned from the very beginning, but rather evolved as part of the research process, once the complexity of the problems became more discernible. What began as an evidence-based and mainstream study of trauma theory and treatment developed into a different theoretical perspective which can better fulfill the needs of the participants. Similarly, it became apparent that the conventionally applied methodology could not serve the aims of this project, resulting in a decision to use a mixed methodological approach that could more efficiently serve the research questions.

A deliberate decision was taken to employ a holistic approach to trauma research; it is acknowledged, however, that a complex illustration of problems within such a framework may come at the expense of detail. This means no real justice can be done to the comprehensiveness of research activities in the various fields involved, as any area of traumatic stress research depicted in this project would qualify for a dissertation in its own right. While being aware of this conundrum, attempts were made to cover all theoretical constructs essential for an understanding of the delineated research steps.

Research into Victims of Crime: Socio-Political Aspects and its Influences on Definitions

“(…) An understanding of psychological trauma begins with rediscovering history.” (Herman, 1992, p. 2)

Research into the impacts of criminal victimization cannot be isolated from its particular socio-historical, political, and legal context or, in other words, trauma related research interests and research outcomes have to be viewed as a socio-historical product, rather than a timeless, intrinsic unity (McFarlane & Van der Kolk, 1996; Van der Kolk, Weisaeth & Van der Hart, 1996; Young, 1995). Although the effects of trauma have been described throughout history, there were periods with little recognition or even denial of the psychological responses to trauma, leading to a lack of historical and theoretical continuity (Gersons & Carlier, 1992; Van der Kolk et al., 1996). During the late 19th Century, Charcot's, Janet's, Freud's and Breuer's studies on the phenomenon of “hysteria” (Herman, 1992; Van der Kolk et al., 1996) gave rise to an increased awareness of the association between childhood trauma and psychopathology. However, a long phase of denial set in when Freud attributed pathological symptoms to unacceptable sexual and aggressive wishes and child fantasies, thus denying the actual occurrence of a crime. With increasing popularity of psychoanalytic theory, research into childhood sexual trauma did not occur for a long period of time (Van der Kolk et al., 1996). However, with the significant trauma associated with the major wars, it became virtually impossible to overlook the psychological reactions in people traumatized by experiences other than combat, such as survivors of concentration camps and victimized women and children (Gersons & Carlier, 1992). In the aftermath of the Vietnam War and with the Women's Liberation Movement in the United States in the 1970s, renewed research interest into female victimization emerged (Herman, 1992), generating *“(…) an explosion of research on the previously ignored subject of sexual assault”* (Herman, 1992, p.30). Hence, awareness of traumatic responses resurged, inspiring not only a considerable number of studies on the prevalence and impacts of female rape (Herman, 1992), but also other domains of female victimization. Once the scope of violence became more well known, it became apparent that a substantial number of women also had experienced multiple and long-term abuse such as domestic violence, battering, and

childhood sexual abuse (Herman, 1992). Rape survivors and battered women themselves founded programs and shelters for similar victims, while an additional force began to be felt in the late 1970s toward recognizing the pain felt by other trauma sufferers, such as the relatives of murder victims (Young & Stein, 2004).

As a consequence, most psychological research into victims of crime has focused on female rape and sexual assault (Kilpatrick & Koss, 2001). Nevertheless, since the 1980s interest into childhood neglect and abuse has resurfaced (Finkelhor & Browne, 1984; Van der Kolk et al., 1996), while a growing number of studies are devoted to intimate partner violence (Woods, 2004). Other forms of interpersonal violence such as homicide, however, have received a lot less research attention and only very few studies overall have explicitly focused on victims of “minor offences” such as theft, indecent assault or property damage (Grant, David, & Cook, 2002; Kilpatrick & Koss, 2001).

Impacts on Definitions

Victims of Crime

The socio-political environment and the concomitant legal system also define how “victims” and “crimes” are conceptualized. Accordingly, it is a complex undertaking to define who is a victim of crime. The UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power has defined “victims” as

(...) persons who, individually or collectively, have suffered harm, including physical or mental injury, emotional suffering, economic loss or substantial impairment of their fundamental rights, through acts or omissions that are in violation of criminal laws operative within member states, including those laws proscribing criminal abuse of power (...)

(UN, 1985)

This conceptualization is fairly broad, in that it includes anyone who is victimized as a result of a violation of the existing criminal laws, while also including offences which relate to an abuse of power (Grant et al., 2002). Furthermore, the UN declaration

includes secondary victims of crime who are often not considered in psychological research (Kleber, Figley, & Gersons, 1995), for example the definition includes family members and witnesses of violence such as trauma support workers or trauma affected communities: (...) *the term „victim“ also includes, where appropriate, the immediate family or dependents of the direct victim and persons who have suffered harm in intervening to assist victims in distress or to prevent victimisation* (UN, 1985).

Another definition by Rock (2002, cited in Goodey, 2005) promotes a comparatively dynamic understanding of the “victim” construct, emphasizing the role of different actors across a variety of contexts (Goodey, 2005):

(...) „victim“; in other words, is an identity, a social artefact, dependent, at the outset, on an alleged transgression and transgressor and then, directly or indirectly, on an array of witnesses, police, prosecutors, defence counsel, jurors, the mass media and others who may not always deal with the individual case but who will nevertheless shape the larger interpretive environment in which it is lodged (Rock, 2002, p. 14).

Thus, both definitions show that the role of a victim is subject to particular societal rules (or criminal laws), which are executed by societal institutions such as the criminal justice system. Moreover, the perceived identity of a victim is shaped by this very system. As a consequence, a common understanding on the victim concept can only be reached within a particular society or between societies with similar cultural and social values.

There has been a debate on the use of the term “victim” versus that of “survivor”, as the word “victim” may be associated with several negative connotations. When the study of victimology first began, there was a strong tendency to attribute responsibility for the crime to victims (Goodey, 2005). Even though feminist criminologists in the 1970s heavily condemned these attitudes, a flavour of “victim precipitation” or “victim blaming” is still existent today, particularly when it comes to phenomena such as repeated victimization (Goodey, 2005). Furthermore, the term “victim” may convey passivity and an inability to control a situation, which may

impact on psychological functioning. In relation to research into victims of crime, labeling potential study participants as “victims” could influence recruitment and sample selection, and, ultimately, the outcomes of the psychological interventions. On the other hand, a use of the term “victim” could also be interpreted as an acknowledgment of people’s suffering and, in this way, might be seen as fostering rapport. For this reason, and also because of the firm establishment of the expression within the English language and Australian culture, the term “victim of crime” was retained in this research project and, where appropriate, used interchangeably with the term “survivor”.

Crime

The conceptualization of a “crime” defines what makes a person a victim; that is, what is considered as a violation of fundamental societal rights:

A crime is an offence that merits community condemnation and punishment, usually by way of fine and imprisonment. This is different from a civil wrong (a tort), which is an act against an individual that requires compensation or restitution. (Legal Services Commission of South Australia, Law Handbook, revised 09/11/2005)

Thus, the major goal of a crime definition is to maintain a particular social order by a formalized way of social control. In Wikipedia it is further suggested that (...) *the label of „crime“... is normally reserved for those activities that are injurious to the general population (...). The label is intended to ...reflect a consensus of condemnation for the identified behaviour (...).* (Wikipedia, modified 30/06/2008).

Accordingly, the conceptualization of crimes and its victims is based on the majority’s ideas about appropriate or inappropriate conduct and its cultural values, and this influences the validation and support a victim experiences in a particular society. In effect, existing attitudes towards victimization determine the degree of social responsibility taken by the society (Mc Farlane & Van der Kolk, 1996). For example, Western Industrialized Nations may hold an “*illusion of safety and predictability*” (Mc Farlane & Van der Kolk, 1996, p. 27), which may interfere with a recognition of the suffering of people subjected to unspeakable experiences.

In the present research project, the principal focus was on the subjective experiences of victims of crime. Hence, it was not considered a priority to ascertain that the crime experiences of participants were officially recognized as such, for example in form of police reports or an involvement in the criminal justice processes. Moreover, differentiations were not made between minor (e.g. aggravated assault, theft, stalking) and major indictments (e.g. murder, robbery, rape) and breaches of legal or civil rights.

As a consequence, people who had been subjected to either criminal or civil wrong doing and defined themselves as a “victim of crime” were invited to participate in the research project along with secondary crime victims.

Trauma

Finally, it is important to detail the understanding of “trauma” in the present research project. The origin of the term “trauma” goes back to the Greek word for “wound” (Wikipedia, 2008), and refers to a physical rather than psychological condition. Surprisingly, “trauma” is rarely defined in psychological studies, implying a common understanding on the idea of traumatization. In fact, there is considerable uncertainty surrounding the concepts of “trauma” and “traumatic stress”. Some authors refer to “overwhelming, uncontrollable, and terrifying life events” (Van der Kolk, 1987, pp.1) or “extreme stress” (Schnurr & Green, 2004). Resick (2001) compared various forms of stress and defined trauma in terms of its “sudden, unexpected and threatening” nature (Resick, 2001, p.4), while emphasizing the perception of danger to one’s body and mind and a concomitant shift into “survival mode”. Similarly, in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, 4th ed., American Psychiatric Association, 1994, see Appendix T, p. 466), the stressor criterion (or trauma) is defined as an event that involves actual or threatened death, serious injury, or a threat to the physical integrity of self or others. Moreover, a DSM diagnosis requires that the person has experienced intense fear, helplessness, or horror.

In most studies, trauma is referred to as an event, whereas some authors have rather focused on its impacts, arguing that an event *per se* is not necessarily or inherently traumatizing (Van der Hart et al., 2006). In the present project, the type of

trauma is pre-determined by a concentration on victims of interpersonal violence, thus strongly focusing on the event as a causal factor of traumatization. Thereby, it is assumed that a confrontation with a crime experience bears a high risk of traumatization due to its unexpected, terrifying, and uncontrollable nature. Nevertheless, it is also acknowledged that not every victim of crime necessarily develops symptoms of traumatization.

Taken together, a crime experience becomes traumatic when it exceeds a person's integrative capacities which results in imbalance, maladjustment, and, on a broader level, an inability to live a fulfilled life.

Structure of the dissertation

This thesis comprises three different empirical investigations which are embedded into eight chapters. Due to the comprehensive character of the topics studied, a thorough introduction to the single studies will be provided in the respective chapters. A short overview of the chapters will be presented below.

Chapter One provides a review of the literature on various facets of trauma research. Part I focuses on psychological and physical sequelae of victimization, starting with an overview of epidemiological data on the prevalence of crimes. The next section describes psychological impacts of victimization in light of various conceptualizations of posttraumatic illness. Following this, etiological models of posttraumatic illness are presented, with an integration of both psychological and neurobiological theories. Subsequently, evidence on physical health impacts in victims of crime is scrutinized with a special emphasis on immunological changes.

Part II provides an overview of empirical findings on psychological treatments of crime victims. In this section, it is highlighted that cognitive-behavioural treatment approaches have yielded the most consistent findings in relation to treatment efficacy. However, it is argued that the considerable attention given to CBT approaches may have led researchers to overlook other potentially promising treatments such as hypnotherapy.

Accordingly, the last section elaborates on the usefulness of hypnosis in trauma therapy, highlighting the long history of hypnosis in trauma treatment in light of divergent theoretical stances. Some of the empirical findings relating to hypnotherapy treatments are described.

Chapter Two provides a description of the methodological framework of the present research project. A rationale for a mixed methodological approach is provided, along with an introduction of the research design. Furthermore, the major research questions are detailed. This section also outlines the epistemological and ontological position of the researcher, and locates the present project within a pragmatist paradigm. The chapter also aims at a description of the research context in terms of the socio-political and legal context, as well as the research environment.

Chapter Three describes Study I which involves a comparison of victims of crime with a normally stressed community sample without a history of traumatic experiences. Differences in psychological symptoms and biochemical markers are investigated, based on propositions derived from a bio-psycho-immunological model on the relationship between stress and disease (The Oxidative Model, Blake-Mortimer, Winefield, & Chalmers, 1996). The associations between psychological and biochemical variables are explored and discussed in view of psycho-neuroimmunological findings in posttraumatic illness.

Following the quantitative between-group analysis in Chapter III, *Chapter IV* describes a qualitative Framework Analysis of semi-structured interviews with victims of crime (Study II). In doing so, individual stress conceptualizations are elaborated, yielding a major impact of traumatic memories along with various other stressors. Moreover, the study sheds light on interactions between crime-related stress, previous trauma and other complicating life circumstances. It also explores coping strategies, experiences with professional services, and individual meanings of trauma.

Chapter V describes the rationale and content of a combined cognitive-behavioural / hypnotherapy treatment for VOC. The specific mechanisms of cognitive behavioural and hypnotherapeutic components are elaborated along with an overview of general hypnotherapeutic principles.

Chapter VI details the evaluation of the treatment program which included both an outcome and process evaluation. This chapter also describes findings of the quantitative analysis which suggests that a proportion of the study participants can benefit from the interventions, whereas a considerable number of victims of crime are not able to complete treatment.

Taking into account the high rate of people who discontinued treatment, *Chapter VII* seeks to extricate the differences between treatment completers and non-completers, employing a qualitative Framework analysis of the treatment sessions. The overall results suggest a need for a different theoretical framework which can cater for victims of crime suffering from complex traumatization. Accordingly, the Theory of Structural Dissociation (Van der Hart, Nijenhuis, & Steele, 2006) is introduced and discussed in its implications on further research and practice.

In *Chapter VIII*, the major conclusions from the entire research project are summarized with a particular emphasis on the consequences for research and evidence based practice. The chapter also includes a final reflection on the PhD process and impacts of this research on the investigator.

Literature Review

The aim of this chapter is to provide a general theoretical framework to describe the wide range of problems faced by victims of crime. The first part of this chapter will outline the prevalence of crimes in the general community and treatment seeking samples. The significant psychological impacts of victimization will then be described, along with various conceptualizations of posttraumatic illness. This will be followed by an overview over the major etiological models for posttraumatic illness with a consideration of both psychological and biological theories. Included in this chapter will be a discussion of research that has investigated physical health problems in victims of crime with a special emphasis on alterations in immune functioning. Finally, empirical findings on current psychological treatment approaches will be presented with a particular emphasis on cognitive-behavioural and hypnotherapy treatments.

1.1 Victimization in the general community and in treatment-seeking samples

Prior to the presentation of quantitative accounts of crime rates, some descriptions of the forms of epidemiological research in victims of crime will be provided.

According to O'Brien (1998), epidemiological data in trauma research can be categorized into three classes of data sources: treatment seeking clients, high risk groups and general community studies. Whereas the latter seems most critical for an understanding of the immense range of problems for the wider community, an understanding of the complexity of the problems in treatment-seeking samples as well as in high risk groups has a particular relevance for the present research project. Thus, in the following overview, data from general community studies will be contrasted

with findings from treatment-seeking samples and high risk groups. The empirical findings below, however, can only give a small indication of the extent of existing violence and should not be viewed as a comprehensive account of incidence rates. Also, caution needs to be taken when comparing epidemiological data across studies. Some studies refer to incidence rates, whereas others report a life-time prevalence or crime frequencies experienced during a defined life period.

1.1.1 Rape, sexual assault and childhood sexual abuse

The first US National Survey on adults with a history of childhood sexual abuse was conducted in 1985, revealing that 27% of the interviewed women, but also 16% of the male participants, had experienced some form of childhood sexual abuse (Finklehor, Hotaling, Lewis & Smith, 1990). Similarly, Saunders, Villepontoux, Lipovsky, Kilpatrick and Veronen (1992) reported that, in their National Community Study sample of 391 women, one third had been a victim of rape, molestation or sexual assault prior to the age of 18. In another large National Sample of Women (n=4008), Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) found that about 12 million (12.7%) women in the United States had experienced a completed rape, while nearly 14 million (14.3%) had encountered another type of sexual assault some time in their life.

In addition, some studies have demonstrated that experiences of childhood sexual abuse (CSA) are more frequent than adult rape, with twice as many women having experienced CSA (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Moreover, child abuse histories were frequently reported in mental health settings, with numbers varying between 35-50% (Cloitre, Koenen, Cohen, & Han, 2002).

In comparison to these findings, somewhat lower lifetime prevalence rates were reported by Kessler et al. (1995) who found that 9.2% of the women in their frequently cited National Comorbidity Study (n=5877) experienced rape, while another 12.3% of the female participants had reported sexual molestation. Similarly, Breslau et al. (1998) reported that 9.4% of the women in the Detroit Area Survey of

Trauma had been raped, whereas the same number was found for sexual assault incidents.

In Australia, Creamer, Burgess & McFarlane (2001) found substantially lower reports on rape (5.4%) in the Australian National Survey of Mental Health and Well-being (n=10,641), while 10.2% of the interviewed women reported experiences of sexual molestation. In a German study, Perkonigg, Kessler, Storz, and Wittchen (2000) revealed rape experiences in 2.7% of their 14 to 24 years old respondents

1.1.2 Intimate partner violence (IPV) in women

Inconsistent prevalence rates have been found in relation to intimate partner violence. The US National Violence Against Women Survey (NVAWS) revealed that nearly a quarter of the interviewed women reported a lifetime prevalence of physical or sexual assault, or both by either a current or a former intimate partner (Tjaden & Toennes, 2000). However, other authors have reported even higher prevalence rates of IPV, associated with lower income levels, urban living and increased socio-economical problems (Collins, Schoen, Joseph, Duchon, Simantov, & Yellowitz, 1999; Cunradi, Caetano, Clark, & Schaefer, 2000; Hampton, Oliver & Magarain, 2003; Rennison & Planty, 2003). Looking at incidence (point prevalence) rates, the NVAWS revealed a current IPV rate of 1.8%. In contrast, point prevalence rates as high as 13.6% were reported in the 9th National Alcohol Survey in the US, considered as a high risk population (Schaefer, Caetano & Clark, 1998). Likewise, numbers were very high in primary health care settings, where rates between 12-29% for current and 20-39% for lifetime IPV were estimated (Naumann, Langford, Torres, Campbell, & Glass, 1999).

1.1.3 Other crimes

Unfortunately, reports on crime incidence rates become even more sparse when one considers other types of crime. Amick-McMullan, Kilpatrick & Resnick (1991) conducted a study on the lifetime prevalence of homicide in a nationally representative sample of adults (n=12500) and found that 3.8% of their sample had

lived through a homicide of an immediate relative. However, in their National Sample of Women, Resnick et al. (1993) reported that the percentage of homicide victims was as high as 13.4%.

Norris (1992) examined the lifetime prevalence of physical assault in four cities in the US and found rates of 11.7% for female and 18.7% for male participants. In comparison, Kessler et al. (1995) reported that witnessing someone being badly injured or killed was the most frequently experienced crime for men (35.6%), followed by threats with weapons (19%) and physical attacks (11.1%). Breslau et al. (1998) found that 34% of the men in their study had been threatened with a weapon, 8% shot or stabbed, and 13.1% badly beaten up. The authors also identified that assaultive violence was higher in non-whites and people with a lower education and income level. Furthermore, age-specific risks of trauma were found. The likelihood of assaultive violence was highest at 16-20 years of age, followed by a sharp decline after the age of 20 and again after 45 years of age.

German research conducted by Perkonigg et al. (2000) described a lower incidence rates for physical assault in 14.1% amongst men. In addition, they determined that the greatest risk of victimization was associated with being female, older and in a lower social class. This was inconsistent with the above mentioned findings from Breslau et al. (1998), as well as other reports demonstrating higher criminal victimization rates in young males (Grant, David & Cook, 2002). However, it is noteworthy that Perkonigg et al.'s study was based on the more stringent DSM-IV (Diagnostic and Statistical Manual for Mental Health Disorders, American Psychiatric Association, 4th ed., 1994) criteria, while most of the above mentioned earlier studies were based on DSM-III-R criteria (Diagnostic and Statistical Manual for Mental Health Disorders, APA, 3rd ed., 1987) (Perkonigg et al., 2000). Finally, the previously mentioned Australian study by Creamer et al. (2001) revealed that threat with a weapon was the most frequently mentioned crime experience in men (16.5%), closely followed by physical attacks (12.9%). The authors concluded that their findings closely resembled those determined by Kessler et al. (1995), apart from lower accounts on rape in females (Creamer et al., 2001).

Looking at recorded crime statistics in Australia, it is estimated that over one million people become a victim of crime each year (Grant et al., 2002). The Sixth National Australian Bureau of Statistics (ABS) Household Survey On Crime and Safety (2005) reported that, during the last twelve months, 6.2% of the interviewees were exposed to household crimes such as unlawful entry into the house or motor vehicle theft. Also, 5.3% of people had experienced personal crimes such as robberies, physical and sexual assault, with physical and sexual assaults having substantially increased in terms of numbers and severity.

A higher rate was found in young, unmarried and unemployed people (Australian Bureau of Statistics (ABS), 2005; Ross & Polk, 2005), while 15 to 19 year olds seemed to be at a generally higher risk of victimization. The ABS also reported that males are more frequently offended than females. However, these numbers vary depending on the type of crime: Homicide victims are more likely to be male and aged between 25-34 years, while most assault victims were younger males (15-19 years) or over the age of 55 years. Younger females, on the other hand, seem more at risk for sexual assaults (Grant et al., 2002; Ogilvie & Lynch, cited in Graycar & Grabwosky, 2002). Also, young people with a lower socioeconomic status are more likely to have witnessed some form of family violence, with higher rates in Indigenous Australians and other minority groups. For example, Ogilvie and Lynch (2002) reported 5.6 times higher rates of homicide in Filipino women, while homosexual people were 4-6 times more likely to experience physical assault. Grant et al. (2002) also highlighted the fact that most crimes take place in a residential setting, which means that the offenders are mostly known to the victim. For example, 31% of homicides are conducted by a family member, while females are more likely to be assaulted by someone they know. Accordingly, Acierno, Resnick, Kilpatrick, Saunders, & Best (1999) reported that, in the United States, 62% of the attacks on women were committed by a familiar person.

Lastly, it should be mentioned that people who have experienced one crime are more likely to experience another one (Creamer et al., 2001; Resnick & Kilpatrick, 1994). In Resnick et al.'s (1993) study, less than 50% had experienced a single crime incident, while all other crime victims had been exposed to at least one more crime event or repeated victimization in relation to the same type of crime

(Resnick et al., 1993). These data are consistent with reports from the Australian Bureau of Statistics Survey, which indicates that more than half of the assault victims had reported more than one assault experience in the very same year (ABS, 2005).

1.1.4 Identified problems with respect to epidemiological research in VOC

The abovementioned accounts on prevalence rates illustrate a substantial variability in findings, while at the same time pointing to a wide range of methodological difficulties inherent in epidemiological research on VOC. While it is widely acknowledged that official crime figures count as one of the most unreliable social data (Ross & Polk, 2005), systematically conducted community research studies have also lacked consistency due to a number of factors.

Although it is estimated that about 14 to 25% of adult women in the US have experienced rape some time in their life (Koss & Kilpatrick, 2001), it can be assumed that rape and sexual assault as well as IPV are drastically underreported, e.g. because of a high degree of self blame, shame, avoidance, fear of retaliation, or a fear of stigmatization. The Australian Bureau of Statistics Survey estimated that only 15% of women reported their sexual assault to police, and only 8% referred to a crisis service (ABS, 1996). Furthermore it is noteworthy that rape experiences frequently occur in the context of other trauma such as war and torture (Basoglu et al., 1994; Seifert, 1996). Similarly, physical assault and homicide often take place in conjunction with domestic violence (Kilpatrick & Koss, 2001).

Another major difficulty in epidemiological research is the lack of a methodological consistency. Differences in assessment methods as well as different conceptualizations of “rape”, “sexual assault”, “completed rape”, and “interpersonal violence” interfere with the comparability of data (Koss, 1993; Resnick et al., 1993). IPV, for example, may or may not include emotional violence or there may be differing ideas about “abuse” within an intimate partnership context. Clearly, conceptualizations become even more complicated in cross-cultural research, as for example the stigma associated with rape varies from country to country and becomes

particularly problematic when it comes to experiences such as marital rape (Fischbach & Herbert, 1997). In line with these ideas, Kilpatrick et al. (1987) note that a comparison of crime prevalence rates across countries is aggravated by differing definitions of crime and the use of different data sources. Accordingly, Fischbach and Herbert add that cross-cultural findings have to be interpreted carefully as “violence” becomes only evident within a particular cultural understanding (Fischbach & Herbert, 1997).

With respect to the assessment, the methods of data collection should be taken into account. For example in the NVAWS (2000), people were assessed by telephone, while face to face interviews were conducted in the National Alcohol Survey (Schaefer et al., 1998), thus possibly facilitating the disclosure of sensitive information (Woods, 2004).

Caution also needs to be applied when official statistics are interpreted, because they often refer to primary crime victims only, neglecting the number of people actually affected in the community (Grant, David & Cook, 2002). Furthermore, official records such as police reports may indicate reasonably correct numbers of homicides, but not adequately represent other types of crime. Moreover, government based crime statistics usually refer to the last twelve months only, rather than to a lifetime prevalence.

Finally, “lower threshold crimes” such as burglary, home invasions, robberies, and motor vehicle theft do not always receive a lot of attention in crime prevalence studies. This, however, may not be justified, as also victims of “minor” crimes may also experience profound psychological impacts (Grant, David & Cook, 2002).

In sum, the results of epidemiological studies on criminal victimization vary considerably depending on sample characteristics, assessment methods, and differences in conceptualizations. Furthermore, various diagnostic criteria were used across studies. In addition, most of the data stem from the United States whose high crime rates may not be representative for other countries (Reiss & Roth, 1993). Evidently, this aspect is even more important when comparing epidemiological data across different cultures.

However, it is important to note that even low crime incidence rates warrant an interest in the consequences of criminal victimization, particularly given the assumption of underreporting and the pervasive negative impacts of crime. In fact, a considerable number of studies have established alarmingly high rates of criminal victimization, indicating that, despite varying reports on incidence rates, a considerable number of people will experience violence some time in their life.

The following section will describe empirical findings on the wide range of psychological responses to criminal victimization.

1.2 Posttraumatic illness in victims of crime

It remains a challenging task to capture the full extent of psychological impacts after a crime experience, as many victims of crime may not report their experiences and/or withdraw themselves from public life (McFarlane & Van der Kolk, 1996). Furthermore, many psychological reactions may be confounded by other stressors and effects of previous traumatization. Also, it should be acknowledged that there are crime survivors who have found effective ways of coping with their adverse experience(s) (Bonnano, 2004; O'Brian, 1998) or develop only sub-threshold and temporary trauma symptoms (Armstadter, McCart, & Ruggiero, 2007).

On the other hand, there is a general consensus that a significant number of victims report a whole range of emotional, behavioural, cognitive and physical problems which interfere with nearly every aspect of their life. Many of these psychological problems are now interpreted within the diagnostic framework of Posttraumatic Stress Disorder (PTSD). However, a PTSD diagnosis was only established in DSM-III in 1980, while accounts on traumatic stress symptoms have been known for a long period of time. In addition, some psychological reactions reach well beyond PTSD or overlap with other disorders, and thus are best described in their own right.

1.2.1 Psychological reactions before and beyond PTSD

The first systematic research studies in victims of crime mainly focused on rape victims. Hence, the following section will describe findings on the longer-term consequences of rape which was mainly conducted throughout the 1980s, followed by research into the general impacts of victimization.

1.2.1.1 Early research on the consequences of rape

While earlier research into criminal victimization had mainly focused on offenders (Kilpatrick, Resick & Veronen, 1981), the psychiatric nurse Ann Burgess and the sociologist Lynda Holmstrom (1974) were amongst the first researchers emphasizing the psychological impacts of rape, which was followed by a tremendous research activity targeting the psychological sequelae of this experience. Burgess and Holmstrom interviewed 146 rape victims immediately upon their admittance to an emergency ward. After that, over a period of one year the participants were followed up by telephone counselling or home visits. The observed symptoms were subsumed under the “Rape Trauma Syndrome”, characterized by two different phases: The acute “disorganization” phase originates immediately after the rape and can persevere for several weeks. The major symptoms displayed in this phase are fear and anxiety, but also somatic problems, and a wide range of other emotional reactions. Subsequently, a “reorganization” phase follows, characterized by an increased mobility and life changes, avoidance behaviours, and a growing need of social support (Burgess & Holmstrom, 1974).

Further studies on the longer-term consequences of rape followed. Kilpatrick, Resick and Veronen (1981) compared 20 adult rape victims to a control group of non-victims and found that the greatest differences between the two groups occurred at one month post-assault, though their rape victims still exhibited more obsessive compulsive symptoms, higher trait anxiety and more phobic anxiety, increased paranoia and psychotic symptoms even one year after the assault.

Similarly, Ellis, Atkeson and Calhoun (1981) examined 27 victims who had experienced rape at least one year prior to the assessment, as compared to matched

non-victim controls. In their sample, the victims were significantly more depressed and fatigued, reported more tension, less enjoyment and less life satisfaction, while half of the sample mentioned suicidal ideations. Furthermore, interpersonal problems with family members, isolation or over-dependence were reported along with impaired role functioning, guilt, sleep disturbances and nightmares.

Nadelson, Notman, Zackson and Gornick (1982) also focused on longer term effects of rape experiences and interviewed 41 women between 15 and 30 months post-rape. Nearly 50% reported terror, horror and fear of a repeated rape, while three quarters mentioned fears relating to being alone, sleep, noise, darkness and men in general. Other reactions described were a sense of degradation, a decrease in self-esteem, indignation, guilt, anger, bitterness, aloofness and sexual difficulties, along with well known clinical symptoms such as anxiety attacks, depression, lack of concentration, sleep disturbance, recurring intrusive thoughts and a sense of unreality. Furthermore, a pervasive suspiciousness of others and distrust were reported.

Calhoun, Atkeson and Resick (1982) shed further light on the longitudinal course of rape experiences in an investigation of 115 rape survivors which were assessed over a one year period following their assaults. In line with Kilpatrick et al. (1981), they revealed that the overall fears scores in rape victims stabilized at about two months post-assault, but remained significantly higher in victims as compared to non-victims, even after 12 months. The most highly rated fears were related to rape cues, tissue-damage and classic fear provoking situations such as height or enclosed places.

Sales, Baum and Shore (1984) also pointed to a long-term course of posttraumatic symptoms, demonstrating a re-activation of symptoms after six months post-assault. Interestingly, Burgess and Holmstrom (1974) were able to contact their rape victims four to six years after their initial study. They found that 26% of the interviewed women had not yet recovered from their crime experience, while 37% reported that they had suffered for more than a year (Burgess & Holmstrom, 1979).

In sum, it can be concluded, that even early research, demonstrated a wide range of psychological consequences of rape. Some of the studies reported a reduction

of symptoms after a period of about two months, but there was also evidence of a re-activation of symptoms and considerable longer-term impacts. Even though the actual time frames given differed between studies, it seems appropriate to conclude that some rape victims still displayed high anxiety levels some years after the rape experience.

1.2.1.2 General reactions to victimization

While most of the above mentioned studies were conducted on rape victims, there was also a strong trend to look into general (cognitive) reactions to victimization, based on the assumption that there may be important similarities in psychological responses.

Janoff-Bulman and Frieze (1983) emphasized that victimization leads to shattered assumptions about one's personal invulnerability, the meaningfulness and comprehensibility of the world, as well as one's positive self-image. According to the authors, these assumptions are critical to the planning and ordering of behaviour, thus constituting an important component of a successful recovery from trauma.

Miller and Porter (1983) stressed self-blame as a general reaction to violence, highlighting different facets of self-blame such as blame for causing the violence, for not being able to modify it, or for tolerating it. Self blame and related reactions, so the authors, are a result of differing attribution styles, e.g. whether a certain behaviour during the crime is considered as stable or changeable. Interestingly, and in contrast to authors such as Abramson, Seligman and Teasdale (1978) or Aaron Beck (1967) who considered self blame as a prototypical symptom of depression, Bulman and Wortman (1977) emphasized its potential to establish a sense of meaning and control which enables coping (Bulman & Wortman, 1977).

In her 1983 review, Perloff contrasted the "illusion of invulnerability" in non-victims with a sense of increased vulnerability in crime survivors. While the term "vulnerability" is somewhat vague and subject to definition, vulnerability here refers to a change from a previously benign, familiar, and unthreatening environment to the

opposite with a perceived loss of security and predictability, as well as a sense of mortality (LeJeune & Alex, 1973; Perloff, 1983). In particular, Perloff highlighted a concept called “unique vulnerability” in victimized people, referring to the belief of being more vulnerable than other people. As a consequence, people experience higher levels of stress, anxiety, depression and decreased self-confidence.

In sum, research on general impacts of victimization had a strong cognitive focus which will be further elaborated below as part of the description of etiological models of posttraumatic illness. Furthermore, models for recovery are emphasized via a re-interpretation and integration of shattered assumptions held by victims.

1.2.2 Posttraumatic Stress Disorder (PTSD)

As mentioned previously, PTSD is the most frequently reported diagnosis associated with traumatic stress and, as a consequence, has attracted tremendous research interest since its recognition as an independent diagnostic category in 1980. To qualify for a diagnosis, the three symptom clusters reexperiencing, avoidance and hyperarousal have to persist for more than one month following a traumatic event (DSM IV, 1994). However, as with the above mentioned findings on trauma, PTSD needs to be understood beyond its function as a diagnostic category, that is, mainly as a result of socio-political movements and a reflection of societal attitudes towards trauma.

As illustrated above, many of the PTSD symptoms have been described before its establishment as a distinct diagnosis (Van der Kolk & McFarlane, 1996). O’Brian argues that PTSD symptoms have been reported as early as in the seventh century. In this context, he cites Merlin’s withdrawal tendency which was interpreted as a reaction to battle trauma: “... *a wild man who went away to live alone in the woods... as he was affected by the sounds and sights of terrible battle*” (O’Brian, 1998, p.7).

Furthermore, PTSD symptoms were described during the Industrialization in the 19th century with its frequently occurring railway accidents, often expressed as “railway spine” or “nervous shock” (Trimble, 1984). By the end of the 19th Century,

the previously mentioned extensive studies on hysteria shed further light on the wide range of trauma-related symptoms (Van der Kolk, Weisaeth, & Van der Hart, 1996). Nevertheless, it was the war experiences, namely the American Civil War and subsequently World War I and II, that inspired case reports on soldiers who suffered from a broad range of symptoms, named conversion hysteria, stupor, hyperarousal, dyspnoea, confusion, sleep disturbances, night mares, and irritability (O'Brien, 1998).

Although not all of the described problems may be conterminous with current PTSD criteria, it took another two wars for the diagnosis to be established. After World War I, "shellshock" was a commonly mentioned diagnosis. However, many soldiers showed the same symptoms as "hysterical" women, thus leading to a conceptualization as "combat neurosis" (Herman, 1992). With the end of the Vietnam War, Vietnam veterans demonstrated an inability to readjust and assimilate, thus creating considerable social problems by exhibiting deviant behaviours, substance abuse and a whole range of mental health problems (O'Brien, 1998). In this anti-war climate, the frequently described symptoms were compiled by Vietnam vets themselves, which eventually defined the syndrome of PTSD and its direct link with combat exposure (Herman, 1992; Van der Kolk et al., 1996). However, it was only later that systematic studies on PTSD criteria were undertaken.

1.2.2.1 PTSD prevalence in victims of crime

As with reports on criminal victimization, PTSD figures are described in terms of both, prevalence and incidence rates. Prevalence refers to the percentage of the population that has presented with PTSD during a defined period of time, whereas incidence describes the rate at which new diagnoses occur after a potentially traumatizing event (Australian Centre for Posttraumatic Mental Health (ACPMH, 2007). Looking at PTSD prevalence rates in the general community across various types of trauma, rates vary considerably depending on the population and methods of assessment (ACPMH, 2007).

Rather low PTSD lifetime prevalence rates between 1 and 2% were described by Helzer, Robins, and McEvoy (1987), Davidson, Hughes, Blazer, and George

(1991) , and Perkonigg et al. (2000). In contrast, Breslau et al. (1998) revealed that 9-13% of the women and 6% of the men in their 1996 Detroit Area Survey of Trauma reported a lifetime history of PTSD. Similarly, Resnick et al. (1993) described lifetime PTSD in 12% of their study participants. Also, in many studies, the PTSD rates for women have been reported twice as high as those in men (Breslau, Davis, Andreski, & Peterson, 1991; Kessler et al., 1995; Perkonigg et al., 2000; Stein, Walker, Hazen, & Forde, 1997). However, this finding has not always been obtained. For example, Creamer et al. (2001) reported no significantly higher prevalence among women in the Australian National Survey of Mental Health and Well-being.

In more recent research, a lifetime PTSD prevalence of 5-10% is reported in community samples (ACPMH, 2007), although, as the authors concede, these figures may be somewhat misleading in that an estimated 50% of trauma victims recover during the first twelve months following trauma exposure. Accordingly, findings on a 12-months prevalence of PTSD are much lower and vary between 1.3% in Australia (Creamer et al., 2001) and 3.9% in the United States (Kessler, Sonnega, Bromet, Hughes, Nelson, & Breslau, 1999).

There is now a substantial amount of evidence that the nature of crime exposure influences the risk to develop PTSD (ACPMH, 2007) which may at least partly account for the higher PTSD rates in women (Nemeroff et al., 2006). Resnick et al. (1993) found a significantly higher lifetime PTSD rate in VOC versus victims of other trauma (25.8% vs. 9.4%). More specifically, the PTSD prevalence rate was 24% for crime survivors in general and 32% for survivors of completed rape, while rates were even higher when fear of death and injuries were involved. Prior to that, Kilpatrick, Saunders, Amick-McMullan, Best, Veronen, and Resnick (1989) had identified completed rape, life threat, and injury as critical factors for the development of PTSD with rates as high as 80%, when all three factors were present.

Consistently high PTSD rates in rape victims were also reported in other studies. Creamer et al. (2001) found the highest rate of PTSD (18%) in women who had experienced rape or sexual molestation, while Kessler et al. (1995) reported a lifetime prevalence for PTSD in 65% of the male and 44% of the female rape victims in the National Comorbidity Study (NCS). Also, Stein and Kennedy (2001) found a

50% lifetime prevalence of PTSD in victims of IPV, although it should be acknowledged that most of these participants had also experienced childhood maltreatment.

Bennice, Resick, Mechanic, and Astin (2003) suggested that sexual violence was a greater risk factor for PTSD than physical violence. However, high rates of PTSD are also reported in conjunction with physical assaults and other crimes; Kessler et al. (1995) found that 33% of the women and 22% of men who had experienced physical abuse or were threatened with a weapon qualified for a lifetime diagnosis of PTSD. These findings are similar to Breslau et al. (1991) who found the highest PTSD risk in survivors of violent assaults. In addition, Amick-McMullan et al. (1991) reported that 23.3% of their sample of 206 homicide victims fulfilled a diagnosis of lifetime PTSD, while 12.8% had met the criteria during the preceding six months. Furthermore, Lee, Isaac and Yanca (2002) reported very high estimates of a PTSD prevalence between 28 and 35% after acts of terrorism.

It can be concluded that VOC of crime are facing a high likelihood of developing PTSD. Furthermore, the manifestation of the disorder seems to be dependent on the type of crime experienced, with rape and sexual assault bearing the greatest risk for women, while witnessing violence appears to be a strong predictor in men (Armstadter et al., 2007). In addition, research has shown that multiple trauma experiences considerably increase the risk to develop PTSD which is particularly critical in VOC, as they are frequently re-victimized (Armstadter et al., 2007; Hedtke, Ruggiero, Saunders, Resnick, & Kilpatrick, 2007; Kilpatrick & Koss, 2001, Ozer, Best, Lipsey, & Weiss, 2003).

Finally, it should be noted that there are many other PTSD risk factors apart from multiple victimization. A study by Johansen et al. (2007) found that perceived life threat, prior experiences of violence, peritraumatic dissociation and ASD were predictors of PTSD in physical assault victims besides perceived low self-efficacy and low perceived social support. These findings are supported by a whole range of other studies on PTSD predictors (McFarlane, 2000).

1.2.3 Comorbidity

There is now sufficient evidence for a high incidence of comorbid disorders in conjunction with PTSD. In fact, a consensus statement on PTSD from 2000 (Ballenger et al., 2000) concluded that “simple” PTSD without comorbid conditions is uncommon in PTSD sufferers. Ballenger and his colleagues estimate that 60 to 80% of the people diagnosed with PTSD experience secondary depression. Accordingly, in her book “Trauma and Stress” (2001), Patricia Resick (2001) emphasized that the vast majority of PTSD sufferers present with at least one other clinical disorder. More specifically, Kessler et al. (1995) found that 79% of the female and 88% of the male PTSD sufferers in the NCS met the criteria for at least one other diagnosis. Also, the authors determined that affective, anxiety and substance disorders were the most frequent comorbid conditions in PTSD. Moreover, the Australian National Comorbidity Study (Creamer et al., 2001) reported that 88% of the PTSD sufferers had at least one other diagnosis, while major depression (48%) and alcohol abuse (52%) were the most frequent co-existing conditions. In addition, 59% of the PTSD sufferers met the criteria for three or more diagnoses, whereas 51% indicated an Axis-II diagnosis. Also, the authors described that, in most cases, PTSD was the preceding condition (Creamer et al., 2001).

In line with these results, high comorbidity rates between depression and PTSD have been highlighted by various researchers (Ballenger et al., 2000; Resick, 2001). Spinnazzola, Blaustein, and Van der Kolk (2005) suggest that major depression accompanies 37-48% of PTSD cases, followed by alcohol abuse and – dependence (28-52%), simple phobia (29-31%), social phobia (28%), and agoraphobia (16-22%). Moreover, a substantially increased frequency of suicidal ideations and risk behaviours has been observed in PTSD sufferers (Ballenger et al., 2000). In their epidemiological study, Davidson et al. (1991) reported that the likelihood for a suicide attempt was nearly 15 times higher in PTSD sufferers, as compared to people with other mental health problems. Even more alarming, the likelihood of suicide attempts was still eight times higher, when controlled for depression. Correspondingly, 20% of the PTSD sufferers reported to have attempted suicide in contrast to 4% in people with another DSM-III Axis-I diagnosis and 1% in those without a psychiatric diagnosis (Davidson et al., 1991). In addition, Davidson

and his colleagues point to the high comorbidity with a whole range of disorders such as somatization disorders, disorder of the schizophrenic spectrum, and panic disorder. Moreover, OCD, social phobia, GAD and MD were ten times more likely to have occurred in people with PTSD as compared to those without PTSD. Davidson et al.'s (1991) finding on the high comorbidity with schizophrenia is of particular interest, as data on comorbid psychotic disorders are less common, and a distinction between PTSD and psychotic symptoms can be difficult (Sareen, Cox, Goodwin, & Asmundson, 2005; Schevlin, Houston, Dorahy & Adamson, 2008; Scott, Nurcombe, Sheridan, & McFarland, 2007).

Several authors have pointed to the common incidence of PTSD and personality disorders. For example, Resick (2001) highlighted the increased prevalence of comorbid anti-social and paranoid personality traits. However, some authors view the cognitive, affective and behavioural problems commonly associated with personality disorder as a characteristic response to repeated and overwhelming trauma in its own right (Herman, 1992). In addition, interpersonal difficulties and problems with emotional regulation, often discussed in the context of personality disorders, have been considered as a manifestation of complex PTSD, rather than a comorbid condition (Brewin, 2003; Herman, 1992).

Admittedly, when considering comorbidity between PTSD and other disorders in VOC, it must be acknowledged that many studies have not assessed PTSD and other clinical disorders such as depression concurrently (Woods, 2004). Nevertheless, it is well documented that depression is a very common diagnosis in VOC (Armstadter et al., 2007; Kessler et al., 1995), suggesting that the above mentioned high comorbidity rates between PTSD and depression may also apply to this specific trauma population.

In their review on the sequelae of childhood sexual abuse, domestic battering and rape, Bohn and Holz (1996) highlight depression as the most common response to abuse experiences. Accordingly, Resick and Schnicke (1992) reported that 59% of the rape victims in their sample were suffering from a major depression, while Bergman and Brismar (1991) found a significantly greater rate of depression, alcoholism and suicide attempts in battered women as compared to controls. These results are also

supported by Australian findings. Roberts, Williams, Lawrence, and Raphael (1998) found a significantly greater prevalence of depression, phobia, dysthymia, anxiety, substance dependence and somatization in abused women in an emergency department setting.

Some studies have examined comorbid PTSD and depression in women who had been subjected to IPV. West, Fernandez, Hillard, Schoof, and Parks (1990) examined depression and PTSD in severely abused women in a shelter and found that 30% (nine out of 30 participants) met criteria for both diagnoses. Moreover, in a sample of 44 IPV victims, Stein and Kennedy (2001) established that 14 women suffered from current PTSD, while six (42.9%) also displayed symptoms of a major depression. On the other hand, 75% of the major depression cases occurred in the context of PTSD, giving rise to the assumption that the causal pathways to PTSD and depression may not be independent (Stein & Kennedy, 2001).

Cascardi, O'Leary, Lawrence and Schlee (1999) compared two groups of women who sought counseling for marriage problems (abused women versus non-abused women who experienced marital discordance) to a control group of non-abused women in a satisfying marriage. Women who were dissatisfied with their marriage as well as women who experienced abuse in their marriage did report higher rates of past major depression than the control group. However, only abused women were more likely to suffer concurrent major depression and PTSD. More recently, O'Campo et al. (cited in Woods, 2004) compared 210 abused to 240 non-abused women in a General Community Study. As expected, abused women had significantly higher PTSD and depression rates. Also, 86% of the abused women with depression met the criteria for PTSD.

The psychological consequences of IPV have also been investigated in other socio-cultural contexts. For example, Spanish researchers (Pico-Alfonso, Garcia-Linares, Celda-Navarro, Blasco-Ros, Echeburua, & Martinez, 2006) compared the impacts of physical, psychological and sexual IPV to a control group of non-abused women. They found that both women exposed to psychological violence alone as well as women exposed to psychological *and* physical violence, presented with a similarly high incidence and severity of depression, anxiety, PTSD and suicidal ideations.

Concordant with the findings above, a PTSD diagnosis alone was very rare, while depression symptoms occurred alone and in conjunction with PTSD. Moreover, the severity of state anxiety and the incidence of suicidal thoughts were higher in abused women with depression or comorbidity. Another study by Avdibegovic and Sinanovic (2006) in Bosnia and Herzegovina found that, out of 283 women, 104 sought psychiatric treatment, with 45 people suffering from comorbid PTSD and depression. Furthermore, 17 individuals were diagnosed with depression alone, while dissociative disorder (n=8), psychotic disorder (n=7) and Borderline personality disorder in conjunction with depression (n=7) were present as well.

An interesting study conducted by McFarlane, Schrader, Bookless and Browne (2006) chose the opposite approach to explore the relationship between victimization and diagnoses of mental illness. They interviewed 130 psychiatric inpatients with a diagnosis of psychosis (40%), depression (25%), bipolar disorder (17%) and adjustment disorder (15%) to detect a history of victimization. The results revealed that 82% of the females and 92.8% of the males had experienced some form of violence. In both genders, physical victimization was most frequent, followed by sexual victimization. Disturbingly, more than 50% of the male participants and 44% of the female participants had been re-victimized in another physical assault. In relation to posttraumatic symptomatology, the authors determined that 40% of the participants qualified for a lifetime and 28% for a current PTSD diagnosis. Participants with a history of PTSD were more likely to have made a suicide attempt in the past, whereas current PTSD was associated with a greater likelihood of current suicidal ideations (McFarlane et al., 2006). Physical assault victims were more likely to report on a history of drug – and alcohol abuse.

Despite the high prevalence of affective disorders in VOC, it must be acknowledged that anxiety disorders seem to be prominent as well. Indeed, anxiety and fear have been identified as the most common reaction to rape (Foa & Rothbaum, 1998), while also recognized as a widespread consequence of all types of abuse (Bohn & Holz, 1996). Back in 1980, Veronen & Kilpatrick reported that in their sample of rape victims only 23% had recovered from fear one year post-rape. In a later study, Boudreaux, Kilpatrick, Resnick, Best, and Saunders (1998) described symptoms of PTSD, agoraphobia, OCD, social phobia and simple phobia as well as depression in

VOC, concluding that PTSD may be an important mediator in the relationship between different forms of victimization and psychopathology. A German study with Iranian torture victims also supported the high comorbidity of anxiety disorder with PTSD along with somatoform and depression symptoms (Priebe & Esmaili, 1997).

Another frequently mentioned reaction to rape and criminal assault is anger (Lee & Rosenthal, 1983; Yassen & Glass, 1984). Riggs, Dancu, Gershuny, Greenberg, and Foa (1992) examined anger among 116 female victims of crime during their first month after the assault. Not surprisingly, they found that victims of crime were angrier than people who had not suffered a crime experience. Furthermore, elevated anger scores as well as a tendency to suppress anger were positively associated with the development and maintenance of Posttraumatic Stress Disorder (PTSD).

Several studies have also highlighted the comorbidity between PTSD and alcohol/substance abuse. A large scale community study into adolescent VOC (N=4023), not only revealed a greater risk for current substance abuse and dependence in primary and secondary victims of physical and sexual assaults, but also that PTSD independently increased the risk of marijuana and hard drug abuse/dependence (Kilpatrick, Acierno, Saunders, Resnick, Best & Schnurr, 2000). In a later publication, the same group of authors reported that PTSD was more likely to be comorbid than major depression or substance abuse/dependence (Kilpatrick, Ruggiero, Acierno, Saunders, Resnick, & Best, 2003). Kaysen, Simpson, Dillworth, Larimer, Gutner, and Resick (2006) investigated the comorbidity between alcohol use and PTSD in female sexual and physical assault victims. They found that women who had alcohol problems also had more severe PTSD symptoms and that women with a life time alcohol use disorder indicated more intrusion and avoidance symptoms.

Finally, dissociative symptoms should be highlighted as a frequently found co-existing condition in PTSD. Dissociative features have been frequently observed in relation to childhood trauma (Nash, Hulsey, Sexton, Harralson, & Lambert, , 1993; Putnam, 1985). However, dissociation is also very common in adult trauma and closely associated with PTSD. Dancu, Rothbaum, Riggs, and Foa (1990) (cited in Foa & Rothbaum, 1998) compared dissociation symptoms in rape and non-sexual assault

victims with and without PTSD, establishing significantly higher dissociation scores in VOC with PTSD than in those without PTSD.

In sum, there is now substantial evidence that the great majority of PTSD sufferers also meet criteria for at least one other clinical disorder. However, it is difficult to determine whether these disorders are independent from PTSD, thus representing another manifestation of traumatic sequelae (Creamer, McFarlane, & Burgess, 2005; Mayou, Bryant & Ehlers, 2001; Schnyder, Moergeli, Trentz, Klaghofer & Buddeberg, 2001; Shalev et al., 1998), or a result of chronic PTSD and concomitant heightened stress levels (Creamer et al., 2005). Kessler et al. (1995) suggested that depression and substance abuse may be consequences of PTSD, whereas comorbid anxiety disorders were considered as independent of the trauma and PTSD (Brewin, 2003). In contrast, Creamer et al. (2005) propose that anxiety disorders along with depression and substance abuse may be secondary to PTSD, but allow for the possibility of shared risk factors.

Another problem lies in the conceptualization of PTSD which challenges its diagnostic validity as a distinct diagnosis. Brewin (2003) notes that it is difficult to establish which symptoms should be subsumed under a PTSD diagnosis, while Creamer et al. (2005) also emphasize the large symptom overlap between PTSD and other clinical disorders. Furthermore, there is a considerable debate on the relationship between PTSD and co-existing psychopathological phenomena such as dissociation, questioning whether PTSD should be categorized as an anxiety – or dissociative disorder (Foa & Rothbaum, 1998; Van der Hart, Nijenhuis, & Steele, 2005).

1.2.4 Complex PTSD

As suggested above, some authors strongly advocate that the reactions to repeated and prolonged trauma should be comprised in a separate diagnosis, rather than PTSD in conjunction with comorbid disorders:

“(...) the persistent anxiety, phobias and panic are not the same as ordinary anxiety disorders. Their depression is not the same as ordinary depression. And the degradation of their identity and relational life is not the same as ordinary personality disorder.” (Herman, 1992, p. 118)

In line with other authors, Herman (1992) suggests the term “complex PTSD”, denoting a spectrum of symptoms on a complexity continuum rather than an account of single clinical disorders. However, as with PTSD, characteristic responses to prolonged trauma have been described many times before under various names such as “Type II Trauma” (Terr, 1991, cited in Herman, 1992, p. 256), “DESNOS” (Disorder of Extreme Stress not otherwise specified) (Herman, 1992; Van der Kolk, Pelcovitz, Roth, Mandel, McFarlane, & Herman, 1996), or “Developmental Trauma Disorder” (Van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). According to Herman, complex PTSD comprises various classes of reactions such as alterations in affect regulation and consciousness, changes in self-perception and the perception of the perpetrator, alterations in relations with others, somatization and alterations in the system of meaning (Herman, 1992; Van der Kolk & Courtois, 2005).

Herman also points to the commonalities of somatization disorder, Borderline personality disorder and dissociative identity disorders which, according to her view, can be best subsumed under the complex PTSD diagnosis (Herman, 1992). In this sense, each of these diagnostic categories can be understood as an effort to adapt to extremely stressful environmental conditions, with affect-dysregulation and interpersonal difficulties as the most frequently reported problems (Herman, 1992). In line with Herman (1992), several studies have established physical and sexual abuse as risk factors for the development of complex trauma, with a shared experience of terror and captivity by another person as a common basis (Roth, Newman, Pelcovitz, Van der Kolk, & Mandel, 1997). Roth and her colleagues (1997) emphasized that the complex PTSD diagnosis may be more strongly related to sexual abuse due to several reasons such as intense shame and secrecy, extreme boundary violations and intrusiveness, a greater incidence of dissociative mechanisms, an interference with cultural expectations and possibly neurobiological changes (Roth et al., 1997). However, there is some inconsistency in findings with respect to the importance of the age of onset. Pelcovitz, Van der Kolk, Roth, Mandel, Kaplan, &

Resick (1997) found that survivors of early interpersonal trauma showed significantly more complex PTSD symptoms in the PTSD Field Trial, as compared to trauma victims who had not experienced interpersonal violence. More specifically, victims who had experienced abuse before the age of 14 showed an increased range of symptoms along with an increased severity of anger, suicidality, self-destructive behaviours and dissociative symptoms. In contrast, Roth et al. (1997) could not determine the predictive validity of the age at crime onset, suggesting that chronicity may be a critical factor and that the relationship between type of abuse, chronicity, and age at onset may be more complex than suggested by Pelcovitz et al. (1997).

In summary, authors are increasingly suggesting that early life trauma as well as prolonged victimization provoke a wide range of specific responses which, in their view, can be better accommodated in a diagnosis of complex PTSD or DESNOS (Disorders of Extreme Stress not otherwise specified). Importantly, it seems that there are major phenomenological differences between PTSD and DESNOS, meaning that complex PTSD is not just an elaboration of the “simple” PTSD concept. However, other voices have questioned whether DESNOS is a qualitatively distinctive concept or rather a severity marker of PTSD symptoms (Newman, Riggs & Roth, 1997; Roth et al., 1997).

1.3. Aetiology of posttraumatic illness/theories

Various theoretical models have been advanced to explain the underlying mechanisms in posttraumatic illness. In addition, some of the models try to shed light on how the symptoms are maintained and reinforced. The following section provides an overview over the most prominent theories including older theoretical frameworks such as learning theory and early (socio)-cognitive theories, although most emphasis is placed on the more recent information processing theories, cognitive models and neurobiological explanations.

1.3.1 PTI from a Learning Theory Perspective

Learning theories can be considered as one of the most influential frameworks to explain anxiety disorders and, as a consequence, have had a major influence on the development of contemporary anxiety treatment approaches such as cognitive-behavioural therapy. Within the learning theory tradition, Mowrer's Two Model Theory (1960) has provided a plausible theoretical underpinning for the development and maintenance of anxiety disorders which is also used to explain trauma-related fear (Foa & Rothbaum, 1998). According to Mowrer, classical conditioning processes lead to a fear acquisition by pairing a neutral stimulus (conditioned stimulus = CS) with an aversive stimulus (unconditioned stimulus = UCS), resulting in a conditioned fear response. Through generalization and higher order conditioning processes, more and more previously neutral stimuli evoke fear, thus leading to a manifestation of an anxiety disorder. However, operant conditioning processes are equally critical, as they maintain the anxiety by negative reinforcement, e.g. an anxiety reduction through avoidance of anxiety provoking situation (Foa & Rothbaum, 1998). At the same time, these avoidance behaviours hinder the realization that a neutral stimulus is not necessarily followed by an unconditioned response, thus preventing the extinction of that learnt response. Interestingly, there is growing evidence that PTSD sufferers are more inclined to develop conditioned responses to aversive events, while at the same they are more resistant to the extinction of these responses (Orr, Metzger, Lasko, Macklin, Peri, & Pittman, 2000).

Taken together, the learning theory explanation does not provide a specific etiological model for PTSD, but can explain well the existence of multiple triggers of traumatic memories along with associated emotional and physiological arousal, as well as the extensive avoidance mechanisms in PTSD (Brewin & Holmes, 2003).

1.3.2 Socio-Cognitive Theories

3.2.1 Stress Response Theory

Horowitz's Stress Response Theory (Horowitz, 1986) focuses strongly on people's individual assumptions about the world and, as a consequence, has been

categorized as a socio-cognitive model (Brewin & Holmes, 2003), although originally derived from psychodynamic observations of responses during bereavement.

According to Horowitz, trauma responses comprise two consecutive responses. The initial response is an "outcry", once the trauma is realized. This, however, is followed by efforts to assimilate the new information with prior assumptions, e.g. by a „repetitive revision“ and a „completion tendency“ (Horowitz, 1986). Nevertheless, Horowitz also stressed that often this assimilation process is too overwhelming, resulting in an employment of defense strategies such as avoidance, numbing, and denial.

Without doubt, Horowitz's pioneer work deserves merit for the explanation of frequently observed, opposing processes in posttraumatic illness such as the avoidance versus an intrusion of traumatic memories. Moreover, he emphasized the impact of trauma on cognitions about the world, self, and the future. However, the model falls short in explaining phenomena such as the differences between flashbacks and ordinary memories, peri-traumatic reactions, and the role of environmental factors. Also, there is some confusion with respect to the underlying mechanism governing symptom reduction which could be a result of either avoidance or recovery (Brewin & Holmes, 2003).

1.3.2.2 Other Socio-Cognitive Theories

In line with Horowitz, several other authors pointed to the importance of shattered assumptions as a result of traumatic experiences (Epstein, 1991; Janoff-Bulman, 1992; McCann & Pearlman, 1990). Accordingly, and as suggested by Horowitz (1986), these authors proposed that shattered existing beliefs have to be modified to assimilate and accommodate the new and incongruent information. In his way, various core beliefs can be affected by trauma, with a major impact on assumptions about the benignity of the world, the benevolence of others, the worthiness of the self, and the meaningfulness of the world (Epstein, 1991). To cope with trauma, the authors suggest an assimilation process which can involve spontaneous updating by re-experiencing processes, avoidance behaviours, or a deliberate reflection on the trauma.

The major contributions of the socio-cognitive theories are a provision of insight into a longer-term posttraumatic adjustment in conjunction with common themes in schema change (Brewin & Holmes, 2003). Moreover, they have highlighted the potential for positive reframing and posttraumatic growth. Nonetheless, the theories also make some critical predictions. For example, it is implied that people with positive core beliefs would have greater difficulties to cope with a traumatic experience due to the incongruity. On the other hand, this would mean that people with previous trauma experiences and already shattered beliefs would cope better. However, neither of those implications has been supported by empirical evidence, particularly given that previous trauma experiences are considered as a major risk factor for developing PTSD (McFarlane, 2000).

1.3.3 Information Processing Theories

In accordance with the socio-cognitive theories, information processing theories have also acknowledged the need to integrate the new, trauma-related information into the existing wider memory system. However, the major focus lies on the specific characteristics and representation of traumatic memory (Brewin & Holmes, 2003), rather than pre-existing beliefs. Information processing theories originated from conditioning theories and the search for a better understanding of stimulus-response associations within a broader cognitive framework (Lang, 1979). Inspired by Lang's (1979) work, Foa, Steketee, and Rothbaum (1989) proposed a fear network theory which elaborated on the difference between traumatic memories and everyday memories. According to Foa and Rothbaum (1998), fear-related associations are much stronger than every day memories and, as a consequence, cause the previously described hyper-arousal and intrusion symptoms and, as a consequence, efforts to avoid these reactions. Moreover, traumatized people respond more intensely to these stimuli, while a large number of fear-related stimuli lead to a rapid activation of the memory network (Brewin & Holmes, 2003).

1.3.3.1 Emotional Processing Theory

The original fear network theory was advanced by the Emotional Processing Theory (Foa & Rothbaum, 1998) which also tried to provide an explanation of why some people recover from trauma, while others develop a chronic traumatic illness.

As the above mentioned fear network theory, the Emotional Processing Theory is based on the view that posttraumatic symptoms are a result of an impairment in the emotional processing of traumatic memories. In Foa's and Rothbaum's (1998) view, trauma is represented as a cognitive structure or a „fear network“, which is mainly geared towards an escape of danger. Three different categories of information are critical to this fear network: (1) Information about the feared stimuli, (2) information about one's responses to these stimuli, and (3) information about the meaning of the stimulus. In contrast to normal fear processing in the context of a real threat, pathological fear is characterized by an excessive response to a feared stimulus (e.g. avoidance or an intense physiological reaction), unrealistic elements or an inaccurate representation of the world, and an association between objectively harmless stimuli and avoidance behaviours. Thus, PTSD is considered as a reflection of a fear memory that contains erroneous associations and evaluations, influenced by the victim's schemas about the world, as well as self perceptions prior to the trauma. Furthermore, it is critical how the trauma itself was experienced (e.g. the number of stimuli and peri-traumatic experiences) and which reactions occur post-trauma, e.g. disruptions in daily functioning or problematic social interactions. In contrast to the above mentioned assumptions on cognitive schemas, Foa and Rothbaum (1998) regard rigid, *inflexible* beliefs as a major hinderance to emotional processing of the traumatic event, rather than the shattering of *positive* assumptions. Hence, rigid beliefs can comprise both, positive and negative views of the world, others and self.

Translating these theoretical conceptualizations into (exposure) therapy, Foa and Rothbaum (1998) proposed that successful therapy requires both, an activation of the fear structure by a confrontation of traumatic stimuli *and* a correction of the pathological elements of the fear structure. More specifically, an improvement in PTSD symptoms is considered as a result from several mechanisms:

- A habituation to the fear provoking traumatic stimuli and the associated realization that anxiety cannot be permanent or increase endlessly;
- A disruption of the negative reinforcement cycle;
- The realization that remembering the trauma in a safe setting is not dangerous and incorporates safety into the traumatic memory;
- The ability to discriminate between the traumatic and other potentially threatening experiences;
- Gaining a sense of mastery and control;
- A modification of dysfunctional cognitions by acknowledging an inconsistency with the evidence.

Lastly, it is also acknowledged that dissociative states lead to a disjointed and fragmented fear structure which is resistant to modification and results in simplistic, incoherent trauma narratives. Thus, repeated reliving of the experience in a safe setting enables the traumatized person to organize memories within the broader memory system (Brewin & Holmes, 2003).

Without doubt, the Emotional Processing Theory provides a sound theoretical framework for a well established PTSD treatment, thus providing one of the most comprehensive rationales for current PTSD treatment approaches. Apart from treatment efficacy studies, several authors have investigated single postulates of the theory. For example, Jaycox, Foa, and Morral (1998) examined whether an activation of the fear structure is needed for positive treatment outcomes, concluding that a fear activation only leads to improvement when it is followed by an ongoing habituation process.

Other authors have tried to establish the proposed poor articulation and fragmentation of trauma narratives. Foa, Molnar, and Cashman (1995) examined

trauma narratives in rape victims at the beginning and end of exposure treatment. The results suggested an increase in narrative length and a higher number of expressed thoughts and feelings by the end of the treatment, but no changes in fragmentation. Similarly, Van Minnen, Wessel, Dijkstra and Roelofs (2002) found that a reduction of PTSD symptoms was related to less disorganized thoughts.

Empirical findings on the relationship between memory fragmentation and dissociation appear more consistent (Brewin & Holmes, 2003). For example, Harvey and Bryant (1999a) were able to show that dissociative symptoms corresponded with greater narrative disorganization and fragmentation which was also supported by other authors (Engelhard, Van den Hout, Kindt, Arntz, & Schouten, 2003; Murray, Ehlers, & Mayou, 2002).

In conclusion, Information Processing Theories have proven valuable to explain pre-trauma risk factors and the importance of appraisal processes. However, not all of the suggested mechanisms have yet been fully empirically supported, while the theories lack an explanation of contradictory phenomena such as strong emotional responses versus amnesic processes (Brewin & Holmes, 2003).

1.3.3.2 Dual Representation Theory (DRT)

While Information Processing Theories promote the existence of one single type of trauma memory, The Dual Representation Theory (Brewin, Dalgleish, & Joseph, 1996) suggests that there are at least two different, simultaneously operating memory systems. Hence, the model proposes a representation system that comprises verbally accessible memory (VAM), reflected in written or oral narratives of the trauma. Furthermore, VAM can be deliberately activated and is integrated with other autobiographical memories. Another important feature of VAM is its representation within a temporal context, including the past, present and the future (Brewin et al., 1996).

The other memory system is called situationally accessible memory (SAM) and is best reflected in flashbacks which occur spontaneously and involuntarily. The SAM system represents mainly perceptual processing of the trauma and thus contains

information on sights, sounds, smells, and bodily responses. In addition, it is considered to be more emotion laden than the VAM and thus more difficult to control (Brewin et al., 1996).

According to the DRT, PTSD is characterized by two separate pathological processes. One system is focussing on trauma related beliefs and the concomitant emotions, whereas the other system is dealing with highly emotion-laden flashbacks. Consequently, an improvement in PTSD symptoms involves both, a conscious, deliberate re-appraisal process *and* a facilitation of new SAMs or trauma images which is a reflection of an automatic and associative process, rather than a rational approach (Brewin & Holmes, 2003).

Brewin and Holmes (2003) relate their model to findings from cognitive neuroscience, assuming that VAM memories are involved in hippocampal processing, thus enabling a temporal context. SAM memories, on the other hand, are experienced as happening in the present with a lack of a temporal context. Accordingly, they are thought to be independent from the hippocampus and more involved in amygdala related processing. It is important to understand that, in contrast to the previously mentioned theories, the DRT key to recovery is an initiation of retrieval competition between old and new trauma memories. For example, if a person focuses on flashbacks, information from the SAM becomes available to VAM which facilitates the provision of a temporal and spatial context and lastly allows for an integration into the autobiographic memory.

While empirical evidence for the DRT is still sparse, it has sparked some interesting empirical investigations. Hellowell and Brewin (2002) asked PTSD sufferers to provide a narrative of their trauma experience. After the completion of this task, participants had to identify which type of memory they had used when writing particular parts. In line with their theoretical assumptions, the authors found that, during flashback sections, participants used more perceptual descriptions and present tense as well as emotions such as fear, helplessness and horror. Furthermore, research has indicated that flashbacks interfered with the performance of visuo-spatial tasks which, according to the DRT, proves the demands on the same memory processing system (Hellowell & Brewin, 2002).

1.3.4 Cognitive Model of PTSD (Ehlers and Clark, 2000)

Cognitive theories have been influential, not only as an explanatory model for the development of anxiety disorders, but also by providing a rationale for current treatment approaches. Cognitive therapy is originally based on Beck's (Beck, Rush, Shaw, & Emery, 1979) and Ellis' (1985) contributions to the conceptualization and treatment of depression, based on the assumption that emotions are a result of a particular interpretation of an event rather than the event itself (Foa & Rothbaum, 1998). Hence, a major goal in cognitive therapy is the identification and subsequent correction of dysfunctional thoughts which should then result in the generation of normal" emotional responses, in contrast to exaggerated and overwhelming emotional experiences.

More recently, Ehlers and Clark (2000) suggested a Cognitive Model for PTSD, elaborating on Foa's and Rothbaum's (1998) EPT. Moreover, they provided a detailed account of common negative appraisals produced in the context of trauma. They also draw attention to other evaluation processes evoked by trauma, in addition to existing beliefs. One of these problems is „mental defeat“, referred as a perceived loss of all autonomy and a perceived inability to influence one's fate (Ehlers & Clark, cited in Brewin & Holmes, 2003). Similar to Brewin et al.'s (1996) SAM concept, Ehlers and Clark (2000) also point to the fact that the traumatic memory lacks a complete temporal and spatial context and, as a result, is difficult to integrate into the autobiographical memory. According to Ehlers and Clark (2000), this explains many of the intricacies identified in traumatic memory such as the difficulty to deliberately recall traumatic memories, the difficulty to assign the event to the past, the impaired linking of traumatic memories with other information, and the easy triggering of memories by physically similar cues (Brewin & Holmes, 2003). In line with Foa and Rothbaum (1998), Ehlers and Clark (2000) also emphasize the strong association between traumatic stimuli as well as the fact that these associations are cue driven and unintentional, associated with a reduced perceptual threshold for trauma-related stimuli. In line with Brewin et al.'s (1996) dual representation of memory systems, Ehlers and Clark distinguish between data-driven processing (focused on sensory impressions and prone to perceptual priming) and conceptual processing (focused on meaning and contextualization of a situation). Analogous to the VAM concept, it is

assumed that conceptual processing facilitates the integration of the traumatic memory with the autobiographic memory.

Most of the predictions from Ehlers' and Clark's models with respect to "mental defeat", peri-traumatic dissociation, negative appraisals of PTSD symptoms and the trauma itself have been well empirically supported (Ehlers et al., 2000; Halligan, Ehlers & Clark, 2002). However, evidence on data-driven versus conceptual processing during the trauma is yet sparse and not fully consistent (Brewin & Holmes, 2003). A study by Halligan, Michael, Clark, and Ehlers (2003) tried to determine the type of cognitive processing in two samples of assault survivors, concluding that cognitive processing and memory disorganization predicted the severity of PTSD.

In summary, various psychological theories have been proposed to elucidate the underlying principles leading to posttraumatic illness. As with any theoretical constructs, the trauma theories are a product of a favoured psychological stream at a particular time and strongly built upon each other. Also, there is a considerable amount of common conceptualizations between the single models. With respect to the more recent theories, Brewin emphasizes a high degree of overlap between Foa et al's EPT, his DRT, and Ehlers and Clark's Cognitive Model.

Also, all three theories point to benefits of a therapeutic re-living of the experience. However, different rationales for exposure based techniques are suggested, thus placing emphasis on different aspects of treatment. For example, Foa and Rothbaum (1998) suggest that reliving of the traumatic experience allows for a reintegration of the trauma memory with the wider memory network. Similarly, Ehlers and Clark highlight the contextualization of trauma-related information with the purpose to integrate the traumatic experience with the existing autobiographical knowledge. Brewin, on the other hand, views contextualization as critical to the generation of new VAM memories which should prevent the amygdala from responding to trauma reminders (Brewin & Holmes, 2003).

1.3.5 PTI from a neurobiological perspective

While with the inclusion of PTSD into DSM-III posttraumatic illness has finally been recognized as a psychological reaction to extremely stressful events, it is important to acknowledge that the brain, mind, and body are inextricably linked (Van der Kolk, 1996). In early phases of trauma research, posttraumatic reactions were interpreted solely in terms of physiological impacts (Trimble, 1984), long before psychological consequences were taken into account. An interpretation of posttraumatic illness as a physical, rather than a psychological phenomenon reflected not only the “Zeitgeist”, but also the strong physical manifestation of common PTSD symptoms such as hypervigilance, insomnia and increased irritability.

According to Friedman (2004), PTSD results from a failure to cope with the neurobiological demands of trauma related stress, reflected in a dysregulation of the hypothalamic pituitary adrenocortical axis (HPA), the locus coeruleus-norepinephrine-sympathetic (LC-NE) system, and the immune system. In addition, a cascade of secondary consequences occur due to these disturbed regulation mechanisms. However, it is important to understand that these abnormalities are a result of constant efforts to re-establish balance or an “allostasis”¹ (Friedman, 2004, p. 420) and thus characterized by fluctuations rather than a status quo.

Besides alterations concerning the sympathetic nervous system, the HPA axis and various neurotransmitter systems, functional changes in brain structures have been suggested to explain the specific trauma related problems such as hyperarousal and increased stress sensitization, impaired habituation, fear conditioning, and the specifics of traumatic memory (Southwick & Friedman, 2001; Van der Kolk, 1987; Van der Kolk & McFarlane, 1996). Nonetheless, Southwick and Friedman (2001) stressed that the sympathetic activation and the HPA axis have received most research attention, while the authors acknowledged the interaction with multiple other neurobiological systems, e.g. the opiate, serotonin, and dopamine system. Moreover, it should be mentioned that the sympathetic and HPA systems are not the only affected systems, as there is some indication that the hypothalamic pituitary thyroid

¹ Allostasis: organism’s ability to achieve stability through change (Friedman & Mc Ewen, 2004, p.158)

axis and the hypothalamic pituitary gonadal axis may as well function differently in PTSD (Friedman & Southwick, 2001; Friedman, 2004).

1.3.5.1 Sympathetic nervous system

The activation of the sympathetic nervous system is a well known stress response, preparing the organism for a quick response to a stressful situation by mechanisms such as increased blood flow to muscles and vital organs (Southwick and Friedman, 2001). One of the most discussed reactions in relation to trauma is the “flight- fight” response (Friedman & Southwick, 2001) which is facilitated by the release of neurotransmitters, more specifically the catecholamines Epinephrine (Adrenaline) and Norepinephrine (Noradrenaline).

Psychophysiological studies in PTSD sufferers have provided a great deal of support for an increased sympathetic activation in the presence of traumatic stimuli, in contrast to people who did not suffer from trauma and/or PTSD (Blanchard, Kolb, Prins et al., 1991; Pitman, Orr, & Fergue, 1990). Consistent with these results, a considerable number of studies have found increased levels of catecholamines and decreased numbers of adrenergic receptors, while the latter has been interpreted as a response to a chronic elevation of adrenaline and noradrenaline (Kosten, Mason, Giller, Ostroff, & Harkness, 1987; Lerer, Bleich & Kottler, 1987; Perry, Giller & Southwick, 1987; Perry, 1994). However, the results have not always been consistent which may be a consequence of excessive phasic (stimulus-dependent) adrenergic increases in the presence of psychological stress (Friedman, 2004). Evidence for increased catecholamine levels have been provided by a number of studies, showing that PTSD sufferers responded with an increased release of catecholamines to a variety of situations other than trauma (Friedman, 2004). Other authors have pointed to the possibility that people with PTSD may be supersensitive to noradrenergic stimulation (Southwick et al., 1993; Southwick et al., 1997; Southwick & Friedman, 1991).

Besides sympathetic arousal, catecholamines have been related to fear conditioning processes and an over-consolidation of memories which would explain the occurrence of intrusive recollections. Moreover, Van der Kolk (1996) points to the

difficulty to access relevant memories which he relates to a release of norepinephrine, but also other neuro-hormones such as oxytocin and endogenous opioids. In addition, the repeated experience of intrusive recollections may lead to a renewed release of stress hormones, resulting in more re-experiencing symptoms, stronger associations in memory and possibly a fragmentation of memory (Southwick and Friedman, 2001). Hence, a devil's cycle is maintained by the fact that physiological arousal triggers trauma related memories, while trauma related memories induce physiological arousal, thus constituting a possible explanation for the development of chronic PTSD.

1.3.5.2 HPA axis

According to Southwick and Friedman (2001), the major role of the HPA axis is of a catabolic nature. However, Friedman and his colleague particularly address the strategic role of CRF (corticotropin releasing factor) which is needed for an activation of the HPA axis, but also plays an important role in the LC-NE, other neurotransmitter systems and immunological mechanisms. A short explanation of the HPA axis mechanism aims at a better understanding of the specific changes in PTSD:

When facing a stressful situation, the hypothalamus releases CRF (corticotropin-releasing factor) which stimulates ACTH (adrenocorticotrophic hormone) from the pituitary gland. ACTH then leads to a stimulation of the adrenal glands and a subsequent release of cortisol which has been increased in many studies on stressed individuals as well as in depressed people (Friedman, 2004; Kaschkow, Baker & Geraciotti, 2001). Normally, CRF secretion is inhibited once a sufficient number of glucocorticoid receptors are occupied by cortisol, in this way constituting a negative feedback loop (Friedman & Southwick, 2001). However, cortisol levels were often found to be *decreased* in most, but not all studies on individuals with PTSD along with increased CRF levels (Boscarino, 1996; Bremner et al., 2003; Heim, Ehlerlert & Hellhammer, 2000, Kaschkow et al., 2001; Rasmussen & Friedman, 2002; Rasmussen et al., 2001, Yehuda, 1999; Yehuda, 2002a,b; Yehuda, Halligan & Bierer, 2002). Furthermore, several studies have revealed an increased number of glucocorticoid receptors in PTSD sufferers and a greater sensitivity to glucocorticoids (Yehuda, Southwick, Mason, & Giller, 1990; Yehuda, Giller, Southwick, Lowy, &

Mason, 1991; Yehuda 1997; 1999; Yehuda, Golier, Yang, & Tischler, 2004). Based on these results, Yehuda et al. (2004) suggested that the lower cortisol levels in PTSD may be a consequence of an enhanced negative feedback loop due to the increased sensitivity of the receptors. This assumption has been supported by a heightened response to dexamethasone, a synthetic glucocorticoid that acts like cortisol (Southwick and Friedman, 2001), while CRH and CRF levels were elevated (Baker et al., 1999; Bremner et al., 1997; Yehuda, Levengood, Schmeidler, Wilson, Guo, & Gerber, 1996).

Resnick, Yehuda, Pitman and Foy (1995) conducted an interesting study, measuring cortisol levels in 20 victims of recent rape, followed by a PTSD assessment three months later. Interestingly, histories of prior assaults correlated with cortisol levels, with levels only half as high in individuals with previous trauma experiences. In response to these findings, Van der Kolk (1996) suggests that prior traumatic experiences may lead to a weakened cortisol response after subsequent trauma or, alternatively, to a more rapid normalization of cortisol levels after a stressful experience.

With respect to the inconsistent findings, Friedman again points to the possibility of individual fluctuations in baseline - or stress induced responses (Friedman, 2004). Moreover, methodological problems such as differing methods of collection and analysis, the magnitude of stress and gender-related differences may explain the varying results (Friedman 2004; Kajantje & Phillips, 2006).

In relation to PTSD symptoms, the increased reactivity of the HPA axis has been related to hyper-arousal symptoms such as increased hypervigilance, insomnia, increased startle responses and irritability (Southwick & Friedman, 2001). In addition, it has been suggested that an HPA axis mediated suppression of cortisol could interfere with the termination of the sympathetic response to stress, thus influencing processes such as the consolidation of memories (Yehuda, 2002b). In line with these thoughts, Yehuda et al. (1990) have suggested that cortisol acts as an “anti-stress hormone by shutting off all the other biological stress reactions. However, low cortisol levels in combination with increased arousal may lead to undifferentiated fight –or flight reactions.

1.3.5.3 Serotonin

Besides catecholamines, serotonin also modulates arousal (Depue & Spoont, 1986; Gerson & Baldessarini, 1980). In animal studies, low serotonin levels have led to an inability to appropriately adjust arousal, resulting in exaggerated reactions such as hyper-excitability, hyper-irritability and hyper-sensitivity. Furthermore, serotonin is thought to play a role in the behavioural inhibition system in the brain which allows for appropriate reactions to the environment (Depue & Spoont, 1986). Hence, the impulsive and compulsive patterns often observed in people with PTSD may be explained by a serotonin related impaired functioning of the behavioural inhibition system (Van der Kolk, 1996). In addition, serotonin has been related to the modulation of the corticosteroid response by enhancing the secretion of CRH (Nutt, 2000). Lastly, it should be acknowledged that a considerable number of studies have demonstrated the efficacy of selective serotonin reuptake inhibitors (SSRIs) in PTSD treatment which supports an involvement of the serotonergic system (Nutt, 2000).

1.3.5.4 Endogenous opioids

Besides catecholamines and cortisol, a release of endogenous opioids has been observed after long-term stress exposure, resulting in analgesia and reduced panic (Van der Kolk, 1996). Based on the results of animal experiments, Van der Kolk, Greenberg, Orr and Pitman (1989) investigated whether an exposure to trauma related stimuli causes an endogenous opioid mediated analgesia in PTSD sufferers. They found that, even two decades after the trauma, PTSD sufferers demonstrated analgesia when presented with stimuli resembling the original trauma, along with a weakened emotional response (Van der Kolk et al., 1989; Pitman, Van der Kolk, Orr, & Greenberg, 1990).

Based on these findings, Van der Kolk (1996) suggests that endogenous opioids could be related to well known mechanisms in posttraumatic illness such as freezing, impaired memory processing, and dissociation. Van der Kolk (1996) supports his line of argument by highlighting that both, endogenous opioids and norepinephrine, have been associated with impaired storage of explicit memory. In this context, he points to Siegfried et al.'s work (1990) who have reported that memory is impaired in animals when they can no longer influence the outcome of a

threatening situation. This may be analogous to dissociative mechanisms in the face of an uncontrollable, prolonged exposure to a life threatening situation (Van der Kolk, 1996).

Friedman (2004) points to interactions between endogenous opioids, the adrenergic system and the HPA axis: CRF activates the opioid peptide beta-endorphin which then inhibits adrenergic and HPA components. However, once again, inconsistencies in results on an endogenous opioid release suggest the existence of tonic and phasic abnormalities in PTSD sufferers (Friedman, 2004).

1.3.5.5 Glutamate/GABA

In addition to the above mentioned neurotransmitters, more recent work has pointed to a glutamatergic and GABA (γ -aminobutyric acid) dysfunction in PTSD which has been associated with processes of consciousness and memory by mediating sensory inputs into the brain (Nutt, 2000). Friedman (2004) describes Glutamate as the brain's primary excitatory amino acid which is associated with multiple functions such as perception, appraisal, conditioning, extinction and memory. Nutt suggests that in PTSD there may be an over-stimulation of the NMDA system, a specific receptor subtype for glutamates (Nutt, 2000). Hence, PTSD related problems with fear conditioning, sensitization, resistance to extinction, learning difficulties, intrusive recollections as well as dissociative processes may at least partly represent a glutamatergic dysfunction (Friedman, 2004). Furthermore, it has been hypothesized that abnormalities of GABA inhibition may contribute to heightened awareness and responsiveness to stress (Nutt, 2000).

1.3.6 Trauma and the central nervous system (CNS)

Along with neurochemical alterations, recent research findings into the biological effects of trauma strongly suggest biological changes in brain function and structure (Hull, 2002).

Different structures of the brain can be affected by trauma. However, two areas of the limbic system, namely the amygdala and the hippocampus, have received most research attention within the field of traumatic stress. The limbic system is responsible for the establishment of a balance between the internal experience and the external reality and seems to be crucial when it comes to the processing of emotional memories (Van der Kolk, 1996). More specifically, the amygdala is thought to be involved in the evaluation of the emotional meaning of incoming stimuli and a subsequent regulation of emotional behaviours (Le Doux, 1986). The hippocampus, on the other hand, appears to be critical for the interpretation of the spatial and temporal dimensions of experience (Van der Kolk, 1996) and plays an important role in the categorization and storage of information which has been outlined previously in Brewin et al.'s Dual Representation Theory (1996). Also, the hippocampus plays an important role in short term memory, e.g. to enable individuals to learn from experience (Van der Kolk, 1996).

An impairment in hippocampal functioning has been related to behavioural disinhibition and hyper-responsiveness. Moreover, high levels of glucocorticoids have been associated with damage of the hippocampus (Bremner, 2001) and are thus consistent with the previously mentioned effects of glucocorticoids on memory. Several researchers have demonstrated a decreased hippocampal volume in PTSD (Bremner et al., 1997; Gurvitz et al., 1996; Stein et al., 1997). In line with these results, a review on the findings of neuroimaging studies concluded that a reduction in hippocampal volume was the most frequently replicated finding (Hull, 2002). However, there is a considerable controversy as to whether an atrophic hippocampus may have been a pre-existing condition, meaning that a decreased hippocampal volume leads to an increased vulnerability to develop PTSD or to experience trauma, or a consequence of trauma and/or PTSD (Bonne in Nutt, 2004; Pitman, 2001). Another debate has emerged around the reasons for hippocampal atrophy. As mentioned above, some researchers have supported the “glucocorticoid-toxicity”-hypothesis (Sapolski, 2001), denoting that stress induced high levels of glucocorticoids damage the hippocampus. This idea, however, contradicts the low cortisol levels found specifically in PTSD (Yehuda, 2001). Accordingly, Yehuda (2001) suggests an enhanced glucocorticoid receptor sensitivity in the hippocampus as an alternative explanation for a decreased hippocampal volume.

In his review, Hull (2002) also points to increasing evidence for an enhanced activation of the amygdala when posttraumatic stress symptoms are provoked, e.g. by sounds, script-driven imagery, or pharmacological application of anxiogenics (Nutt & Malizia, 2004). This decreased activation threshold results in the generation of strong emotional associations with sensory stimuli (Nutt & Malizia, 2004).

Rauch et al. (1996) conducted a functional neuroimaging study using a PET (positron emission tomography). As part of the experiment, they exposed PTSD sufferers to their own trauma narratives and to neutral scripts. When confronted with their trauma histories, participants showed an enhanced activity in right hemispheric limbic structures which are thought to be closely connected with the amygdala (Van der Kolk, 1996). In addition, people showed an increased activation of the right visual cortex and at the same time an inactivation of the Broca area which was also described by Hull (2002). This is an interesting finding as it sheds light on the difficulties of traumatized people to communicate their feelings verbally, though feelings are intensely experienced on other levels. Moreover, the strong lateralization (right hemispheric activity) is interesting in that the right hemisphere is considered to have a dominant function in the perception and expression of emotion (Rauch et al. , 1996), cited in Van der Kolk, 1996).

Finally, it is important to note that repeated stimulation of limbic structures may lead to permanent structural changes which could account for the resistance of emotional memories (Van der Kolk, 1996). In line with these thoughts, Le Doux, Romanski, & Xagoraris (1991) initiated conditioned fear responses in animals by a repeated stimulation of the amygdala. As a results, the animals developed cortical lesions which prevented an extinction of these responses. Hence, the learning, habituation and stimulus discrimination problems observed in PTSD could be a reflection of enduring subcortical emotional responses in the absence of an inhibitory control by other brain structures, e.g. the hippocampus and cortex (Van der Kolk, 1996).

In sum, various neurobiological models have been suggested to explain the complex symptomatology of posttraumatic illness. Particularly abnormalities in physiological arousal, the inability to use emotions as a signal, extreme responses to

automatic stimuli, and an inability to discriminate between traumatic and neutral stimuli (Van der Kolk, 1987; Van der Kolk & McFarlane, 1996) have been explained in the context of neurobiological changes in relation to trauma. Nevertheless, much still needs to be learnt about interactions between the single systems as well as processes involved in the establishment of an allostasis. Friedman's emphasis on tonic and phases stress responses may be crucial to understand the varying findings and challenges involved in trauma-related neurobiological research. Evidence on functional and structural changes in brain structures after trauma is also still in its infancy and it is not yet clear how different affected brain areas influence each other's functioning.

1.4. Impacts on physical health

In addition to altered neurobiological functions in posttraumatic illness, posttraumatic reactions can also be reflected in poorer physical health in trauma survivors. Surprisingly, the latter has received comparatively little attention in the growing field of posttraumatic stress research (Schnurr & Green, 2004a). The effect of trauma on physical health has been demonstrated in various ways, e.g. in self reported health problems, increased mortality and morbidity rates, and in an increased utilization of health services and enhanced health care costs (Friedman & Schnurr, 1995; Schnurr & Jankowski, (1999).

The section below will describe those studies that have examined physical health symptoms of victims of crime, as well as studies of affected immunological functioning.

1.4.1 Increased prevalence of physical health symptoms in VOC

1.4.1.1 Reported health problems after crime exposure

A number of studies have reported an increased prevalence of self reported physical health problems after crime exposure.

General community studies

The well known Epidemiologic Catchment Area Study (ECA) in the US assessed trauma histories and self reported health in adults (N=2364). Sixteen percent of the participants (n=349) revealed a lifetime history of trauma which was associated with poorer perceptions of physical health, more chronic limitations in functioning, and more chronic physical conditions - even when demographic characteristics, psychiatric conditions and other stressful life events were controlled (Ullman & Siegel, 1996). In the study, the majority of the traumatic incidents were not crime experiences. Fifteen percent of the participants had witnessed a crime, while 8% reported to have been threatened, and another 16% described a history of sexual or physical assault. A general community study in New Zealand (N=1500) yielded similar results, reporting higher levels of current physical problems, chronic symptoms and limitations in daily functioning after exposure to crimes (26% of the sample) and accidents (Fleet, Kazantzis, Long, MacDonald, & Millar, 2002).

Golding (1994) described more chronic illnesses (e.g. hypertension, arthritis, heart disease, diabetes), functional limitations, poorer health perceptions, and more explained and unexplained somatic symptoms in a large American sample of sexually assaulted women, recruited across two mental health catchment areas (N=1610). The study is useful because of a broad assessment of different physical symptoms. Despite common expectations, the study found that sexual assault was not more strongly correlated with sexual and reproductive problems, but gastrointestinal problems, pain, and a wide spectrum of symptoms overall. Furthermore, it illustrated the importance of an assessment of somatization symptoms in addition to symptoms that can be medically explained.

Other studies have emphasized more specific health complications. For example, Plitcha and Abraham (1996) collected data from a randomly selected

community sample of women in the US (N=1599) and found that those with a history of abuse reported more diagnoses of urinary tract infections and sexually transmitted diseases. Similarly, in a recent study on the relationship between intimate partner violence, chronic disease and health behaviours in a large US community sample of more than 70.000 respondents, Breiding, Black, and Ryan (2008) revealed a higher incidence of joint problems and asthma, along with restrictions in activity. Moreover, adverse health behaviours such as smoking, binge drinking, and a lack of self care were reported by both genders.

In relation to early trauma experiences, the Adverse Childhood Experiences Study (ACE) investigated associations between adverse childhood experiences, health risk behaviours and physical illness (Felitti et al. 1998). The study assessed 13 494 adults, with more than 50% of the respondents reporting at least one adverse childhood experience. Participants with four or more adverse childhood experiences, as compared to those with none, demonstrated 4 – to 12 - fold increased health risks. Moreover, they reported more chronic bronchitis, emphysema, stroke, ischemic heart disease and cancer, an increased incidence of skeletal fractures, hepatitis and poorer health perceptions. In this study, adverse childhood experiences comprised a broad construct in that not only crime experiences such as physical, sexual and emotional abuse were included, but also witnessing adverse events in the family such as violence, substance abuse, suicidality or imprisonment. The results also highlighted an increase in health risk behaviours amongst those who have had adverse experiences.

A recent Australian population study also examined physical and psychological health sequelae of childhood sexual abuse (CSA) (Najman, Nguyen, & Boyle, 2007), and drew attention to possible gender differences in physical health impacts. As part of the study, 1784 people with a CSA history were assessed by phone interviews, using the Short Form-36 questionnaire. Depending on the nature of the violence (penetrative vs. non penetrative sexual violence), male CSA survivors had a 2.25-5.93 times higher rate of mental, but not physical health problems. Women, on the other hand, displayed a somewhat lower prevalence of mental health problems, while revealing a 1.87-2.31 higher rate of impaired physical health.

Controlled cross-sectional studies

A number of studies have used controlled cross-sectional designs. Higgins and Folette (2002) found an increased number of self reported physical symptoms and more medication intake in 102 elderly females with a lifetime history of interpersonal violence, as compared to participants who had never experienced violence. Likewise, Kimerling and Calhoun (1994) conducted a study in 115 rape victims, and assessed somatic symptoms, health perceptions, health care use and psychological distress over a period of one year post-assault. In comparison to a control group of women who had never experienced a crime, they found increased reports on a wide range of somatic symptoms such as tension headaches, gastrointestinal problems, back pain, allergies, cardiovascular symptoms, and menstrual problems. These results were subject to several different interpretations. The increased occurrence of somatic problems could have reflected a greater likelihood of a manifested physical illness. Alternatively, psychological distress may have been misinterpreted as a medical problem. Furthermore, physical symptoms such as weight loss or heart palpitations may be due to somatic symptoms of depression or anxiety (Kimerling & Calhoun, 1994). Another study by Modesitt et al. (2006) found that 48.5% of women with breast, cervical, endometrial, or ovarian cancer had a history of violence. They also showed that victimized women had a 2.6-fold increased chance of an advanced stage diagnosis, even though there was no difference in the cancer screening compliance or type of cancer. This is a critical finding, as it suggests that not only the onset, but also the course of the disease can be influenced by traumatic experiences.

A substantial amount of evidence supports a relationship between intimate partner violence and physical problems (Woods, 2004). Various health problems have been reported, with a striking prevalence of chronic pain conditions, allergies, and infections (Abbot, Johnson, Koiziol-McLain, & Lowenstein, 1995; Bergman & Brismar, 1991; Campbell, 2002; Campbell & Lewandowski, 1997; Chapman, 1989; Dearwater et al., 1998; Eby, Campbell, Sullivan, & Davidson, 1995; Talley, Fett, Zinsmeister, & Melton, 1994; Walling, O'Hara, Reiter, Milburn, Lilly, & Vincent, 1994). More recently, Hurwitz, Gupta, Liu, Silverman, and Raj (2006) investigated physical health outcomes in South Asian women who were resident in the US. Twenty-one percent out of 208 women reported current intimate partner violence

which was associated with an increased likelihood of self reported physical health problems, depression, anxiety and suicidal ideations.

It is important to note that there is also contradictory evidence on the relationship between trauma and physical health. For example, a study in male Swedish victims of abuse revealed that financial strain, rather than a history of abuse explained physical and psychological health complaints such as headaches, tension, cognitive impairment and depression (Soares, Macassa, Miranda, & Viitasara, 2007).

Studies in primary health care settings

Some studies have investigated victimization in patients at primary health care settings which may constitute a somewhat more reliable assessment, in that at least some of the somatic problems have been verified by a medical health professional. McCaw, Golding, Farley, and Minkoff (2006) conducted a telephone survey with 391 members of an HMO (Health Maintenance Organization), and found that 7% of the women experienced recent DV, while 34% reported lifetime abuse. A Swiss study described similar results in patients of an internal medicine clinic, with 9.8% found to have been victims of (mostly domestic) violence over the past year (Morier-Genoud, Bodenmann, Favrat, & Vanotti, 2006). Finally, Porcerelli, West, Binienda, and Cogan (2006) compared abused and non abused female family practice patients. In 47 women, they found evidence for emotional abuse by their partners within the past year which was associated with significantly more physical and psychological problems.

With respect to the nature of physical problems, Letourneau, Holmes, and Chasedunn-Roark (1999) reported more general physical health problems and gynecological problems, as well as an increased tobacco consumption in 21% of the outpatients in a gynecologic clinic who had experienced sexual, physical or emotional abuse. Moreover, Leserman, Drossman, Toomey, Nachman, and Glogau (1996) reported that as many as 66.5% of the female outpatients in a gastroenterology clinic indicated a history of sexual and/or physical abuse. Besides gastrointestinal problems, abused women reported more pain and other somatic problems, bed disability days, lifetime surgeries and functional limitations when compared to women without a history of sexual abuse. No differences in health outcomes were found between

victims of child abuse and adult victims which contests the results from other studies (Felitti et al, 1998; Walker et al., 1999).

Studies using data from external sources

A few studies have used more objective physical health data such as medical records, physician diagnoses, and mortality rates. Walker et al.(1999) conducted a study on 1225 randomly selected female members of a Health Maintenance Organization (HMO), using both self report measures and physician rated diagnoses. The relationship between childhood emotional, physical and sexual abuse, as well as emotional and physical neglect and physical health was examined. Women with a history of childhood maltreatment displayed more psychiatric and medical problems such as infectious diseases, pain disorders, cardiovascular problems, diabetes, asthma, dermatitis and allergies. These physician rated diagnoses corresponded with self reported health problems such as problems with sexuality, chronic pain, insomnia, fatigue, numbness, dizziness, and gastrointestinal problems. Moreover, women exposed to childhood maltreatment showed more functional disability and health risk behaviours. As with the above mentioned ACE study (Felitti et al., 1998), the number of physical symptoms corresponded with the number of maltreatment categories.

Finally, Van Houdenhove et al. (2001) found higher rates of childhood physical and emotional abuse in patients with diagnosed chronic fatigue syndrome or fibromyalgia, when compared to healthy controls and to people with other medical conditions such as multiple sclerosis or rheumatoid arthritis. These results point to a possible relationship between trauma exposure and specific diseases, whereby the so called “unexplained symptoms” (Golding, 1994) seem of particular relevance.

With respect to mortality rates, a study by Sibai, Fletcher, and Armenian (2001) should be mentioned, although this investigation did not explicitly focus on VOC. Over the course of ten years, the authors followed 1567 Lebanese men and women who were exposed to war related stressors. The results showed a correlation between increased number of war related stressors and an increased risk of mortality. Moreover, the greatest mortality risks for women were determined for loss experiences, while war-related displacement imposed the greatest risk on both, men and women. Other evidence for increased mortality rates after trauma comes from

research on Vietnam veterans which has reported a double risk of mortality from cancer (Thomas, Kang, & Dalager, 1991).

1.4.1.2 Reported health problems in crime survivors with PTSD

While the above mentioned results have demonstrated an association between trauma exposure and physical health, it is critical to find out whether PTSD mediates this relationship. This is particularly relevant in view of the fact that PTSD has been related to distinct neurobiological mechanisms (Friedman, 2004). Interestingly, a potential mediating role of PTSD in physical health has only attracted research attention more than a decade after the inclusion of the diagnosis in DSM-III (Schnurr & Jankowski, 1999; Schnurr & Green, 2004a).

Most of the large scale research on an association between trauma, PTSD and medical problems has focused on war veterans which may not be generalizable to VOC. First of all, soldiers may be healthier than the general population, as they have to demonstrate a high level of physical fitness prior to an engagement with the military (McFarlane, Atchison, Rafalowicz, & Papay, 1994). Moreover, the nature of the stressors experienced during combat, as well as possible sustained injuries, may not apply to a VOC population (McFarlane et al., 1994). Lastly, there is a clear dominance of males which contrasts the high proportion of females in VOC populations such as sexual assault survivors. This is important, as gender may be another moderating or mediating variable in the PTSD - physical health link, e.g. due to gender differences in PTSD prevalence or hormonal influences (Rasmussen & Friedman, 2002). For example, a gender difference in the trauma-PTSD-health association was reported by Taft, Stern, King, and King (1999) who conducted a path analysis in 1632 male and female Vietnam veterans as part of the renowned National Vietnam Veterans Readjustment Study (NVVRS). Whereas the authors found a mediating effect of PTSD in the trauma-physical health relationship for both genders, the relationship between *functioning*, physical health and PTSD differed between genders. More precisely, the functional status in women was predicted by their health conditions, but not PTSD. Nonetheless, a mediating role of PTSD was confirmed by several other authors who have focused on an examination of *female* war veterans

(Friedman & Schnurr, 1995; Kimerling, Clum, & Wolfe, 2000; Wolfe, Schnurr, Brown & Furrey, 1994).

For VOC, there is some evidence of an association between PTSD, comorbid conditions and self reported physical health in victims of sexual assault. Clum, Calhoun and Kimerling (2000) reported that the perceived severity of the sexual assault predicted self reported symptoms and health perceptions in 57 college women. However, exposure was no longer a significant predictor when depression and PTSD were taken into account. While the authors suggested that both, PTSD and depression, could account for the relationship between sexual assault and health impairment, only PTSD was associated with reproductive health symptoms. Similarly, Mollica, McInnes, Sarajlic, Lavelle, Sarajlic, and Massagli, (1999) reported a significant relationship between disability and *comorbid* PTSD and depression in Bosnian refugees. However, this association was not accounted for by PTSD or depression alone. In contrast, Miranda, Meyerson, Marx, and Tucker (2002) examined the role of comorbid depression in 32 individuals with PTSD after mostly violent experiences. The assessment comprised a physical examination, an electrocardiogram, and a structured clinical interview. In line with the authors' expectations, depression mediated the relationship between PTSD and physical complaints. However, the study focused on somatic symptom reporting rather than physical illness.

With regard to a specific mediating role of PTSD in VOC, Zoellner, Goodwin and Foa (2000) established that PTSD severity was predictive of self reported physical symptoms in 76 victims of sexual assault. Importantly, these results were maintained even when anger and depression were controlled. Moreover, the authors reported that re-experiencing symptoms were related to self reported physical symptoms.

In a more recent case control study in a US Public Health Insurance Service, Seng, Clark, McCarthy, and Ronis (2006) examined the physical comorbidity in women with PTSD (n=2133). The sample was compared to a random sample of women without PTSD (14,948). The authors established that PTSD was associated with an increased risk of endometriosis, dyspareunia, fibromyalgia and Irritable Bowel Syndrome. Moreover, a dose-response relationship was determined for PTSD

chronicity and severity. Victimization alone increased the risk for adverse health outcomes, whereas PTSD emerged as a stronger predictor for the above mentioned health conditions. In addition, the physical health risk was enhanced by comorbid mental health conditions such as dissociative symptoms, depression or Borderline Personality Disorder.

Although not explicitly focusing on crime survivors, a study by Zayfert, Dums, Ferguson, and Hegel (2002) is noteworthy, as they compared the influence of PTSD, other anxiety disorders and depression on physical health outcomes. They found that, relative to Personality Disorders, General Anxiety Disorders and Major Depression, PTSD was associated with a significantly worse physical health status. These results were sustained, even when comorbid anxiety disorders, depression and age were accounted for. Thus, this study suggests a unique contribution of PTSD which supports the above illustrated findings on specific psycho-neurobiological processes.

Despite this, some research has rather yielded ambiguous results in relation to the mediating role of PTSD. In a recent study, Lang et al. (2008) evaluated the relationship between childhood maltreatment, sexual trauma in adulthood, PTSD and physical health. The study involved two hundred female Veteran Affairs primary care patients were administered self report measures, and revealed a positive relationship between childhood non sexual maltreatment and PTSD. However, both, non sexual childhood maltreatment and PTSD were related to poorer physical and mental health. The pattern was different in adult sexual assault survivors, because the relationship between the assault and negative health impacts was mediated by PTSD.

Similarly, Norman, Means-Christensen, Craske, Sherbourne, Roy-Byrne, and Stein (2006) explored the associations between particular types of trauma and specific medical problems in a primary health care setting. The results revealed that, in men, trauma history was associated with arthritis and diabetes, whereas PTSD only mediated the relationship between trauma and arthritis. In women, digestive diseases and cancer were related to traumatic experiences, while none of the physical conditions was mediated by PTSD. It was concluded that different trauma types seemed to predict different medical problems in men and women. In addition, the

overall reports on physical illness were influenced by the type of assault: Sexual trauma was more predictive of physical disease in women, while experiences of physical assaults predicted physical problems in men.

Another study by Heim, Ehlert, Hander, and Hellhammer (1998) compared a group of women with chronic pelvic pain to a control group of women without pain. They found that women with the pain condition were significantly more likely to have experienced some form of abuse, with rates exceeding the 60% mark, in contrast to about 20% in the control group. Furthermore, 40% of the participants in the chronic pain condition presented with PTSD. However, this also means that 60% did not fulfil the criteria for PTSD which questions a mediating role PTSD in the abuse-pain relationship.

1.4.1.3 Increased utilization of health services and enhanced health care costs

Another way of examining the multidimensional construct of physical health is to consider the utilization of health services and associated health care costs to the health care system and society at large (Schnurr & Green, 2004b).

A number of studies have reported an increased use of health care facilities by victims of crime. Koss, Koss, and Woodruff (1991) describe a 50% increase in physician visits after rape and physical assault in women, associated with 2.5 times greater outpatient costs. Similarly, Leserman et al. (1996) described more lifetime surgery and more disability days in their above mentioned study on the female outpatients of a gastroenterologic clinic. Kimerling and Calhoun (1994) also found an increased utilization of physical health care services, but no increased use of mental health services one year post-assault. This is an interesting outcome, given that both, psychological and physical symptoms increased after the rape and declined during the year post-assault. However, despite this decrease in physical *and* psychological symptoms, medical services were attended with increasing frequency over the course of the year.

Stein, McQuaid, Pedrelli, Lennox, and McCahill (2000) assessed health care utilization in primary care patients with PTSD. PTSD patients (16.4%) were significantly more likely to have been hospitalized for medical problems than individuals without a mental illness (1.4%) in the preceding six months. In addition, they were significantly more likely to have visited the emergency department and to have visited their general health practitioner more than six times in the preceding six months.

Walker et al. (1999) investigated the health care costs of women who had suffered from childhood abuse and neglect. They determined that the median annual health care expenses for women with abuse or neglect experiences exceeded those of women without childhood maltreatment experiences by 97\$US. In women who had been subjected to childhood sexual abuse, an average surplus of 245\$US was spent on medical care. According to the authors, these results point to substantial costs to the society, even though, at a first glance, the individual amount appears fairly modest.

In sum, various efforts have been undertaken to provide evidence on physical health impacts after trauma. Most data are based on self reports which may have a limited reliability, validity and generalizability. However, more “objective” data such as medical records may also be biased in that self reported information is used to arrive at a particular diagnosis. Similar problems occur in relation to data on health care utilization, as they are also reliant on self reports which compromises accuracy, particularly with respect to patients who frequently attend services. Lastly, frequent physician visits may sometimes only represent a poor perception of health status rather than a confirmed presence of health problems.

While there is some evidence on a mediating role of PTSD, this role has not been determined conclusively. Some studies have suggested that the relationship between trauma and physical health problems may be mediated by comorbid PTSD and depression or depression alone. Moreover, there is an indication that the role of PTSD may be influenced by other variables such as gender and type of crime. Also, some studies have pointed to a significant role of PTSD, but not explicitly investigated the nature of its effects.

Some researchers have called for additional laboratory tests to determine physical health impacts (Schnurr & Green, 2004 a, b). One way to obtain more objective data is a measurement of immunological markers which could serve as an indirect indicator on physical impairment. However, an analysis of immunological markers can also shed light on the complicated mechanism underlying the associations between trauma, stress, PTSD, immunological changes and the development of a disease. Once again, this is particularly interesting with respect to the assumed distinct psycho-neurobiological processes in posttraumatic illness.

1.4.2 Immunological changes in traumatic illness

Within the field of Psychoneuroimmunology (PNI), various bi-directional interactions between the central nervous system, endocrinal and immune system have been observed (Adler, Felten & Cohen, 1991; Kugler, Schedlowski & Schultz, 1995; Schedlowski & Tewes, 1996). While it would be beyond the scope of this work to aim at a comprehensive description of the extensive research activities in this growing field, however a short reference should be made to one of the pioneers of stress research, Hans Selye (“The stress of life”, 1956) whose contributions sparked a whole plethora of research into the physical health consequences of various stressors. Initially, the major focus was on the role of stress in disease onset and progression, whereas later work has aimed at addressing immune functioning in relation to acute and chronic stress scenarios, as well as life events such as separation, bereavement and job loss (Cohen & Williamson, 1991; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Segerstrom & Miller, 2004).

Increasingly, research interests have also concentrated on immune parameters in the context of psychopathology, with a particular attention to depression and anxiety disorders (Kiecolt-Glaser et al., 2002). Surprisingly, comparatively little research has been devoted to the influence of extreme stressors such as trauma.

1.4.2.1 Brief overview of the Immune system

As many readers may not be familiar with the immune system, a short and simplified description of the major functions will be provided in this section. For more comprehensive explanations, the reader is advised to refer to sources such as Adler et al., (*Psychoneuroimmunology*, 1991) or Rabin (*Stress, immune function and health: the connection*, 1999).

Innate versus specific immune response

Categorizing the immune system is a challenging undertaking, as immune responses are highly redundant and interdependent (Segerstrom & Miller, 2004). However, it appears useful to distinguish between two major features of immunity, (1) the innate or natural immune response and (2) the acquired, specific immune or adaptive immune response (Woods, Page, O'Campo, Pugh, Ford, & Campbell, 2005).

The innate immune response is the first line of defense which is already existent at birth, characterized by its non-specificity. This means it includes “all purpose cells” that can attack various disease provoking microorganisms within a short period of time (Segerstrom & Miller, 2004). The generalized response of the innate immunity is inflammation, in which neutrophils and macrophages (both subtypes of the white blood cells) gather together at the site of the infection and phagocytose (“eat”) the pathogens. This process is supported by additional mechanisms such as the release of oxygen radicals which are toxic substances. As part of this proinflammatory process, macrophages also release cytokines which are communication molecules with a whole range of different functions, including the initiation of fever, inflammation and wound healing. Other frequently investigated cells of the innate immune system are Natural Killer Cells (NK cells) with a major role in limiting the early phases of viral infections and attacking malignant cells (Segerstrom & Miller, 2004)

In contrast, the specific immune response is a well orchestrated response against specific invaders. Lymphocytes have receptor cells on their cell surfaces which respond to only one particular antigen (a particular molecular shape on a given invader). Once the specific immune response is initiated, these cells proliferate (or

divide). Moreover, the specific immunity is mediated by three types of lymphocytes: T-helper cells (e.g. CD4⁺), T-cytotoxic cells (e.g. CD8⁺ cells) and B cells. T-helper cells produce cytokines which promote a cascade of other processes; T-cytotoxic cells lyse compromised cells; and B cells produce antibodies such as Immunoglobulin A (IgA) to counteract bacterial and viral infections.

It is important to understand that the innate and specific immune response are not mutually exclusive, but rather intertwined. For example, the innate immune response activates the specific immunity, while having to defend the body until the acquired response is available. Correspondingly, B cells of the acquired response coat antibodies which in turn assist the innate immune response.

Cellular and humoral immune responses

Specific immunity comprises two forms of responses: The humoral and cellular immunity. Cellular immune responses are directed against intracellular pathogens such as viruses and are coordinated by a subset of the CD4⁺ T-helper cells, called *Th1* cells. Th1 cells employ particular cytokines, e.g. Interferon gamma (IFN γ), Interleukin-2 (IL2), or Tumor necrosis factor beta (TFN β) which activate T-cytotoxic cells and NK cells. More specifically, IFN γ is thought to be involved in antiviral activities and macrophage activation (Woods et al., 2005). The humoral immune response involves cytokines such as Interleukin-1, -4, -5, -10, -13 (IL-1, IL-4, IL-5, IL-10, IL-13) and Tumor necrosis factor alpha (TFN α). This response is coordinated by *Th-2* (subset of CD4⁺) cells and directed against extracellular pathogens such as parasites and bacteria. Furthermore, Th2 cells suppress intracellular defense reactions, e.g. by an inhibition of macrophage activation (Woods et al., 2005). Thus, it is critical to understand that the cytokine activity promoted by one Th cell subtype inhibits the other (Woods et al., 2005).

1.4.2.2 Immunological changes in PTSD

Several studies have investigated immunological changes in posttraumatic illness. A variety of immune parameters have been analyzed in terms of their quantity and/or functional activity (e.g. their ability to replicate or to respond to a particular

pathogenic challenge) with a major focus on NK cells, lymphocytes, and more recently, cytokines (Dougall & Baum, 2004).

It is important to note that most of the PNI research was conducted in the context of acute stress scenarios, resulting in a considerable amount of support for an increased immune activity after a short term exposure to stress. Conversely, research into chronic stressors has yielded a somewhat different picture, rather characterized by a suppression of immune cell numbers and functioning (Dougall & Baum, 2004; Friedman & McEwen, 2004; Schnurr & Green, 2004a).

However, the direction of change is not as easily predictable, as a major problem faced in PNI research is the lack of a consensus on stress conceptualizations. This problem becomes even more salient in the context of posttraumatic illness, as there is a lot of conceptual confusion around the concept of traumatic stress. Some authors have categorized PTSD as a special form of chronic stress (Baum, Cohen & Hall, 1993). However, it remains questionable whether this is indeed a valid classification. To resolve this dilemma, Dougall and Baum (2004) have suggested a distinction between time limited traumatic events and repeated, ongoing traumatic experiences. However, even time limited experiences may be influenced by secondary stressors such as work incapability and financial strains, physical injuries, litigation processes or PTSD symptoms themselves. Also, one needs to account for the fact that many trauma survivors have endured repeated and ongoing crimes. Besides the duration of the event, there are other critical variables such as the timing of measurement, i.e. the time elapsed between the traumatization and the assessment. This is an important consideration, as it can be assumed that impacts on immune functioning are not static and partly reversible (Dougall & Baum, 2004). As a consequence, it is not surprising that the comparatively few investigations into the immunological changes after trauma have yielded inconsistent results. A range of different immunological parameters have been studied in PTSD patients, addressing both, innate and acquired immunity. In the following sections, evidence on increased and decreased immune activity in posttraumatic illness will be presented. However, due to the sparse empirical findings on immune functioning in PTSD, research on various types of trauma will be taken into account.

Increased immune activity

NK cell and Lymphocyte results

Sabioncello et al.(2000) conducted a study in 20 war affected Croatian women two months after they had been displaced from their homes. In comparison to a sample of 14 female controls who were not directly exposed to war trauma, the displaced women showed increased numbers of NK, - T, - and B cells which corresponded with increased cortisol, β -endorphin and prolactin levels, as well as psychological distress, depressive symptoms and anxiety. However, the study had employed a control sample which was also resident in a war zone and thus indirectly exposed to war trauma, and did not specifically measure PTSD. In another study by Delahanty, Dougall, Craig, Jenkins, and Baum (1997), enhanced NK cell cytotoxicity was found in rescue workers of an airplane crash two months after the event, and this was correlated with PTSD symptoms. Interestingly, these results were not detectable four months after the disaster, thus suggesting a reversible effect.

With respect to chronic PTSD, Laudenslager et al. (1998) found higher levels of NK cells, but not lymphocytes, in a sample of ten Vietnam veterans with chronic PTSD, as compared to a control group of veterans with chronic alcohol dependency. In addition, the veterans with PTSD showed higher levels of depression and psychological distress, but no elevated levels of hormones such as cortisol, prolactin and growth hormone. In another sample of Vietnam veterans, Boscarino and Chang (1999) compared lymphocyte and white blood cell numbers in a comparatively big sample of veterans with and without PTSD, anxiety disorders and depression. The results revealed significantly increased leucocyte and lymphocyte counts in PTSD participants. However, the discriminant validity of this study may be limited in that participants with high current anxiety levels also displayed some of these abnormalities, along with highly sensitized T cell lymphocytes.

In relation to prolonged interpersonal violence, Wilson, Van der Kolk, Burbridge, Fislser and Kradin (1999) identified an increased lymphocyte activation, but no increased numbers of T, B or NK cells in people with a history of childhood sexual abuse. Similarly, another study by DeBellis, Burke, Trickett, and Putnam (1996) compared antibodies in sexually abused girls to healthy adult women and found increased levels in the victimized group. In their sample, the abuse took place

over an average period of 23 months, thus constituting an example of long-term, repeated exposure to violence.

Evidence on increases in proinflammatory cytokines

Apart from NK cell and lymphocyte alterations, changes in proinflammatory cytokines, as well as other markers of inflammation such as acute phase proteins have promoted research interest.

Another study that revealed increased cytokine activation, Spivak et al. (1997) compared IL1b and IL-2 receptors in male Israeli war veterans with PTSD to a sample of healthy volunteers. They found that IL-1b levels were significantly higher in PTSD patients, and that this was associated with the duration, but not the severity of PTSD. Likewise, no associations could be found with anxiety, depression or cortisol levels. Moreover, no increase could be established for IL-2 receptors.

Baker et al. (2001) measured IL-6 levels in the cerebrospinal fluid and blood of 11 combat veterans with PTSD, as compared to a healthy control group. They found higher levels of IL-6 in the cerebrospinal fluid, but not in the blood samples of veterans. Nonetheless, plasma IL-6 and norepinephrine levels were positively correlated in veterans with PTSD. Elevated serum levels of IL-6 and IL-6 receptors were also found in a PTSD sample by Maes et al. (1999). Furthermore, elevated IL-6 levels were associated with increased stress levels and PTSD comorbid with depression, but not with PTSD severity alone.

In relation to VOC, Altemus et al. (2003, in Woods et al., 2005) demonstrated significantly enhanced delayed type hypersensitivity reactions (DTH) in 16 women with a history of childhood sexual and/or physical abuse which is characteristic of the above mentioned Th1 response (Woods et al., 2005). Finally, Woods et al. (2005) examined psychological and immunological impacts in a sample of 101 women subjected to intimate partner violence recruited from a primary care setting. Sixty-two women reported either a history of abuse by their partners or current abuse. Correspondingly, the sample yielded a high prevalence of PTSD (38.6%) and depression (51.5%), with a high rate of comorbid PTSD and depression (n=39). Moreover, Wood et al. also determined higher levels of the cytokine IFN γ in abused,

as opposed to non abused women and found that this elevation in levels was mediated by PTSD symptoms.

Some studies have also examined other markers of inflammation such as acute phase proteins. Miller, Sutherland, Hutchison, and Alexander (2001) conducted a controlled pilot study with 15 patients in a trauma stress clinic who had been diagnosed with PTSD. The inflammatory response to PTSD was examined by measuring interleukin-6 receptors (sIL-6r), but also C-reactive protein (CRP) levels. CRP is an acute phase protein produced by the liver which serves as an indicator of a proinflammatory response (Black & Garbutt, 2002; Miller et al., 2001; Soendergaard, Hansen, & Theorell, 2004). Moreover, CRP production is thought to be influenced by IL-6. More than three months post-trauma, a positive relationship between sIL-6r and intrusion symptoms as assessed by the Revised Impact of Event scale (Weiss & Marmar, 1997) was demonstrated. In addition, CRP correlated with intrusion (DTS, Davidson's trauma scale) and depression (GHQ) symptoms. In a later study, the same group of authors (Sutherland, Alexander, & Hutchison, 2003) expanded these findings by confirming significantly increased levels of IL-6, IL-6 receptors as well as TNF α in orthopedic patients diagnosed with posttraumatic psychopathology. They found that, two months after the admission, IL-6 levels correlated with psychological problems, while a relationship between IL-6 receptors and TNF α was still evident six months after the injury. However, it should be mentioned that posttraumatic psychopathology was assessed by the GHQ only and no PTSD symptoms were measured. In contrast to their previously conducted study, no significant difference could be established for CRP.

Melamed, Shirom, Toker, Berliner and Shapira (2004) examined CRP levels in Israeli civilians (N=1153) who were exposed to terror threats. They established that women displayed significantly higher levels on the fear of terror measure which was also associated with a higher CRP level. However, this relationship could not be determined for men. The study controlled for potential confounding variables such as generalized anxiety, depression, demographic and biological variables.

A Swedish study conducted by Soendergaard et al. (2004) found the opposite effect with decreased CRP levels in 86 Iraqi refugees with PTSD. This result was

strengthened by concomitantly decreased levels of Serum Amyloid A which is another acute phase protein indicating inflammatory activity. However, these results were not maintained at follow-up, where increased inflammation markers were identified. The authors interpreted this result as a consequence of infections rather than PTSD.

Decreased immune activity

Ironson et al. (1997) found decreased NK cell cytotoxicity in 180 hurricane survivors one to four months after the disaster. The results were influenced by the degree of property damage, and to a lesser degree psychological variables such as loss, intrusive thoughts and other PTSD symptoms. Moreover, white blood cell counts were significantly correlated with the experienced loss, PTSD and self reported somatic symptoms. It should be mentioned that the number of NK cells were higher in hurricane affected people than a laboratory control sample, but only NK cell cytotoxicity was meaningfully related to the assessed psychological variables.

Similarly, Solomon, Segerstrom, Grohr, Kemeny and Fahey (1997) examined NK and T cell numbers and NK cell cytotoxicity in 68 employees of a VA Medical Centre after an earthquake, and found a decrease in these immune parameters over a period of four months. However, this decrease seemed to be related to the level of distress experienced shortly after the event. People with a low level of distress had larger decreases in NK cells and T cells over time, while highly stressed people displayed increases in T and B cells. Moreover, NK cells seemed to be mediated by participants' tendency to worry (Solomon et al., 1997). In another study on 155 male Japanese earthquake survivors, Inoue-Sakurai, Maruyama and Morimoto (2000) found comparable results, and found a lower NK cell activity in PTSD sufferers 12 to 14 months after the earthquake. Low NK cell activity was also found to be moderated by lifestyle factors.

In a study that looked at longer time frames between trauma and measurement, McKinnon, Weisse, Reynolds, Bowles, and Baum (1989) detected an immune suppression on survivors of a nuclear accident, with lower numbers of NK, T and B cells and higher herpes simplex virus titers. In addition, these measures corresponded with catecholamine production and the reported level of distress. In much the same

way, Kawamura, Kim & Asukai (2001) looked at IFN γ and IL-4 levels and lymphocyte and NK cell counts in male Japanese workers with PTSD in remission. A control sample was composed of people with similarly stressful experiences without a PTSD diagnosis. Even ten years (mean value) after the incident, people with PTSD in remission demonstrated significantly lower numbers in all immunological measures.

In sum,, the PNI studies in traumatized people have yielded inconsistent results, with a slight trend towards enhanced immune functioning. However, there is little agreement in terms of the study designs, e.g. time frames between trauma and assessment or the measures used. Moreover, some studies used PTSD as an independent variable, whether others focused on the traumatic experience per se. Also, there was no conclusive evidence with respect to the duration, type and number of traumatic experiences.

So how can these inconsistencies be explained and what is the link between immunological changes and disease?

Friedman and McEwen (2004) refer to the concept of *allostasis* as an organizing principle to maintain homeostasis or stability. At the same time, allostasis can be understood as a mechanism of adaptation and seems particularly useful regarding the inconsistent neurobiological findings in PTSD, as it exceeds beyond stress by integrating genetic and biological factors, early life experiences, psychological and lifestyle factors. An achievement of allostasis involves efforts or costs, called *allostatic load* which can serve as a heuristic model to explain the psychobiological abnormalities in PTSD, but also the associated physical health risks (Friedman & McEwen, 2004).

The allostatic load or costs do not only apply to coping efforts, but also to regaining homeostasis or returning to “normal” functioning. If individuals are not able to recover from stress, psychobiological changes persevere as a ”chronic stress syndrome” which has been associated with a whole range of physiological reactions such as increased HPA activation, increased cortisol levels, and increased adrenergic activity. While many of these mechanisms have also been found in PTSD, some abnormalities in PTSD seem to be unique, e.g. the previously described lower cortisol

levels and the glucocorticoid receptor hypersensitivity (Yehuda et al., 2004). Another important difference may be manifested in tonic (baseline) and phasic (reaction to a stimulus) responses in PTSD. Friedman and McEwen (2004) suggest that tonic abnormalities, e.g. increased reactions to adrenergic stimulation, may produce health risks similar to those in the chronic stress syndrome, while phasic abnormalities in PTSD may lead to additional physical problems.

Translating these ideas to immune functioning, CRF (corticotrophin-releasing factor), norepinephrine or cytokines could trigger a phasic enhancement of immune activity (Friedman & McEwen, 2004), whereas tonic phases would be characterized by immunosuppression. Friedman and McEwen (2004) propose that, particularly in severe PTSD, the latter may be overshadowed by frequent phasic responses which would explain the tendency towards an increased immune activity in posttraumatic illness.

In traumatized people, the allostatic load may be particularly high, as they face (1) repeated exposure to multiple stressors including reminders of the trauma which adds to an already existing adrenergic and cardiovascular hyper-reactivity and other forms of dysregulation such as an increased activity of the HPA. In addition, difficulties to discriminate between stimuli and to accurately appraise threat lead to unnecessary stress responses. (2) As discussed previously, traumatized people have difficulties to habituate to threatening stimuli. (3) A failure to shut off the allostatic response is often observed in trauma, reflected in an elevated catecholamine production or increased HPA activity which may in turn promote enhanced immune activity. Finally, the allostatic load may involve secondary costs where the stress system has already lost its capacity to react appropriately.

Not surprisingly, all the above mentioned reactions impose a lot of strain on the cardiovascular system with a consequent risk of high blood pressure, atherosclerosis and subsequent cardiovascular conditions. Moreover, HPA dysregulation and the resulting hypocortisolism and enhanced immune activity may promote diseases such as chronic fatigue syndrome, fibromyalgia, somatoform disorders, pain syndromes, rheumatoid arthritis and asthma (Friedman & Mc Ewen, 2004). Friedman and McEwen also emphasize the interactions with other systems,

e.g. the endocrine, metabolic and opioid system which can contribute to the development of physical problems such as reproductive abnormalities, hyperthyroidism, and chronic pain. Furthermore, it is noteworthy that a release of cytokines per se can elicit physical and psychological symptoms such as tiredness, depressed mood, fever, and a lack of activity (Dougall & Baum, 2004).

Moreover, cytokine activity has been linked to cardiovascular diseases (CVD) as well as various other health problems (Black & Garbutt, 2002; Kop, 2003; Maes et al., 1999; Miller, Sutherland, Hutchison, & Alexander, 2001; Soendergaard et al., 2004). Ferguson and Cassaday (2001-2002) found altered levels of proinflammatory cytokines in individuals suffering from the “Gulf War Syndrome” which is characterized by a variety of symptoms such as cognitive impairment, fever, skin irritation, joint pain and fatigue. In their psychoneuroimmunological review, Kiecolt-Glaser et al. (2002) link proinflammatory cytokines, particularly interleukin 6 (IL 6), to a slowed muscle repair after injury, accelerated muscle wasting, aging processes and increased mortality. In addition, the related acute phase protein CRP has been associated with multiple cardiovascular conditions (Hapuarachchi, Chalmers, Blake-Mortimer, & Winefield, 2003; Miller et al., 2001; Soendergaard et al., 2004) and seems to play a pathogenic role in diseases such as osteoporosis and arthritis (Kiecolt-Glaser et al., 2002).

As indicated above, the concept of allostatic load is not limited to biological factors. Rather, lifestyle factors such as health risk behaviours and a lacking engagement in preventative strategies (Rheingold et al., 2004) are taken into account along with psychosocial factors, e.g. social support, emotion-focused vs. problem focused coping strategies, self-efficacy and comorbidity (Schnurr & Green, 2004b).

1.5. Psychosocial treatments for PTSD

Paralleling the interest into the psychological sequelae of trauma, have been many efforts directed towards a description of various trauma treatment approaches.

As mentioned above, specific research into PTSD started with the introduction of the diagnosis into DSM-III (Foa, Keane & Friedman, 2000). However, only during the last twenty years, have systematic investigations into the efficacy of posttraumatic stress treatments have been conducted, while earlier treatment outcome studies were based on case reports or uncontrolled studies with little methodological rigor and few standardized criteria (Sherman, 1998).

This account of empirical findings on posttraumatic stress treatment will begin with reviews and meta-analyses into the general efficacy of a range of PTSD treatments. After that, the literature review will more narrowly focus on treatment evaluations in VOC. It should be mentioned that it would be beyond the scope of this literature review to do justice to all existing and potentially efficient treatment approaches. Hence, a special emphasis is placed on Cognitive-Behavioural Therapy (CBT) and Hypnotherapy findings, as these approaches are considered as most useful for the current project.

1.5.1 General efficacy of psychological PTSD treatments: Findings from reviews and meta-analyses

Shalev, Bonne and Spencer (1996) investigated the literature on PTSD treatments by scrutinizing 81 articles. Their analysis revealed positive impacts of behavioural treatments along with significant improvements in PTSD symptoms through the application of cognitive therapies, with only sparse evidence on the usefulness of psychodynamic therapies and hypnotherapy. Nevertheless, Shalev et al. (1996) concluded that there is some evidence for the usefulness of any treatment modality, but conceded that the results are limited by the heterogeneity of symptom severity and – duration, as well as the nature of trauma populations and control groups. Moreover, they cautioned against the application of exposure techniques in prolonged and multiple trauma (Shalev et al., 1996). Based on their results, Shalev et al. (1996) suggested a hierarchical, combined treatment approach, depending on the individual presentation of PTSD symptoms, comorbidity and other disabling factors (Shalev et al., 1996).

In another critical review from 1997, Foa and Meadows reviewed various treatment approaches such as Crisis Intervention, Hypnotherapy, Psychodynamic treatments, CBT treatments, EMDR, Stress Inoculation training (SIT), as well as a combination of treatments. According to their results, cognitive behavioural studies were the most frequently conducted and best controlled studies. As part of the CBT treatment, both, prolonged exposure therapy and SIT appeared effective in reducing PTSD symptoms. Furthermore, there was no evidence of an advantageous effect by a combination of various cognitive-behavioural techniques (Foa & Meadows, 1997; Foa & Rothbaum, 1998).

Foa and her colleagues (1997, 1998) expanded on those results in later publications such as the release of the Practice Guidelines from the International Society of Traumatic Stress Studies (Foa, Keane & Friedman, 2000). Moreover, they also reviewed treatment interventions specifically for VOC (Hembree & Foa, 2003). This review yielded similar results, but more evidence was available for the efficacy of cognitive therapies as a sole or a combined treatment approach (Hembree & Foa, 2003).

Sherman (1998) performed the first meta analysis to review the empirical evidence for the efficacy of psychological treatments for PTSD (Sherman, 1998). The analysis included a total of 17 studies, with two thirds of the studies focusing on combat veterans, while six studies reported on the treatment of crime-related trauma and bereavement. The author found an overall effect size of $d=.52$ across treatments which was maintained at follow-up which he interpreted as strong support for the efficacy of psychotherapeutic treatments for PTSD. In line with the reviews above, Sherman highlighted Behavioural or Cognitive-Behavioural therapy as the most frequently used treatment approach and that all, but two studies had used some form of exposure technique. However, Sherman did not elaborate on the distinctive effectiveness of single treatment components, suggesting that PTSD treatments may share a number of common active ingredients such as developing a realistic appraisal of threat, targeting avoidance behaviours, and gaining a sense of control and mastery (Sherman, 1998).

Another frequently cited meta-analysis by Van Etten and Taylor (1998) analyzed 61 treatment outcome studies, comparing various psychological therapies and drug therapies for PTSD. To their credit, the authors distinguished thoroughly between the three PTSD symptom clusters as well as between self reports and observer-rated data. The results revealed that psychological therapies led to a greater symptom reduction than drug therapies, with Behaviour therapy and Eye Movement Desensitization Reprocessing (EMDR) yielding the best results. Also, there was some evidence that Behavioural therapy and EMDR were successful with respect to a longer term symptom reduction. Psychological therapies produced significantly lower drop-out rates than pharmacotherapy (14% versus 32%). However, the analysis was limited in that nearly all reviewed psychological therapies included either CBT elements or EMDR, while hypnotherapy, psychodynamic therapy and relaxation therapy were only represented with one single trial, respectively. Also, the studies analyzed consisted of small sample sizes and results were based on treatment completers only. In addition, more than 50% of the studies were combat related, while only 19% of the studies focused on rape or assault –related trauma.

Other authors also confirmed the preference for CBT in systematic investigations of PTSD treatment outcomes (Solomon & Johnson, 2002). However, Solomon and Johnson also drew attention to the lack of knowledge regarding the effectiveness of single treatment components and combined treatment approaches. In this context, they mentioned the lack of a direct comparison of exposure techniques as well as limited knowledge on the optimal treatment length and ideal timing of treatment, impacts of comorbidity, and impacts of treatment strategies on different types of trauma populations (Solomon & Johnson, 2002). For example, as the authors point out, PTSD treatments have not yet been well validated for trauma populations such as victims of torture, physical assault and child abuse, giving rise to the notion that treatments may need to be tailored according to the challenges faced by different populations.

Robertson, Humphreys and Ray (2004) raised similar concerns, but pointed to another important issue by stressing that psychological treatments usually focused on a reduced symptom severity, while not taking into account the usefulness of these treatments for other domains of functioning.

In 2005, Bradley, Greene, Russ, Dutra & Westen conducted a multidimensional meta-analysis of psychotherapy for PTSD and concluded that more than half of the patients with cognitive-behavioural or EMDR treatments had improved. Nevertheless, the authors cautioned against the application of the findings in the community, as they feared a limited generalizability of the results due to an exclusion of participants with multiple and complex symptoms and high levels of comorbidity. Another problem is that a considerable number of participants still present with residual symptoms post-treatment, thus ending treatment with considerably limited functioning. Lastly, Bradley et al. (2005) expressed concerns about the limited knowledge about long-term effects of treatment.

The lack of information on exclusion criteria, exclusion rates, demographics and trauma history was also highlighted in a review of 34 studies (Spinazzola, Blaustein, & Van der Kolk, 2005), even though only studies compliant with the methodological “gold standards” were included (Spinazzola et al., 2005).

Finally, Amstadter, McCart, and Ruggiero (2007) published a recently conducted review on psychosocial interventions for victims of crime. In line with previous findings, they found well established beneficial impacts of Prolonged Exposure therapy as well as promising results with respect to Cognitive Processing Therapy². In addition, the authors acknowledged the potential usefulness of anxiety management strategies for victims of crime, whereas other therapies such as EMDR, Hypnotherapy and psychodynamic approaches received less empirical support. The authors also pointed to challenges inherent in the treatment of victims of crime which may influence the choice of treatment, as well as the implementation of the treatment components. Thus, Amstadter et al. (2007) argue that dissociative symptoms, substance abuse and anger may interfere with exposure treatment which may be further complicated by multiple crime experiences. Also, multiple trauma experiences may require an increased number of treatment sessions and an acquisition of additional strategies such as safety measures. In accordance with the previously

² Cognitive Processing Therapy: A combination of exposure and cognitive therapy, based on themes such as safety, trust, power, esteem and intimacy (Resick & Schnicke, 1992).

mentioned findings, the authors also pointed to the need to identify effective treatment components and patient variables associated with treatment efficacy.

In summary, various meta-analyses and reviews of the efficacy of psychological treatments for posttraumatic stress have revealed positive results with respect to symptom reduction. Furthermore, most treatment outcomes were maintained at follow-up assessments. Although cognitive behavioural approaches have yielded the most consistent results, the efficacy of cognitive therapy and EMDR has been increasingly established in more recent work (Ehlers, Clark, Hackman, McManus & Fennell, 2005). However, other treatment approaches such as psychodynamic therapy and hypnotherapy still lack systematic empirical support.

Such research has highlighted many concerns about the nature of existing studies. A major problem is constituted by very stringent exclusion criteria and a concomitant restricted clinical utility of the results. Most studies have focused on a symptom reduction only, while other areas of impaired functioning have not been taken into account. This is particularly relevant, as at least a minority of people with PTSD often still suffer from residual symptoms even after treatment. Also, most authors agreed that more needs to be known about the effectiveness of various treatment modalities, timing, the optimal length of treatment and benefits of using a combination of treatment components. Lastly, it needs to be determined what works for whom and whether certain types of trauma survivors require a more specialized form of treatment.

1.5.2 Evidence on the efficacy of CBT in victims of crime

It is important to note that CBT treatments vary considerably in terms of their complexity, meaning they can encompass a plethora of different techniques or, conversely, only include a few treatment components. The most commonly included treatment components in current trauma treatment approaches are psychoeducation, imaginal – and in-vivo exposure, cognitive restructuring techniques and relaxation/anxiety management strategies. The following section will describe empirical findings on these CBT treatment components when applied in interventions

involving VOC. A detailed description of the underlying mechanisms will be provided in Chapter V (Description of the conducted treatment program).

1.5.2.1 Psycho-education

Little research has been devoted to the efficacy of psycho-education alone. Some support on the efficacy of psycho-education comes from the nursing field rather than psychology. A recently published study by Oflaz, Hatipoglu, and Aydin (2008) examined the efficacy of psycho-education by comparing a medication, psycho-education alone and a combined medication/psycho-education trial. The results revealed a symptom reduction in the combined treatment group, but no differences between the medication and psycho-education only interventions. The finding contrasted with that reported by Phoenix (2007) who was able to demonstrate beneficial effects of psycho-education on trauma survivors' sense of control and their understanding of stress responses. Moreover, Rice and Moller (2006) showed an improvement in overall health, interpersonal relationships and perceived environmental control in 54 patients with trauma related disorders who had participated in a psycho-education program. Nonetheless, it should be mentioned that these research outcomes may not be comparable nor generalizable to other treatments, as the concept "psycho-education" comprises very heterogeneous approaches. For example, Oflaz et al.'s study (2008) encompassed six weekly educational sessions which also included problem solving and goal setting strategies, whereas in another study "psycho-education" denoted a mere dissemination of a self help booklet (Turpin, Downs, & Mason, 2005).

1.5.2.1 Exposure

When considering empirical evidence for cognitive-behavioural treatments in PTSD, prolonged imaginal and in-vivo exposure have yielded the most promising results in PTSD treatment (Bryant, Moulds, Guthrie, Dang, & Nixon, 2003; Foa et al., 2000). Moreover, beneficial effects of exposure treatments were also established in interventions for victims of crime, with most research conducted in victims of rape and sexual assault (Foa & Rothbaum, 1998).

Foa, Rothbaum, Riggs and Murdock (1991) compared prolonged exposure to stress inoculation training (SIT) and supportive counselling (SC), as well as a wait list control group in victims of sexual and non-sexual assault. The results revealed an improvement in all PTSD symptoms in the PE – and SIT group, with PE emerging as the most promising treatment at follow-up. In addition, 55% of the women in the PE condition no longer met diagnostic criteria for PTSD, as compared to 50% in the SIT and 45% in the SC condition (Foa et al., 1991). A subsequent, methodologically more stringent study used a similar design, comparing PE, SIT and a combination of PE and SIT to a wait list control group in 96 assault victims. While participants improved significantly in all treatment groups, PE revealed the best results in the intent to treat analysis, although there was no statistically significant difference between treatment groups. These treatment gains were maintained at a six months follow-up in all treatment groups (Foa, Dancu, Hembree, Jaycox, Meadows, & Street, 1999).

Another frequently mentioned study by Resick, Nishith, Weaver, Astin, and Feuer (2002) compared Cognitive Processing Therapy to PE and a wait list control group. The study included 171 female rape victims who received 13 hours of therapy. As expected, the results indicated a superiority of the treatment condition against the control group, but no differences between the treatment groups were found apart from a greater reduction of guilt in the CPT group (Resick et al., 2002).

Additional support for the efficacy of PE was received from studies including survivors of mixed trauma. Richards, Lovell, and Marks (1994) compared two treatment conditions in a crossover design: One treatment group received four sessions of imaginal exposure, followed by four sessions of in-vivo exposure, while the other group received the treatment components in the reverse order. As a result, a symptom reduction between 65-80% was achieved across both groups and no differences between the two groups were established, although in-vivo exposure appeared somewhat more effective in reducing avoidance patterns (Richards et al., 1994).

Similarly, Thompson, Charlton, Kerry, Lee, and Turner (1995) found a 35% reduction of symptoms on the CAPS (Clinician Administered PTSD Scale, Blake et al., 1995) in a sample of mixed trauma survivors after the provision of eight imaginal

and in-vivo exposure sessions. In addition, participants showed improvements in other self reported trauma - and general stress measures.

Despite this rich evidence on the success of exposure treatments, some authors have pointed to possible negative outcomes of exposure based practices. Tarrier et al. (1999) indicated a deterioration in some participants after receiving imaginal exposure treatment in contrast to those who had engaged in cognitive therapy. However, the authors have been criticized for basing their judgment solely on the CAPS results, along with a lack of a well established procedure to determine a clinically significant deterioration (Devilley & Foa, 2001). Furthermore, Devilly and Foa (2001) implied that the failure to improve may have been related to other factors such as inconsistent time intervals between treatment sessions and/or an unsatisfying implementation of the single treatment components.

Another frequently raised concern is the suitability of exposure treatments for survivors of multiple trauma, early childhood trauma and people who are less motivated which could lead to higher rates of treatment discontinuation (Van Minnen, Arntz, & Keijsers, 2002). However, Van Minnen et al. (2002) found no predictive evidence for factors such as repeated and early life trauma, personality problems, and feelings of anger, guilt, and shame that would preclude people from exposure treatment. In addition, Foa, Zoellner, Feeny, Hembree, and Alvarez-Conrad (2002) investigated whether imaginal exposure exacerbates symptoms in 76 female chronic PTSD sufferers. The results revealed that there was a temporary symptom exacerbation in a minority of the participants. However, they still benefited from the treatment and did not discontinue treatment earlier. Nonetheless, in a later study Hembree, Street, Riggs and Foa (2004) reviewed possible impacts of assault related variables on treatment outcomes, concluding that childhood abuse may interfere with the processing of a traumatic event.

A frequently encountered, but sometimes overlooked problem is a hesitance to engage in exposure treatment. Zoellner, Feeny, Cochran and Pruitt (2003) conducted a prospective study to explore treatment choices in PTSD sufferers and found that 87.4% of the participants indicated a preference of an exposure treatment to

Sertraline³ intake. However, the generalizability of the results is considerably limited by the fact that a great majority of the participants did not suffer from PTSD, and thus only based their choice on a merely hypothetical scenario. It can be expected that, in real life, the very PTSD psychopathology with extremely painful intrusive memories and associated avoidance patterns prevents people from confronting their fears (Bryant et al., 2003; Taylor, Fedoroff & Koch, 1999; Zayfert, de Viva, Becker, Pike, Gillock, & Hayes, 2005). Another shortcoming of Zoellner et al.'s (2003) study was that only one type of psychosocial treatment was offered in addition to pharmacological treatment.

In a similar analogue study, Tarrier, Liversidge & Gregg (2006) examined the acceptability and preference for a particular PTSD treatment by including a variety of PTSD treatment approaches. University students choose their preferred treatment from 14 treatment options and indicated a preference for cognitive therapy, exposure and psychoeducation, while newer approaches were less endorsed. But again, and acknowledged by the authors themselves, it remains unclear to what extent the results would be translated into actual behaviours or apply to a clinical sample, thus questioning the predictive validity of the study.

Besides clients' attitudes towards exposure, another equally important consideration is the preparedness of practitioners to use exposure in the treatment of traumatized clients. Becker, Zayfert and Anderson (2004) investigated the clinical utilization of exposure therapy in 207 practitioners and found that only 17% used exposure practices in PTSD treatment, while their decision was very much influenced by concerns about treatment discontinuation. Rosen et al. (2004) surveyed the use of various assessment and treatment procedures in a multi-site study of US VA (Veteran Affairs) services. One striking result was that even PTSD specialists rarely used exposure therapy with less than 10% of them applying it regularly. However, an interesting study by Zayfert et al. (2005) looked into exposure utilization in a "real world" clinical practice and found that 75% of the patients who discontinued treatment did so before starting exposure therapy, whereas those who did commence exposure treatment were more likely to complete and benefit from it. Nonetheless, it

³ Sertraline = antidepressant of the selective serotonin reuptake-inhibitor (SSRI) class

should be mentioned that Zayfert et al.'s design was somewhat different from typical RCTs in that an implementation of the exposure component was subject to clinical judgment. Thus, therapists may have refrained from using exposure in patients who were more affected and, as a consequence, more likely to drop out. However, it is also possible that a delayed commencement of exposure therapy may have promoted dropout (Zayfert et al., 2005).

Lastly, there remains some doubt about the optimal exposure length. Van Minnen and Foa (2006) addressed this problem in a recent study, comparing a group which received a 60-minute imaginal exposure intervention to a group with a 30-minute exposure. Both groups proved equally effective, resulting in the conclusion that a within-session habituation may not be essential to benefit from treatment (Van Minnen & Foa, 2006).

In summary, there is now a wealth of evidence proving that exposure treatments have yielded positive outcomes in trauma treatment. Furthermore, there is an indication that they may be superior to anxiety management techniques such as stress inoculation and relaxation. However, there is also a raising awareness of the limitations of exposure treatment, particularly in survivors of multiple and prolonged trauma. Moreover, there is evidence on a reduced acceptance of exposure practices by therapists, while the relationship between exposure and treatment discontinuation needs further clarification.

1.5.2.2 Cognitive restructuring (CR)

Derived from the above mentioned cognitive theories (Beck et al., 1979; Ellis, 1985), Cognitive Restructuring (CR) is defined by an identification, evaluation and alteration of dysfunctional beliefs about the trauma, the self, the world, the future and others (Ehlers & Clark, 2000; Harvey, Bryant, & Tarrier, 2003; Marks, Lovell, Noshirvani, Livanou, & Trasher, 1998).

Empirical evidence: cognitive restructuring plus exposure

Echeburua, Corral, Zubizarreta, and Sarasua (1997) compared a combination of gradual exposure and CR to progressive relaxation training in a sample of sexual

assault survivors. The results showed improvements in PTSD, fear and depression measures, whereas the combined exposure-CR group yielded more positive results which were also maintained at follow-up.

To obtain more detailed information concerning the additive benefits of a combined treatment as opposed to an implementation of single treatment components, Marks, Lovell, Noshirvani, Livanou, and Trasher (1998) compared PE, cognitive restructuring (CR), a combination of PE and CR, and relaxation alone in 87 survivors of mixed trauma over the course of ten treatment sessions. They determined that PE, CR, and the combined treatment were superior to the relaxation condition, but did not show any significant differences in treatment outcomes.

In a similar design, Bryant et al. (2003) randomized survivors of road traffic accidents and non-sexual assault to imaginal exposure, imaginal exposure plus cognitive restructuring or supportive counselling groups. After eight weeks of treatment, a significant improvement in PTSD and depression could be established for both active treatment groups. However, additive benefits were found in the combined treatment condition with respect to a greater reduction of PTSD symptoms as well as cognitive tendencies to catastrophize (Bryant et al., 2003).

In contrast, Foa et al. (2005) revealed that in a randomized trial with 171 female assault survivors there was no evidence for enhanced treatment effects by a combination of exposure and CR, when comparing PE alone and a combination of PE/CR to a wait-list control group. Nonetheless, an intent to treat analysis revealed an improvement in PTSD and depression in both treatment groups. Foa et al. (2005) argued that the lack of evidence for additional benefits of CR may be attributable to a reduced dose of individual treatment components in a combined treatment. For example, participants in the PE alone condition received comparatively more PE than participants in the combined condition, due to efforts to match the number and duration of treatment sessions. In addition, the authors reflected on the possibility that dysfunctional cognitions may be modified as part of the exposure process per se which would make additional CR redundant. This idea is further supported by a study on cognitive changes during PE in comparison to a combined PE/CR condition,

revealing that PE alone resulted in significant reductions in negative cognitions about the world, the self and self-blame (Foa & Rauch, 2004).

Taken together, there is no conclusive evidence that a combination of exposure and cognitive restructuring techniques leads to more beneficial treatment outcomes. However, the inconsistent results may be a reflection of the fact that the real potential of cognitive restructuring and associated reframing processes were not exhaustively utilized due to methodological requirements such as a standardized length of treatment sessions.

1.5.2.4 Cognitive therapies

Tarrier et al. (1999) allocated 72 participants with PTSD to either an imaginal exposure or a cognitive therapy condition, and found similar rates of improvement in both treatment groups. The study is interesting in that the participants were first instructed to a simple monitoring of PTSD symptoms, while only those people who still displayed PTSD symptoms after a period of four weeks were included in the treatment. This means that considerable number of participants improved by a sheer monitoring of their symptoms, which points to a possible involvement of other influential components. On the other hand, monitoring may be understood as a first step towards a cognitive change and exposure, as it encourages a concentration on the symptoms, rather than avoidance.

Based on their Cognitive Model of PTSD, Ehlers, Clark, Hackman, McManus, and Fennell (2005) conducted two studies using a cognitive therapy (CT) approach. The first study was designed as a consecutive case series and included 20 participants with mixed traumatic experiences. Subsequently, a CT condition was compared to a waitlist control group in a Randomized Control Trial (RCT). As expected, both treatments showed highly significant improvements in PTSD, but also a reduction in depression and anxiety symptoms, while in the second study significant changes only occurred in the CT group. Also, considerable effect sizes between $d=2.07$ and $d=2.82$ were observed in Study 2, while the results were maintained at a 6-months follow up. Furthermore, the authors reported a remarkably low dropout rate of only 3% which is unusual in clinical studies on PTSD.

1.5.2.5 Mixed / more comprehensive CBT approaches

Some studies with survivors of more complex trauma have focussed on a combination of CBT and treatment elements other than CR.

Cloitre, Koenen, Cohen and Hahn (2002) conducted a study with childhood abuse survivors which involved a combination of interpersonal/emotional skills training and CBT over a period of 16 weeks. As compared to a waitlist-control group, participants showed significant reductions in PTSD symptoms which were maintained at a 3-month and 9-month follow up (Cloitre et al., 2002).

Another interesting study by Johnson and Zlotnick (2006) involved a CBT treatment with eighteen women who had experienced high levels of interpersonal violence by their intimate partners. The treatment involved 9-12 treatment sessions and followed Herman's multistage model of recovery (Herman, 1992). The first stage involved an establishment of safety, self care and protection, followed by stages of remembrance, mourning and lastly reconnection. The intent to treat analyses revealed significant decreases in PTSD symptoms and depression along with improved social functioning and an increased use of community resources (Johnson & Zlotnick, 2006).

1.5.2.5 Anxiety management

Only a few studies have explicitly investigated the efficacy of anxiety management strategies in PTSD. Veronen and Kilpatrick (1983) investigated the efficacy of Stress Inoculation Training (SIT, Meichenbaum, 1975) in a treatment for rape victims and found that SIT was effective in reducing rape related fear, avoidance, and depression, while most of the gains were maintained at a 3-month follow-up.

A few years later, Resick, Jordan, Girelli, Hutter and Marhoefer-Dvorak (1988) conducted the first controlled study in rape victims using a quasi-experimental design. Participants were allocated to four different treatment groups: SIT, assertion training, supportive psychotherapy and a waiting list. In comparison to the control condition, all three treatments resulted in significant improvements in fear and anxiety, though the study has been criticized for methodological flaws such as a

lacking clear definition of target symptoms and insufficient information on inclusion criteria and assessment methods (Foa & Meadows, 1997).

In summary, exposure treatments have attracted most research interest in CBT oriented treatment studies for PTSD. Nevertheless, there is now growing evidence on the efficacy of cognitive approaches, while findings on additive benefits by a combination of cognitive restructuring techniques and exposure are still inconsistent. Little empirical research has been devoted to the efficacy of other single CBT treatment components such as anxiety management strategies and psychoeducation, thus not permitting any conclusions on the efficacy of these techniques.

Some studies have demonstrated benefits by a combination of exposure practices with other treatment elements such as emotional and interpersonal management strategies. These more complex treatments seem of particular relevance to survivors of prolonged and early life trauma (Cloitre et al., 2002; Ford, Courtois, Steele, Van der Hart, & Nijenhuis, 2005).

1.5.3 Hypnotherapy

The preceding Literature Review does not include a significant number of hypnotherapeutic techniques. However, meta-analyses on the efficacy of therapeutic approaches in general demonstrated a superiority of hypnotherapy over most other interventions. For example, a meta-analysis by Smith, Glass, and Miller (1980) yielded an effect size of $d=1.82$ for hypnotherapy, while Grawe, Donati and Bernauer (1994) established a good efficacy for hypnosis in the treatment of pain, psychosomatic conditions and insomnia. Furthermore, Revenstorf and Prudlo (1994) found significant improvements in 67 out of 77 hypnosis treatment studies, while Bongartz (2002) determined an average effect size of .51 in his analysis of 43 hypnotherapeutic studies.

A use of hypnotherapeutic interventions in traumatized people is further warranted by the long history of hypnosis in trauma treatment, it has been described as a “natural” approach to trauma psychopathology (Cardeña, 2000; Cardeña,

Maldonado, Van der Hart, & Spiegel, 2000; Kingsbury, 1992; Van der Hart, Brown and Van der Kolk, 1989; Van der Hart & Spiegel, 1993).

The following section will briefly describe early applications of hypnosis, along with more contemporary accounts of hypnotherapy. Hereby, the goal is to provide a general overview of research activities in the field of hypnosis, rather than a detailed description of techniques which will be explicated in Chapter V. Because of the limited number of available publications, the descriptions will not explicitly concentrate on VOC, but also include survivors of other types of trauma.

1.5.3.1 Early applications of Hypnosis

Dissociation Model

While early accounts of hypnosis in trauma treatment can be dated back to at least the early 19th Century (Van der Hart & Spiegel, 1993; Vjlselaar & Van der Hart, 1992), it was the work of the late 19th Century clinicians like Charcot (1825-1893), Janet (.1895-1947), Freud (1856-1939) and Breuer (1842-1925) which have mainly influenced current theoretical underpinnings of hypnosis. The following brief historical outline is mainly derived from a review on Janet's treatment of posttraumatic illness by Van der Hart, Brown, and Van der Kolk (1989) as well as Van der Hart and Brown's (1992) re-evaluation of the "abreaction" concept. Both, Janet's perspective on trauma treatment, and Freud's and Breuer's abreaction model are considered as particularly important in shaping contemporary applications of hypnotherapy.

Janet used hypnosis variably throughout his stage-oriented treatment of patients with "hysterical" (dissociative) and "psychasthenic" (obsessive-compulsive) symptoms (Van der Hart et al., 1989, pp. 379). During his first stage of treatment (stabilization phase), Janet used hypnosis to promote relaxation and to modify posttraumatic reactions such as conversion symptoms, sleep disturbances or paralyses. Apart from a concentration on disturbing symptoms, Janet also paid attention to the overall physical well-being of his patients by targeting problems such as loss of appetite and lack of exercise. In addition, hypnosis was used to increase clients'

energy levels and to establish rapport (Barrucand, 1967, cited in Van der Hart et al., 1989; Janet, 1889, cited in Van der Hart et al., 1989; Wetterstrand, 1892, cited in Van der Hart et al., 1989). The following citation illustrates Janet's emphasis on a correction of functional restrictions: (...) *one's main concern should be the correction of faulty functioning and it is in this situation that treatments by suggestion, by hypnotism, and by education, find their most interesting application* (P. Janet, "Principles of Psychotherapy", 1971, p.259).

The second stage of treatment aimed at a modification of traumatic memories, whereby various visualization techniques, e.g. direct hypnotic suggestions or "automatic writing"⁴, were used (Van der Hart et al., 1989). Once traumatic memories were uncovered, Janet used hypnotic techniques to "neutralize" traumatic experiences, that is to reexperience and verbalize memories gradually according to the level of adaptive strategies of the patient. However, Janet also used hypnotic techniques to change the contents, associated cognitions and emotions of memories by "substituting" them with neutral or positive images (Janet 1889; 1894; 1894/5; 1898 a,b, cited in Van der Hart et al., 1989). Accordingly, Gauld (1992) describes Janet's treatment of "Justine" who complained about gruesome visions of corpses. The transformation involved turning this disturbing image into a rather comic Chinese general (Gauld, 1992, p. 375). Furthermore, Janet applied hypnosis as a distraction technique in people with a very severe psychopathology or with extensive resistance patterns (Van der Hart et al., 1989). For example, Janet would try to distract the person by having a third person engage the patient in a stimulating conversation, while he would approach him/her from behind and give trivial commands (Gauld, 1992, p.371).

It is important to note that Janet's approach was of a very eclectic nature, which means he used hypnotic procedures in conjunction with a wide variety of other techniques, depending on the needs of the client (Van der Hart et al., 1989). For example, Janet considered substitution techniques as not helpful for patients with obsessive ruminations on past behaviours (Janet, 1935, cited in Van der Hart et al., 1989). As a consequence, verbal techniques were used rather than imaginary

⁴ "Automatic Writing" = writing in a hypnotic trance

strategies. Moreover, Janet also highlighted the necessity of treatment elements such as psychoeducation, behavioural modelling techniques, and practices that could be considered as a precursor to in-vivo exposure practices.

(...) Good education can be as powerful as bad. We have noticed this good influence in many nervous troubles. It is clear that education must enter into the treatment of paralysis and neuropathic contractures. The principal effect of the mobilization of forces and of massage seems to me to be an education of the subject who is brought to the conscious perception of muscular changes which he is too disposed to forget. Even in the cases when other therapies are used first, education is not without its usefulness: it enters in much later when the cure is already advanced, but it establishes the cure (...) (Janet, “Principles of Psychotherapy, 1971, p.269).

Taken together, Janet considered the recovery and integration of the traumatic memories into the whole of the personality as the essence of trauma therapy, based on a dissociation model of trauma. Notably, it seems that these goals were pursued in a very holistic way, with extreme care taken that the traumatized person did not feel overwhelmed. It further appears that Janet was very well aware of the emergence and consequences of resistance, adjusting his treatment accordingly. Interestingly, resistance and particularly the utilization of resistance has received a lot of attention in later, modern hypnotherapy approaches, e.g. in Ericksonian hypnosis (Erickson, 1980).

Abreaction Model

While generally supporting Janet’s dissociation model of trauma, in 1893 Freud and Breuer introduced the concept of “abreaction” or catharsis as the most important process in trauma treatment. This was readily accepted by many clinicians at the time, but also by subsequent generations of trauma therapists (Putnam, 1992; Van der Hart & Brown, 1992). It is important to realize that the idea of abreaction stood in sharp contrast to Janet’s and other French clinicians’ emphasis on an integration of traumatic memories, as the major goal here was to discharge an excess of excitation. This, however, is problematic, as it does not include the integration of the experience (Van der Hart & Brown, 1992).

In their review of the abreaction model, Van der Hart and Brown (1992) explored how this concept was accepted and conceptualized over the last century. During WWI, both the dissociation and abreaction models were frequently used in the treatment of soldiers. It should be mentioned that the concepts were not always clearly distinguished, meaning that, across both camps, researchers held differing views on the importance of an expression of emotions and the necessity of integrative processes (Van der Hart & Brown, 1992). The work of Charles Myer's (1873-1946) is of note, in that he not only made significant contributions to the conceptualization and treatment of trauma overall, but also to an advancement of hypnotic techniques. Myers was a consulting psychologist to the British army, treating a great number of traumatized soldiers. As early as in 1915, he presented a paper in the *Lancet* (Myers, 1915), describing three case studies of soldiers whom he had treated with hypnosis. In a later publication, he argued for an inquiry into the efficacy of hypnosis (Myers, 1919). While in his early work, Myers conceptualized the observed symptoms in soldiers as "shell shock", he abandoned this concept when realizing that the somatic symptoms were not only caused by the physical force of shell blasts. Rather, he observed a specific pattern of alternations of their personality which required re-integration by a confrontation of traumatic memories, thus supporting a dissociation model of trauma (Myers, 1919; Myers, 1920-21; Van der Hart & Brown, 1992)

During WWII, the concept of psychological and pharmacologically induced abreaction gained more popularity, despite evidence on insufficient effects from earlier treatments (Van der Hart & Brown, 1992). Nonetheless, there were some exceptions such as Grinker and H. Spiegel (1945) who, despite an application of narcotics, emphasized the need for synthesis.

The course changed significantly with the Vietnam War, when influential trauma researchers such as Horowitz (1986), Brende and Benedict (1980), Brown and Fromm (1986) and Spiegel (1981) re-directed the emphasis towards an integration model of trauma. At least partly modelling Janet's comprehensive treatment, hypnotic approaches were again used more broadly for a stabilization of symptoms, integrative processes such as the resolution of traumatic grief, controlled re-living of the experience, anxiety management and relaxation, and management of hyperarousal symptoms (Brown & Fromm, 1986; Spiegel, 1981).

Nonetheless, one should be aware of the fact that abreaction is still advocated in contemporary psychological trauma work, although it seems that the growing emphasis on an integration of traumatic events has at least partly made its way into this concept (Putnam, 1992; Van der Hart & Brown, 1992). For example, Putnam highlights the usefulness of abreaction techniques in terms of a release of dissociated and repressed material and to reconnect missing affects. However, at the same time he is adamant about the fact that abreaction alone is not helpful and must be accompanied by a transformation of meaning (Putnam, 1992). Along these lines he suggests hypnotic restructuring and ego-strengthening techniques to correct the traumatic experiences and to promote a sense of mastery. Furthermore, Putnam points to the importance of a verbalization of the memories to achieve more coherency and an integration of perceptual and senso-motor experiences.

In summary, early applications of hypnosis were very much influenced by two underlying theoretical positions on the etiology of traumatic reactions. While a dissociation model was initially widely accepted, the field was split into two camps with the introduction of the abreaction model. It can be assumed that both these views exhibited a major influence on the way hypnosis was utilized. Supporters of the dissociation model directed their efforts towards an integration of the traumatic experience which meant that various hypnotic techniques could be applied in the pursuit of this goal. In the abreaction model, hypnosis was merely used as a means to induce abreaction which suggests a rather narrow application of hypnosis.

1.5.3.2 Contemporary findings on hypnosis

Support for the use of hypnosis in various trauma survivors can be found in a considerable number of clinical reports, case studies and clinical rationales.

In 1981, D. Spiegel described a hypnotherapeutic approach to grief work which was specifically tailored to the losses endured by Vietnam veterans. According to Spiegel, these losses comprised not only the death of friends or actual physical losses, but also the loss of a sense of self as a hero and a loss of purpose, reinforced by a lack of national and social support upon returning from this war. Spiegel emphasized the importance of working through memories, as opposed to inducing

abreaction. Furthermore, he described the utilization of a trance state for a structured intensification of memories which then enables the client to work through these memories, as well as to put these experiences into perspective. Spiegel elaborated his ideas in four case presentations, including the description of the treatment of “G. R.,” a former career soldier, who lost his adopted son in a rocket attack on an orphanage. G. R. was admitted to a psychiatric hospital after a suicide attempt. Since his Vietnam experience, he had been diagnosed with a variety of serious psychiatric diagnoses such as paranoid schizophrenia and psychopathy, whereas no history of mental illness had been recorded before he was sent to war. As part of the therapy, G.R. was helped to remember what he had given to his adopted son, by contrasting the profound loss with the joy he had experienced with him during a birthday celebration. In this way, he was able to reframe his experience by recognizing that he had in fact helped to keep the boy alive. Moreover, he could correct his dysfunctional ideas, e.g. that he should have been able to protect his son, by realizing that this was a nearly impossible undertaking in a gruesome war (Spiegel, 1981).

Coinciding with the Women’s Liberation movement and the above mentioned research interests in the psychological consequences of rape, a considerable number of hypnosis studies described hypnotherapeutic interventions in rape victims as an adjunct to the then popular rape crisis treatments (Smith, 1991). Spiegel (1989) elucidated the benefits of hypnosis in the treatment of sexual abuse survivors. He highlighted the loss of physical control during the traumatic experience, but also other consequences such as a compromised sense of safety, difficulties with intimacy and a decreased ability to experience pleasant sensations. He further elaborated on experiences of childhood sexual abuse, pointing to the need of the child to dissociate these experiences, as well as parts of the self-concept, in the face of extreme helplessness. In addition, Spiegel referred to the inability of young children to infer causality to other people, thus blaming themselves for the criminal actions against them. Hence, a purpose of psychotherapy and hypnosis is “(...) *examining and making bearable to consciousness these hidden or warded-off states and memories*” (Spiegel, 1989, p. 299), while at the same time reminding victims of the implemented survival strategies during the assault. With respect to dissociated parts, Spiegel considered an establishment of a new sense of unity as the essence of therapy in sexual abuse survivors.

Ebert (1988) described hypnotherapy treatments of three female rape victims with PTSD who had previously undergone unsuccessful therapies. The major focus of his treatment was an activation of resources by a conveyance of self hypnotic techniques, relaxation and empowerment strategies, as well as establishing a sense of safety. To facilitate recovering of forgotten resources, Ebert used techniques such as hypnotic age regression. Thus, one client found consolation by an activation of memories of her grandmother who represented strength and power to her. Ebert concluded that hypnosis was a valuable adjunct to supportive therapy treatment, mainly by instigating a sense of control and by reconditioning processes, i.e. learning that traumatic stimuli can be experienced in a calm and relaxed state.

Another hypnotherapy treatment of a rape victim was illustrated by Smith (1991). The 35 year old woman was raped in her home and subsequently developed intense avoidance behaviours, anger and dysfunctional cognitions on the dangerousness of the world, as well as her own capability to take control. In contrast to Ebert's approach, Smith's therapy comprised a controlled reliving of the experience in a hypnotic state of relaxation. In this way, the experienced helplessness during the rape was explored and related to other, earlier life experiences. Whilst Smith highlighted catharsis and abreaction as an important treatment element, he also employed restructuring techniques, e.g. to correct the client's erroneous belief that she had caused the rape. Moreover, imaginative techniques to direct her anger towards the assailant were practiced. The whole treatment comprised eight hypnosis sessions within a period of three months, while the client was still coping well at a 5-year follow-up. In his discussion, Smith stressed the importance to pay attention to antecedents of the trauma which may exacerbate symptom presentation. Besides a facilitation of reliving of the traumatic memories, he considered hypnosis as particularly valuable for an increased sense of mastery and self control. In addition, he highlighted the usefulness of a positive transference process to promote trust and reduce feelings of guilt. Moreover, the significance of an emotional reliving of the experience was endorsed, by "(...) *providing vividness of emotional reaction rather than shallow intellectualization*" (Smith, 1991, p.133).

Hypnosis is also frequently used in "ego state therapy" which has been originated and advanced by John and Helen Watkins. Ego state therapy is based on a

personality theory, involving the assumption that there is a dissociative continuum, with normal, adaptive alterations such as attitudinal changes on the one end, and dissociative identity disorder on the other end of the continuum (Watkins, J., 1993). One important proposition made by John and Helen Watkins is that these different ego states become only apparent under hypnosis, independent of whether psychopathology is involved or not. As a consequence, hypnosis serves to activate “covert ego states”, manifested in symptoms such as depression, anxiety or somatic problems. Moreover, hypnosis is used to resolve dissonant cognitions and conflicting goals between different ego states by promoting an imaginary “internal dialogue” (Watkins, H., 1993). For example, in the hypnotized client ego states can be activated by simply mentioning “I’d like to talk to the part that is upset by what is going on”. Alternatively, the client can be encouraged to imagine a room and to observe who „comes through the door“ (Watkins, H., 1993).

Philips (1993) illustrated the use of ego state therapy in posttraumatic stress disorder. In this context, she described the treatment of “Amy”, a 36 year old woman who presented with sleep disturbances, nightmares, and dissociative symptoms such as numbing of feelings, and agonizing leg pain. With respect to the latter, a regression technique (“somatic bridge technique”) was used which involved following this pain sensation back in time. In this way, a child ego state was revealed in which Amy saw herself as a six year old girl, sitting in the back of her father’s car. Subsequently, a communication with this part was fostered which uncovered information on the sexual molestation by her father. In the following sessions, a hypnotherapeutic processing of the experience was encouraged whereby Amy discovered that her leg muscles had been an important resource, in that they enabled her to flee from the situation. Moreover, an internal conflict was identified: On the one hand, Amy feared retaliation of her father which led her to a rather passive bearing of the situation. On the other hand, she experienced intense anger towards her father. The trance experience allowed her to release this anger by an imagination of helpful scenarios. Furthermore, the therapy comprised a conveyance of adequate anger expression strategies in adult life, as well as an activation of strengthening resources.

Manning (1996) outlined the treatment of a 38 year old male client who had experienced childhood sexual abuse. The client presented at a sexual assault

counselling support centre after a sexual assault of his son, demonstrating a broad spectrum of symptoms including posttraumatic stress symptoms, chronic pain, a history of self harm attempts, substance dependence, intimacy – and anger management problems. The treatment involved CBT and Hypnotherapy, as well as Brief Therapy interventions. Hypnosis was used in various ways - as an adjunct to CBT exposure techniques to regain a calm, controlled state, to facilitate the processing of traumatic memories, and as a pain management strategy to assist with a chronic pain condition. After 13 therapy sessions over the course of four months, the client was better able to control his flashback and somatic symptoms. Moreover, the treatment seemed to have positively impacted on his relationship. Nevertheless, the client still faced a multiplicity of problems which could not be addressed. Also, there was some indication that the client was not willing to continue treatment.

Another example for a hypnotherapeutic treatment of a childhood abuse survivor was given by Barnard (2002). Twenty-one treatment sessions of a 41 year old male are described. “Paul” had spent most of his childhood in state care where he had experienced emotional, physical and sexual abuse. The treatment used hypnotic techniques to target his anxiety problems and to teach relaxation skills, ego-strengthening techniques, and to promote an orientation towards the future. A confrontation of the traumatic memories was not a major goal in this treatment, but age regression techniques were applied towards the end of the 21 sessions which allowed for an imaginary encounter with the “child part”. While at the time of Barnard’s report the treatment was still ongoing, there was a clear indication of improvement in professional and social functioning.

A treatment description by Peebles (1989) provides an impressive example of a loss of control, even though no deliberate act of violence was involved. Peebles describes an eight session treatment of a young woman five months after she had woken up during a surgical procedure. The first session comprised an induction of a hypnotic state and reliving of the experience. However, after this session the symptoms (insomnia, headaches and dissociative features) deteriorated. As a consequence, ego mastery techniques were introduced by an implementation of regulatory techniques and distancing strategies. Furthermore, the client was suggested to move her hand during the trance which contrasted her experienced paralysis during

surgery. Coming from a psychoanalytic background, Peebles also highlighted another facet, called “object relations work”. This process uses the therapist role as a type of “parental ego” which can help to restructure the experience. For example, the client was reassured that the therapist was constantly with her and could take over functions she could not fulfil in this very moment. In her conclusions, Peebles clearly advocated an approach beyond a mere release of energy (or abreaction), stressing the importance of “(...) *putting affect into words*” (Peebles, 1989, p.196). In line with the above mentioned theoretical models, she understood traumatic experiences as (...) “*an amalgam of diffuse, bodily-rooted, multiple fragmented sensory impressions*” (Peebles, 1989, p.197).

As well as in the treatment of childhood abuse, hypnotherapy has also been documented in the treatment of other severely and chronically traumatized populations such as survivors of concentration camps. For example, Somer (1994) provided a comprehensive description of a therapy process in a 58 year old Holocaust survivor. The first five therapy sessions were devoted to an assessment of the patient’s life history, as well as psychometric measures (Dissociative Experiences Scale (DES), Bernstein & Putnam, 1986; MMPI, Montag, 1977, cited in Somer, 1994). Moreover, self mastery techniques were conveyed. Thereby, it is important to note that the patient displayed amnesia to nearly all her time of imprisonment in Auschwitz and could only partly remember the time before her ordeal. In the fifth session, a careful exploration of emotions in situations other than her detainment was instigated, as the client displayed a strong tendency of emotional detachment. After nineteen sessions, the processing of traumatic memories was encouraged, accompanied and followed by grief work in relation to the loss of her parents and her childhood. Overall, the treatment took place over a period of 18 months with 1- 2 weekly sessions, resulting in a significant improvement in avoidance, anger, fear and insomnia. However, there was comparatively little improvement in somatic symptoms such as headaches and high blood pressure. Also, the author did not refer to any changes in the standardized psychological assessment tools.

Various authors described hypnotherapy treatments following more defined trauma experiences. Wilshire (1996) described a cognitive-behavioural/hypnotherapy treatment of a 36 year old woman with PTSD and phobic anxiety ten months after she

had witnessed the death of a boy in a horrific train accident. The treatment focused on her phobic avoidance and comprised several different components: systematic desensitization in form of a graded in-vivo exposure, sensory awareness relaxation, and ego-enhancing suggestions such as positive self statements. No standardized measures were used apart from the Stanford Hypnotic Suggestibility Scale (...) which revealed moderate hypnotizability. The woman received 13 sessions of therapy, with imaginary exposure commencing in session 5, followed by in-vivo exposure from session 7 onwards. After the completion of the treatment, the patient was able to resume previously avoided activities such as taking the train from the location of the accident. No setbacks were monitored at a 3-months and 6-months follow-up.

Ffrench (2000) described a successful combination of a CBT/hypnotherapy treatment, comprising eight treatment sessions for a victim of an armed robbery who subsequently developed PTSD. This was one of the few studies using standardized psychological questionnaires as a means of outcome evaluation. After the treatment, a decrease in the BDI score (Beck Depression Inventory, Beck, Steer and Brown, 1996) from 31 to 4 was reported along with considerable improvements on the STAI (State Trait Anxiety Inventory, Spielberger, 1983) state and trait anxiety and anger subscales. Moreover, the client was able to resume his work activities. In line with Smith (1991), Ffrench emphasized the importance of the personal meaning of PTSD symptoms, as in her client PTSD related arousal interacted with unresolved issues surrounding the client's sexuality. Thus, hypnosis helped to resolve related feelings of guilt and to fantasize about these issues in an appropriate and controlled manner.

Finally, hypnotherapeutic trauma treatments have also proven successful with respect to comorbid symptoms. Smith (2004) conducted a successful brief hypnotherapy intervention in severe depression after sexual trauma. Moreover, a Swiss case study (Elsig, Schopper, Anthony, Gramigna & Boeker, 2002) delineated a hypnotherapeutic inpatient treatment of a patient suffering from Borderline Personality Disorder and PTSD which resulted in a massive reduction of intrusion and hyperarousal symptoms.

Taken together, a considerable number of single case descriptions support the usefulness of hypnotherapy treatment in traumatized individuals. Various types of

trauma were addressed by both, short-term and longer-term interventions, using a wide array of hypnotherapeutic techniques. It is evident that most hypnotherapy interventions are in fact combined treatments, in that hypnosis is applied in conjunction with treatment elements from other therapeutic schools (Kirsch, Montgomery, & Sapirstein, 1995; Revenstorf & Prudlo, 1994).

While these case studies provide a good insight into the complexity of clients' individual problems as well as the therapy process, most of these reports have displayed a strong pragmatic orientation and not been subjected to the methodological rigor applied in Randomized Control Trials (RCTs). For example, hardly any standardized measures were administered and frequently no clear definition of treatment goals was provided. Indeed, scepticism towards a use of hypnosis in trauma treatment has often been justified by methodological limitations of hypnosis studies, pointing to methodological flaws such as a lacking specification of target symptoms, an insufficient description of assessment tools, and a lack of control conditions (Foa & Rothbaum (1998). To date, only few systematic investigations into the efficacy of hypnosis in chronic PTSD have been conducted (Bryant, Moulds, Guthrie, & Nixon, 2005).

A well known study by Brom, Kleber and Defares (1989) describes an evaluation of the efficacy of hypnosis in chronic PTSD sufferers. In a randomized control trial involving 112 traumatized individuals, the authors compared hypnosis to a psychodynamic treatment, systematic desensitization, and a wait list control group. With respect to their results, the authors reported that all treatment groups benefited from the interventions, while no significant differences could be established between the single treatment conditions. In the hypnotherapy group, a 34% improvement could be achieved on the overall IES (Impact of Event Scale, Horowitz et al., 1979) score from pre- to post treatment. Moreover, this results could be maintained at follow-up three months post-treatment. Based on their findings, Brom et al. (1989) concluded that the specific treatment approaches may differentially target the specific PTSD symptom clusters. For example, hypnosis and desensitization proved more efficient in the treatment of intrusion symptoms, while psychodynamic therapy seemed to promote a reduction in avoidance symptoms. Furthermore, the study participants showed improvement in other domains of functioning such as state anxiety,

somatization, and hostility, as well as in some more stable personality features such as trait anxiety.

Notwithstanding its achievements, the study has been criticized for methodological flaws and a limited generalizability to other trauma populations (Foa & Meadows, 1997). The majority of the participants in Brom et al.'s sample suffered from bereavement and were thus secondary victims of trauma, while 19 participants had experienced a violent crime and 17 had witnessed murder or suicide. Also, there was a strong dominance of female participants (79%). (Foa & Meadows, 1997) stressed that the outcome assessment in Brom et al.'s study (1989) was merely based on the Impact of Event Scale (IES, Horowitz, Wilner, & Alvarez, 1979), rather than an independent, observer based rating. Other shortcomings were a lack of the standardization of session numbers and a missing assessment of treatment fidelity. However, it should be acknowledged that, from a methodological point of view, the study was in many ways ahead of its time. For example, the authors clearly defined treatment goals and their expectations towards the single treatment conditions, while thorough descriptions of the measurements, sample composition, and treatment non-completers were provided. Moreover, the study considered a broad range of psychological aspects and yielded a low dropout rate of only 11%. Finally, the study deserves merit for its effort to control treatment conditions that are, by their very nature, more difficult to control and standardize than CBT approaches.

In conclusion, a considerable number of early case reports and more recent case studies have supported the usefulness of hypnosis in trauma treatment. However, most case descriptions lack a systematic assessment and a clear definition of treatment goals. To date, only one systematically controlled study on chronic trauma sufferers has been published. Hence, given the promising results from the single case studies, more well controlled hypnotherapy evaluations in people suffering from chronic posttraumatic conditions are warranted. Moreover, most hypnotherapy treatments employ a combination with other techniques such as CBT. Given the well demonstrated efficacy of CBT treatments in PTSD, a combination of a CBT/Hypnotherapy treatment appears as a fruitful undertaking.

1.6. Summary of the Literature Review findings

The Literature Review sheds light on a considerable amount of psychological research activities into the impacts of victimization. Nonetheless, it became also evident that research into the consequences of victimization has been restricted to particular areas of traumatic stress, whereas other domains have received surprisingly little attention. (1) Most studies have not elaborated on context factors such as research settings, the broader socio-political and legal climate, and stressors accompanying the crime experience(s). (2) A strong emphasis has been placed on PTSD, whereas other conceptualizations of traumatic illness have virtually been overlooked. Similarly, most treatments have focused on adult survivors of single traumatic experiences with PTSD, whereas individuals with more complex clinical manifestations have been excluded. PTSD, however, falls short in explaining the broad range of symptoms observed in crime survivors, which becomes apparent in high rates of comorbidity and strivings for other diagnoses such as DESNOS. (3) The dominance of CBT trauma treatments is striking, whereas other therapeutic approaches such as hypnotherapy have been little investigated, despite a sound theoretical rationale and considerable evidence from case studies. (4) Finally, a lacking integration of psychological and biological sequelae can be observed, meaning that psychological and biological consequences are treated as if they were separate entities. Based on these observations, the planned research project will attempt to study the relationship between psychological and biological findings. Emphasis will be placed on a thorough description of the context and individual circumstances of participants. Furthermore, additive benefits of hypnosis will be examined by combining well supported CBT treatment components with hypnotherapy. Thereby, the focus will be on the external validity of the treatment, that is, efforts will be made to include victims of crime with a broad range of problems.

Setting the Stage: Methodological Framework

This chapter provides an overview of the research methodology used in this dissertation. A rationale for an integrated mixed methodological approach to this research project will be presented along with an explanation of the key methods used. The research design and the different stages of the research process will be described. The reader will also be informed about the epistemological and ontological position of the researcher, as well as the research context and its implications for the establishment and interpretation of the project.

2.1 Rationale for mixed methodology approach

2.1.1 The war of paradigms

Since the mid 19th century, there has been a heated debate between those who believed that social science should be based largely on empirical or observable evidence, as opposed to more subjective / phenomenological experience (Hammersley, 1992). These two perspectives led to considerable dispute in sociology during the 1920s and 30s and within psychology in the 1970s and 1980s (Tashakkori & Teddlie, 1998). In psychology, much of the debate concerning these perspectives revolved around the relative merits of quantitative and qualitative methods (Tashakkori & Teddlie, 1998). According to Tashakkori & Teddlie (1998), quantitative methods were commonly considered to be the most appropriate way in which to conduct empirical or positivist science. Based on the established physical and biological sciences, such studies placed an emphasis on the standardization of procedures, the maximal control of potentially interfering variables, and clear outcome variables. The aim was to maximize the internal validity and replicability of the findings. By contrast, qualitative methods more strongly emphasized the importance of naturalistic settings and contextual factors. Although procedures still attempted to be rigorous and systematic, the aim was enhance the external validity of

findings by studying them in terms of the personal, sociological, or lived experience of individuals and groups.

Tashakkori and Teddlie (1998) stress that this divergence between the two methods still remains today, with many still considering the two perspectives to be separate and incompatible in terms of their conceptualization of reality (ontology), the relationship between the knower and the known (epistemology), and the role of values (axiology). Furthermore, these so called “paradigm purists” (Tashakkori & Teddlie, p. 11) advocate that the nature of the generalizations of findings is fundamentally different between the two orientations, in the sense to which one can generate findings that are independent of time and context. Furthermore, it has also been argued that, conclusions about causality and the direction of the logic, - whether the research is based on a deductive or inductive approach - are considered to be antithetical.

Such views may, however, represent an overly extreme or pessimistic view about the nature of modern research methodology and, in some cases, ignorance concerning the actual nature of methodologies currently being utilized. Even a reasonably rudimentary inspection of the current research literature would be sufficient to determine that there is, in fact, considerable overlap between the quantitative and qualitative fields, not only in terms of their epistemology and ontology, but also their research methodologies. For example, there are many studies based on very qualitative data collection methodologies (e.g., focus groups, transcript analyses) studies that rely heavily on quantitative methods in the analysis phase (Pope & Mays, 1995; 2000). By the same token, quantitative data are also subject to an interpretative process, even if collected using standardized measures with well established psychometric properties (Brown & Lloyd, 2001). The same problem occurs regarding the direction of the logic: qualitative data are not restricted to the generation of a hypothesis or theory, but can also be used as part of a deductive process (Pope & Mays, 1999). For example, the well-established process of null hypothesis testing involves the development of a theoretical idea, the deduction of hypotheses, and then the collection of empirical evidence.

Nevertheless, the so-called era called Post-Positivism that emerged after WWII, supposedly designed to discredit the “hard-line” positivist tradition, has left an

important legacy. It acknowledges that research, and even that collected using very positivist methods, cannot be seen as entirely independent from values held by the researcher (value-ladenness) nor from the theoretical framework and the corresponding hypotheses (theory-ladenness). It is not accepted that our understanding of reality is constructed rather than based on the assumption of a single reality (Tashakkori & Teddlie, 1998). These views are still shared by both supporters of quantitative and qualitative research, although to varying degrees.

2.1.2. Pragmatism as a new paradigm

More and more researchers agree that the differences between the two paradigms should have been overcome by now, as there are valid reasons to use both, quantitative and qualitative methods. Pope and Mays (2000) question whether qualitative methods are indeed an antithesis of quantitative methods. They suggest that the differences between the two approaches are rather overemphasized:

(...) the crude alignment of qualitative research with 'action' or interpretative approaches and quantitative research with 'structural' or positivist ones has meant that researchers on either side have tended to become locked into adversarial positions, ignorant of each other's work. (Pope & Mays, 2000, p.5).

Looking back at applied evaluation research, it becomes evident that the use of both methods is not a new trend, as both paradigms have been combined for quite some time (Datta, 1994).

Howe (1988) suggested a new paradigm called "Pragmatism" which involves a combination of methods, allowing for an integration of different theoretical perspectives to interpret the same data (Howe, cited in Tashakkori & Teddlie, 1998, p.12). According to this point of view, the two approaches are compatible because of their shared beliefs with respect to value-ladenness, theory-ladenness, and an understanding of the existence of multiple realities. Without doubt, social scientists agree on the concept of a complex world, making it plausible that any set of data can

be explained by many theoretical models and that there is no absolute causal proof of any single theory.

Unfortunately, qualitative methods are often mentioned in opposition to quantitative methods which may not be justified, given their long history in social sciences (Brown & Lloyd, 2001; Pope & Mays, 1995). The goal of qualitative research is to find out what a particular psycho-social phenomenon is, and why and how it varies in different circumstances. The major emphasis is on an exploration of the views, experiences and the assigned meaning with respect to all the participants. In contrast, quantitative research is seeking to clarify how often and to which degree a specific phenomenon occurs. Thus, both methods can be used to complement each other, while the selection of methods depends on the research questions (Mays & Pope, 1995; 2000; Pope & Mays, 1995; 1999).

2.1.3 The Development of mixed methods

On a practical note, mixed methodology can be integrated in many different ways, but it is important to realize that an application of mixed methods is not a mere methodological – or measurement issue, but rather influences all other phases of the research process: the design of the study, the way in which the research questions are presented, and on data analysis - and interpretation (Tashakkori & Teddlie, 1998). Typically, pragmatists put the research question before methods in accordance with the view that every method has its strengths and weaknesses. Hence, the choice of methods is not solely dependent on a particular belief system, but on what is the most appropriate combination of methods to answer particular questions, or in other words, what works for the question of interest.

A frequently mentioned concept is the triangulation method which compares the results of two or more methods of data collection or data sources while studying the same phenomena (Mays & Pope, 2000). However, triangulation also refers to the use of multiple methods of analysis within one study which often includes both, quantitative and qualitative methods (Tashakkori & Teddlie, 1998). This makes sense, as the type of data collection is very much entwined with the type of analysis employed. Although some critical voices maintain that triangulation or the application

of multiple methods creates more disagreements and uncertainty (Knight, 2002), its supporters argue that it allows for a more reflexive and comprehensive analysis of the data as well as greater opportunities for causal inference (Mays & Pope, 2000; Tashakkori & Teddlie, 1998).

In summary, pragmatists believe that the research cycle can employ both inductive and deductive logic to find the best possible answers to relevant questions. In this way, one set of methods can be seen as a prelude to the other. However, it is essential to clarify how and to what degree different methods are used within the overall research plan (Knight, 2002). Another important issue is that the research questions and the expected social consequences are very much driven by the personal values of the pragmatist researcher.

2.1.4 Relevance of a mixed methodology approach

The present research project was designed to provide a thorough understanding of the complexity of problems faced by victims of crime and its impacts on their psychological and physical health. A second, yet equally important goal was to explore how the needs of victims of crime could best be accommodated in a psychological treatment program.

A mixed methodological approach was considered as the best option to target these goals. The quantitative methods were chosen to establish the extent of physical and psychological impacts as well as a symptom reduction after receiving treatment. The qualitative methods, on the other hand, provided insight into the way individual victims of crime make sense of the world in the aftermath of such an adverse life event and into the diversity of their individual stress experiences. Furthermore, a qualitative analysis allowed for an in-depth examination of the treatment process, thus shedding light on participants' perception of the treatment and on factors compromising their ability to engage in treatment.

To be able to understand why the present research project was set up in this particular way, it should be clarified how a pragmatic paradigm applies to the scientific orientation of the author. As outlined in the Literature Review, there is a

lack of detailed knowledge on psychological processes in victims of crime which may partly be due to the difficulty of conducting research in this population. The stance taken here is to acknowledge and accommodate the challenges involved in this research rather than avoiding them. The efforts are directed towards a comprehensive understanding of the complexity of problems and the surrounding complicating circumstances. Associated with this point of view is an emphasis on external validity, suggesting the research should reflect clinical reality. In accordance with the above mentioned explanations on pragmatism, the author undoubtedly recognizes the existence of multiple realities, but allows for an external reality independent of our mind. From an epistemological point of view, the author believes that the researcher and the participant can never be independent which implies that research needs to be interpreted within this interaction and in its particular context. This position is most relevant in clinical research which involves a very intense and specific interaction between therapist and client.

From a methodological standpoint, it is of interest to the author which methods can serve best to answer the research questions. In this way, the research design for this project arose as part of a sequential process, based on the following major research questions:

2.1.5 Principal research questions

1. Do victims of crime suffer from psychological and physical health problems as a consequence of long term stress exposure?
 - What are the relationships between psychological and physical health factors?
 - Is there a suitable theory to explain this relationship?
2. How is stress conceptualized by individual victims of crime and how can it inform a treatment program for victims of crime?

3. Can Hypnotherapy increase the effectiveness of a treatment for victims of crime?

A Sequential Mixed Methodological Approach was chosen for this research project with equivalent weight given to qualitative and quantitative methods to address the research questions described above. Study I tested a priori hypotheses regarding the differences in psychological and physical health between victims of crime and a normally stressed community sample using quantitative methods. Study II explored individual stress concepts and the complexity of problems in victims of crime in a qualitative analysis. Study III used information from Study I and II to examine the effectiveness of a treatment program for victims of crime in a process evaluation which uses both, qualitative and quantitative methods.



Figure 2.1 Sequential Mixed Method Design

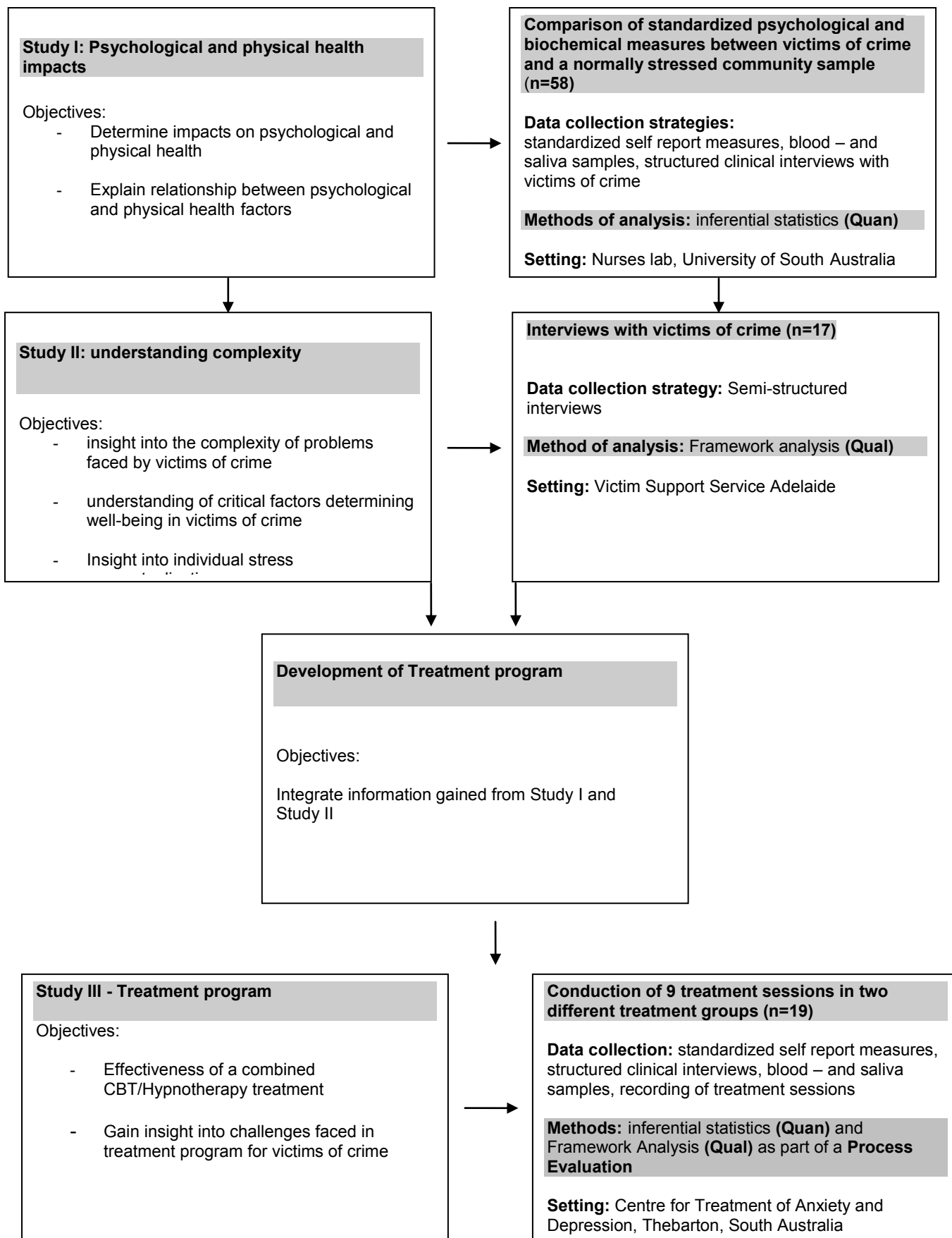


Figure 2.2. Overview of research process

Quan=quantitative methods; Qual=Qualitative methods

A more detailed description of the conventional methods applied in the single studies will be provided in the corresponding chapters. However, in Study III a Process Evaluation approach was used to investigate the effectiveness of the proposed treatment program which constituted an important element in the current project. As a consequence, the major goals and components of a process evaluation design will be introduced below.

2.2 Process evaluation: a model for an integration of mixed methods

A process evaluation is a type of evaluation with a central focus on the activities performed, the program quality and who it is reaching (Hawe, Degeling, Hall, & Brierley, 1990) Furthermore, it addresses how activities are implemented and carried out and what factors contribute to the outcomes (Corbett, Thompson, White & Taylor, 1991). Bearing in mind what has been discussed previously, two interesting aspects of a process evaluation should be highlighted here: first, it provides a good example of how mixed methods can be integrated and, second, it constitutes a somewhat different and novel approach to psychological treatment evaluation.

2.2.1 Rationale for the use of a process evaluation

To date, most clinical treatment evaluation studies have aimed to investigate the efficacy of a particular treatment program, as might be reflected in a change in outcome measures as compared to baseline data. Efficacy is usually established within a well controlled experimental design, often a Randomized Control Trial (RCT), thought to eliminate interfering factors. The research is driven by the question to what extent a certain intervention works (Clark-Carter & Marks, 2004). During the past few years, RCT designs have increasingly been criticized for their lacking external validity and their failure to notice crucial therapy elements (Jackson, 2005; Seligman, 1995). In fact, a frequently encountered problem in outcome evaluations is that not all the components have been implemented as originally suggested and may thus lead to incorrect conclusions about the effectiveness of the intervention, which has sometimes been referred to as “Type III Error” (Linnan & Steckler, 2002).

Effectiveness is usually measured in a naturalistic or clinical setting, measuring whether an intervention does work (Clark-Carter & Marks, 2004). It may be the case, that, even if all treatment components have been introduced and executed correctly, not all treatment ingredients may reach participants as intended ... *“participants may not have received what was delivered”* (Linnan & Steckler, 2002, p.6).

A process evaluation is different from an outcome evaluation in that the researcher is looking into the actual treatment process while trying to identify the effective key components of an intervention, for whom it is suitable and under what conditions it can be most successful (Hawe et al., 1990; Linnan & Steckler, 2002). In addition, the evaluation can investigate why certain goals are not being achieved or may only be useful to a particular subgroup of the target population.

2.2.2 Description of the process evaluation components

Table 2.1 defines the key process evaluation components used in this project.

Table 2.1

Key process evaluation components

Component	Definition
Context	Aspects of the larger social, political, and economic environment
Reach	The proportion of intended target population participating in an intervention.
Dose delivered	The number or amount of treatment components delivered (efforts of the intervention provider)
Dose received	The extent to which participants actively engage and interact; extent to which they are receptive to treatment, materials, and the recommended resources.
Fidelity	The extent to which the intervention was delivered as planned, representing the quality and integrity of the intervention.
Recruitment	Procedures used to approach and attract participants.

(Adapted from Linnan & Steckler, 2002, p.12)

The components dose delivery, dose reception, treatment fidelity, and reach are often combined in a single factor, called program implementation (Linnan and Steckler, 2002). A calculation of an implementation factor, however, seems not useful for this project, as there are no available comparison data from similar psychological treatment evaluation studies.

Figure 2.3 illustrates the various relationships between the key components of a process evaluation. As outlined above, the single process evaluation components are by no means independent from each other, but rather related. For example, particular recruitment sources determine who is reached, while participant reach influences the dose reception in terms of participant characteristics such as the severity and complexity of their clinical symptoms, and this may then impact on the degree of engagement and participant attrition. Likewise, treatment integrity and dose deliverance are very much related and influence the dose reception. It is important to realize that this whole process takes place within a particular socio-political and treatment environment.

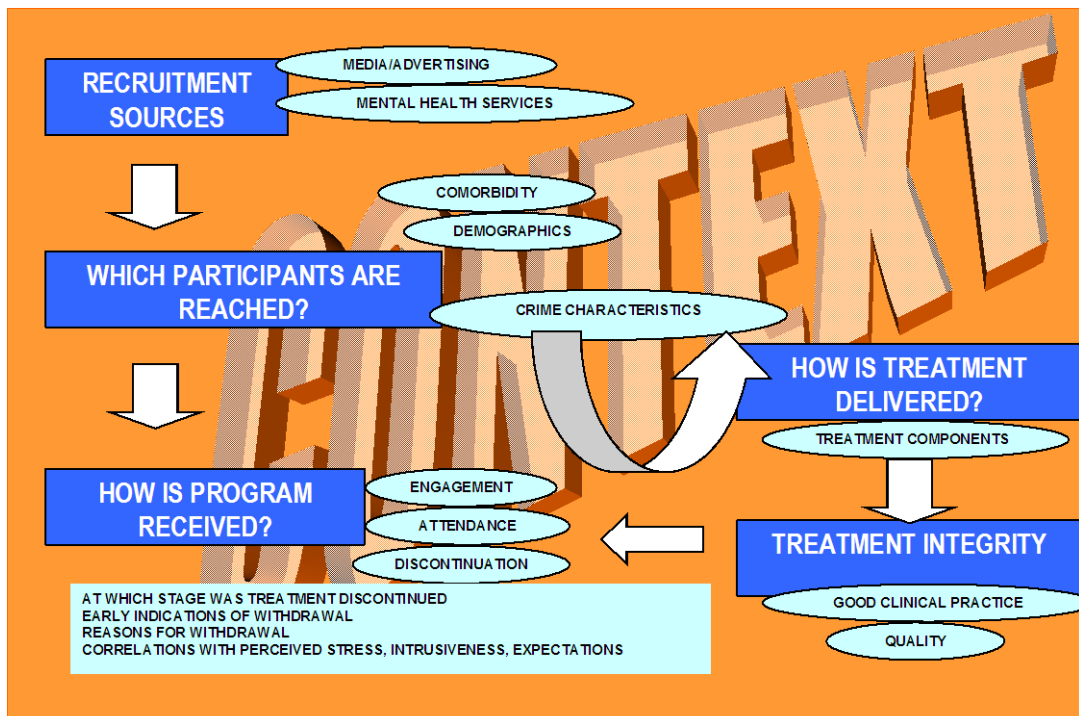


Figure 2.3 Relationship between process evaluation key components

A more detailed account of the specific research questions addressed in the process evaluation will be given in Chapter VI, along with a comprehensive description of the actual treatment process and the results of the treatment evaluation.

2.3 Settings and research context

As outlined in the two previous chapters, research into victims of crime needs to be interpreted within its particular context, comprised by the immediate research environment, but also the wider socio-political and cultural background. Unfortunately, settings are often not explicitly depicted in psychological studies, even though it is critical to any research regarding the perception, recognition and expression of the investigated problems. Furthermore, the context determines how research can be implemented and also how it is welcomed by participants, which makes it an essential component of a process evaluation.

2.3.1 Description of research settings

The three studies took place at various research settings. For practical reasons such as the collection of blood - and saliva samples, Study I was conducted at the Nurses' Laboratory of the University of South Australia. The rooms resemble a hospital room with a row of beds on each side and the necessary hospital equipment for training purposes. The adjunct clinical interviews were conducted in a separate room on the same floor.

The semi-structured interviews (Study II) took place at the Victim Support Service in Adelaide. The Victim Support Service is a community based, non-governmental not-for-profit organization which provides a comprehensive range of services for crime victims, their families and friends. This setting seemed most appropriate as the Victims Support Service constituted a major recruitment source and most of the participants were familiar and comfortable with this service. Another advantage was that the interviews could be conducted in an accommodating, safe, and quiet environment.

The psychological treatment (Study III) was conducted at the Centre for Treatment of Anxiety and Depression in Adelaide. This outpatient clinic is a joint initiative between the University of Adelaide's School of Psychology and the Central Northern Adelaide Health Service as part of the public mental health community care. Similar to the Victim Support Service, this setting provided all the necessary resources and infrastructure such as safe, and well equipped rooms and an atmosphere where essential requirements such as confidentiality and an exchange with other colleagues could be met.

2.3.2 Sociopolitical/legal context

As stressed in the introduction, victimization is a societal construct, associated with a particular attitude towards victims' rights, as well as specific means to execute control, or more specifically, criminal justice. For this reason, it is important to note that the confrontation with the criminal justice system starts with the victimization rather than an actual involvement in a legal process, and this constitutes an important context factor for all victims of crime.

Whereas some achievements in victims' rights have been observed over the past few decades, it must be acknowledged that an involvement in the criminal justice process comprises a great amount of ongoing stress for victims of crime (Daly, 2003; Goodey, 2005; Grant, David, & Cook, 2002; Israel, 2003). This stress may result from various aspects of the legal process: victims' limited ability to influence the criminal justice process; a lack of collaboration between involved services; missing information on the process; or the inevitable confrontation with the traumatic past (Daly, 2003; Goodey, 2005; Grant et al., 2002; Israel, 2003).

The Relationship between Biochemical Markers and Psychological Functioning in Victims of Crime: A Pilot Study

This chapter will describe a pilot study that examines the relationship between alterations in biochemical markers and psychological functioning in victims of crime. The first part of the chapter introduces the Oxidative Model of Stress and Disease (Blake-Mortimer, Winefield, & Chalmers, 1996, 1998) as a theoretical basis for the research. The second part will show how this model is operationalized in terms of specific biochemical parameters, and how these contribute to immune responses. The remainder of the chapter describes the principal hypotheses, methodology and results, as well as interpretations of the findings in terms of the Oxidative Model and existing research on neurobiological and immunological mechanisms in PTSD.

3.1 Background rationale

3.1.1 The relationship between trauma, stress, PTSD and physical disease

A considerable number of studies across different trauma populations have demonstrated an association between traumatic experiences and impaired physical health (Schnurr & Green, 2004). For example, physical health impacts have been identified in rape and sexual assault victims, and there is evidence of poorer physical health in victims of childhood trauma and prolonged abuse such as intimate partner violence (Breiding et al., 2008; Hurwitz et al., 2006; Walker et al., 1999). However, the role of PTSD in this trauma-health link is still unclear and warrants further investigation (Schnurr & Green, 2004).

One of the major challenges establishing an association between trauma and health link is the difficulty in adequately measuring the multidimensional construct of physical health. Most research tended to report upon methods which can be

confounded by a variety of factors. For example, VOC may lack the skills to differentiate between physical sensations/physical symptoms and psychological reactions (Falsetti & Resnick, 1997). Moreover, people may not be able to provide accurate recall of health related facts (Walker, Newman, & Koss, 2004). Self reports are dependent on people's own conceptualizations of physical health, their ability to precisely describe physical symptoms, and their motivation to disclose intimate health related information or adverse health behaviours. Furthermore, there is evidence that health reports are influenced by one's emotional state (Watson & Pennebaker, 1989) and *perceptions* of health. In this context, control expectancies may play a crucial role in that people with a more external LOC¹ and low self efficacy may show a greater inclination to focus on physical, rather than psychological health indicators (Devellis & Devellis, 2001) to explain their experiences. Finally, there may be additional confounding variables including a particular genetic disposition, preexisting health conditions, the effects of medication, and adverse health behaviours such as smoking, lack of exercise, and poor nutrition. (Rheingold, Acierno, & Resnick, 2004). The latter may be of particular significance in criminal victimization, in that there is substantial evidence that VOC are more likely to engage in behaviours harmful to their health and that they lack an ability of adequate self care (Rheingold et al., 2004).

Notwithstanding these limitations, the relationship between trauma and physical health is well substantiated not only by empirical findings, but also the neurobiological theories on posttraumatic illness. As a consequence, research into health problems in VOC is warranted, although it is acknowledged that it may benefit from further inclusions of more objective laboratory measures.

3.1.2 Biochemical markers as indicators of physical health

Coinciding with the increasing interest in the relationship between neurobiological processes and psychological functioning, a substantial body of research has focused on an analysis of biochemical markers, e.g. corticosteroids,

¹ LOC = Locus of control (Rotter, 1966). Refers to the perceived source of control over one's behaviour. It is measured along a dimension from high internal (people who take responsibility for their own actions and believe they have control over their own destinies) to high externals (control is perceived as residing elsewhere and success/failure are attributed to outside forces (Reber, 1995)

neuropeptides, and immunological factors (Friedman, 2004; Friedman & McEwen, 2004; Friedman & Schnurr, 1995; Yehuda, 2002; Yehuda et al., 2004). In addition to having the advantage of providing a more objective assessment of physical health, biochemical markers can cast light on underlying psycho-biological processes that are not yet well understood (Friedman, 2004). In this way, immunological parameters appear particularly interesting, in that they may serve as an indirect indicator and possibly mediator of physical health.

Although most psychoneuroimmunological research has concentrated on acute and chronic stress paradigms, there is now considerable research evidence of altered immune responses in people suffering from affective and anxiety disorders as well as psychotic illness (Kiecolt-Glaser et al., 2002). In addition, there is growing evidence for PTSD related alterations in immune functioning (Dougall & Baum, 2004; Friedman & McEwen, 2004; Schnurr & Green, 2004). However, as with the inconsistent findings on the role of PTSD in physical health, it is difficult to determine the direction and the underlying mechanisms of changed immune processes.

Blake-Mortimer, Winefield and Chalmers (1996, 1998) proposed the “Oxidative Model of Stress and Disease” and found suppressed immune functioning in high strung university students (Arthurson, 2003; Oliver, 2004), chronically stressed university staff (Hapuarachi, Chalmers, Blake-Mortimer, & Winefield, 2003), and depressed individuals (Blake-Mortimer et al., 1996). The Oxidative Model is interesting in that it focuses on two major pathways of the immune response, and integrates a comparatively large number of biochemical markers. This contrasts other PNI research where typically only single or few markers have been examined.

3.1.3 Lymphocytic 5'-Ectonucleotidase (NT) and The Oxidative Model

Lowered Levels of Lymphocytic 5'-Ectonucleotidase

Several studies have detected lower levels of Lymphocytic 5'-ectonucleotidase (NT), an enzyme found on the external surface of the cell membrane which has been associated with lymphocyte maturation (Blake-Mortimer et al., 1996). Decreased NT

levels were identified in stressed clinical and non-clinical samples such as recently diagnosed HIV patients (Chalmers & Hare, 1990), university staff (Hapuarachi et al., 2003), stressed honours students and depressed patients (Arthurson, 2003; Blake-Mortimer et al., 1996, 1998; Chalmers, 2000; Oliver, 2004). More specifically, Blake-Mortimer et al. (1996) compared NT levels in 21 honours students to a low stress university staff control sample (n=10) and a high stress university staff sample (n=18). The students were assessed at the beginning of their course (low stress), shortly before their exams and thesis submission (high stress), and after their exams (low stress). While their mean NT score was not significantly different from the low stress group at baseline, they showed a 33% decrease during the exam period, and then an increase to within 20% of their baseline score after the exams. A similar pattern emerged in the high stress control group. NT values decreased to nearly 50% of the initial low stress scores and increased significantly three months following the stressful event, although not to the original level. NT levels in the study were negatively correlated with negative mood as assessed by the Profile of mood states (POMS, Mc Nair, Lorr, & Drappelman, 1992).

Furthermore, the NT results from a subgroup of depressed people taking a synthetic antioxidant suggested that low NT levels were a reflection of increased oxidative stress in the body (Blake-Mortimer et al., 1996, 1998). For example, the depressed patients who took antioxidants demonstrated NT values similar to the healthy control group without depression. Furthermore, the mean NT level in the depressed group with antioxidant intake was twice as high as that in the depressed group not taking antioxidants, lending support to the idea that lowered NT is closely correlated with increased oxidative stress. In a further study, Blake-Mortimer et al. (1998) demonstrated that low NT levels significantly correlated with declined tissue ascorbate stores and that these effects appeared to be mediated by free oxygen radicals. Based on these results, the authors concluded that NT appears to be a reliable marker not only of lymphocyte maturation, but also of oxidative stress. Moreover, an oxidative stress response seems closely related to negative mood states and stressful life experiences.

The Oxidative Model of Stress and Disease

The Oxidative Model suggests a disruption of the homeostatic mechanisms between the immune system and the Hypothalamic Pituitary Adrenal axis (HPA) which could lead to compromised immune functioning due to stress (Blake-Mortimer et al., 1996; 1998). As described in the Literature Review, the HPA constitutes one of the major stress response systems (Friedman, 2004). With infection (or stress and depression), the immune system releases cytokines which stimulates the activation of the HPA axis, resulting in a release of corticosteroids from the adrenal glands. An increase of corticosteroids is commonly associated with a down-regulation of immunity (Katzung, 1992). Blake-Mortimer et al. (1996), however, proposed an additional process which involves a corticosteroid-mediated down-regulation of the acquired immune response and an up-regulation of innate immunity. More specifically, it is suggested that a prolonged release of cortisol results in increased neutrophil activation which, in turn, leads to the production of free oxygen radicals. This oxidative process results in decreased NT levels and compromised lymphocyte maturation, in this way interfering with acquired immunity. In addition, it has been suggested that lymphocytes are also directly affected by a prolonged release of cortisol, in that the lymphoid tissue may become resistant to the effects of corticosteroids (Blake-Mortimer et al., 1996). Taken together, this means that the intricate feedback mechanism by which corticosteroids normally control lymphocyte activity is decreased in chronic stress and depression, leading to a more substantial role of another immune controlling mechanism, the oxygen radical pathway. However, it should be acknowledged that the two pathways exist simultaneously. This process is illustrated in *Figure 3.1*

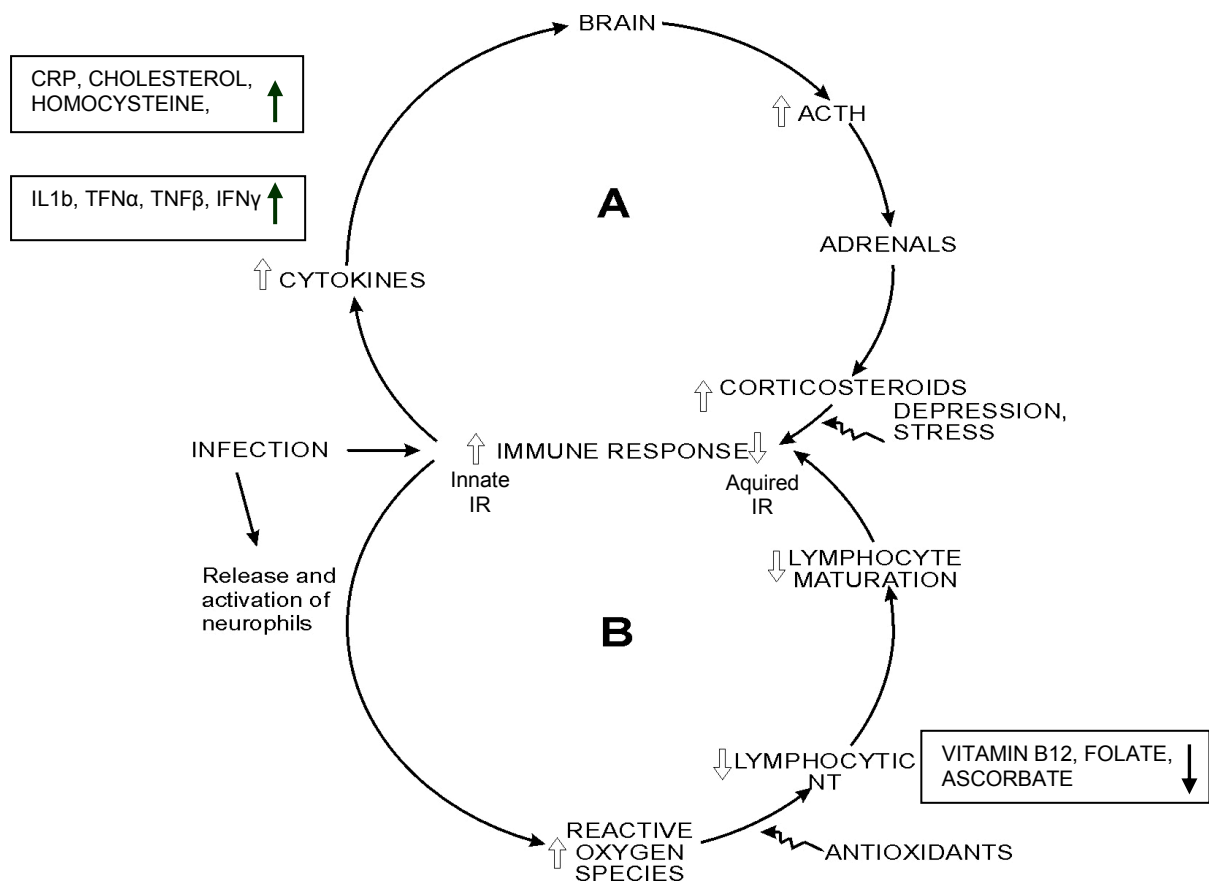


Figure 3.1 Two mechanisms for controlling the immune response (adapted from Blake-Mortimer, Winefield & Chalmers, 1996)

IR=Immune response; CRP=C-reactive protein; IL1b=Interleukin 1b; TNF α =(Tumor necrosis factor alpha); TNF β =Tumor necrosis factor beta; IFN γ =Interferon gamma

The hypothalamic pituitary mechanism (A) and the oxygen radical pathway (B) are shown. Open arrows indicate increased/decreased activities or concentrations and wavy arrows inhibitions. Full arrows show the effect of different processes on the production and subsequent interactions of various chemicals with tissues influencing immunity (Blake-Mortimer et al., 1996).

Biochemical markers as indicators of the Oxidative Model

The suggested pathways of immune functioning involve the secretion of various biochemical substances which can be used as an indicator of the proposed processes. Cycle A represents the innate proinflammatory process which is thought to be a first line of defense, reflected in an increase of C-reactive protein (CRP),

Cholesterol, Homocysteine (HCY) and the cytokines Interleukin 1b (IL1b), Tumor necrosis factor alpha (TNF α), Tumor necrosis factor beta (TNF β), and Interferon gamma (IFN γ). Alternatively, cycle B describes the acquired immune pathway with an oxygen radical generation, leading to lowered NT, tissue ascorbate (Vitamin C) and an increase in Lipidoxides (LO). Moreover, it is assumed that oxygen radicals deplete Vitamin B and Folate which in turn results in increased HCY levels.

In addition, the Oxidative Model proposes different pathways of how changes in the above mentioned markers could increase one's susceptibility to develop a disease. This process is illustrated in *Figure 3.2*

NOTE:
This figure is included on page 119
of the print copy of the thesis held in
the University of Adelaide Library.

Figure 3.2 Possible pathways of an increased susceptibility to infections and coronary heart disease (with permission from Blake-Mortimer, 2004).

Chronic stress and maladaptive emotions trigger innate immune processes, indicated by a number of respective biochemical markers. Two different mechanisms of the oxidative stress-disease link are suggested: a) Low NT results in impaired lymphocyte maturation with a negative impact on acquired immunity and an increased risk for infections; b) low vitamin B levels lead to an increase in homocysteine and an increased risk to develop cardiovascular conditions such as Coronary Heart Disease (CHD).

In sum, a substantial amount of research has pointed to a deteriorated physical health status in VOC. However, most of these data are based on self reports which are subject to a considerable number of biases. Influenced by the growing popularity of psychoneuroimmunological research, considerable interest has been displayed in a determination of immunological changes in trauma survivors which could also help to clarify the underlying psycho-neuro-biological processes. The proposed Oxidative Model of Stress and Disease (Blake-Mortimer et al., 1996; 1998) appears to be a useful theoretical framework due to its integration of various physical stress responses, indicated by a broad range of biochemical markers. However, the understanding of these complex mechanisms is still in its infancy, and requires further investigation. Indeed, the model has rarely been tested in clinical populations, and there is no evidence for its applicability in people suffering from posttraumatic illness.

As a consequence, the present study has been conceptualized as an exploratory study that examines the relationship between biochemical changes and psychological distress in VOC. The major goals of the study were (1) To examine differences in psychological health between VOC and a community sample without a history of traumatic experiences; (2) An examination of differences in immunological functioning between VOC and the control sample; (3) An examination of the relationships between psychological and biochemical factors to further an understanding of the complex relationship between trauma, PTSD and disease.

3.2 Hypotheses

Primary Hypotheses

- I. VOC display higher levels of psychological stress and a higher intensity of aversive emotions (anxiety, anger, depression, and loneliness) than the control group.

- II. a) VOC demonstrate higher levels of CRP, Cholesterol, and HCY (markers of a proinflammatory response) than the control group

b) VOC demonstrate lower levels of Folate, Vit. B12, NT, LO and Vit. C (markers of oxidative stress) than the control group

c) VOC demonstrate greater changes in $TNF\alpha$, $TNF\beta$, IL1b, and $IFN\gamma$ than the control group.

Secondary Hypothesis

- III. a) Positive relationships are expected between psychological stress, the intensity of aversive emotions, anger suppression and the levels of CRP, Cholesterol, HCY, and LO.

b) Negative relationships are expected between psychological stress, the intensity of aversive emotions, anger suppression and levels of Folate, Vit. B12, NT, and Vit. C.

c) Correlations are expected between psychological stress, the intensity of aversive emotions, anger suppression and $TNF\alpha$, $TNF\beta$, IL1b, and $IFN\gamma$.

3.3 Methods

3.3.1 Participants:

For the recruitment of VOC, various victim support organizations and community counselling services in Adelaide were approached. In addition, the study was advertised in newsletters of the Victim Support Service and the Homicide Victim Support Group in Adelaide, as well as mass media such as TV, radio and local newspapers. In contrast, participants in the control group were recruited through advertisements in a local community newspaper only.

People aged between 18 and 67 years in good general health were eligible to participate in the study, while people suffering from chronic medical conditions (e.g. heart disease, diabetes, cancer), autoimmune and inflammatory diseases (e.g. Rheumatoid Arthritis, Addison's Disease, Cushing's Disease, Lupus Erythematosus), or taking immunosuppressive medication (e.g. Cortisone or Cytotoxic drugs) were excluded due to possible impacts on immune functioning. Moreover, people taking blood thinning agents such as Warfarin had to be excluded to avoid adverse consequences of blood taking. Finally, people with current psychotic symptoms were excluded, as it was feared that a participation could impose a health risk. To ensure that participants did not suffer from current inflammation processes or other health conditions such as anemia, a full blood examination (FBE) was conducted before entering the study. Participants with abnormal blood results were excluded and referred to their GP as a precautionary measure.

To be included in the VOC sample, people had to be exposed or have witnessed a crime at least three months prior to the initial assessment (Appendix A, B, pp. 428). Besides primary crime victims, secondary victims such as first degree relatives of crime victims were invited to participate. For a participation in the control group, it was a requirement that people had no history of a major traumatic experience and did not exhibit a stress level higher than 3 on the General Health Questionnaire (GHQ-12) which relates to a "mild" or "normal" stress level (Goldberg & Wilson, 1988) (Appendix C, p.432).

Forty six victims of crime responded to the invitation to participate. After the telephone assessment, nine people were excluded for the following reasons: psychotic symptoms ($n=1$); unrealistic expectations about the goals of the study ($n=1$); severe physical health condition (CVD) with a concomitant extreme weight loss ($n=1$); not resident in Adelaide ($n=6$). Another 10 people did not attend the assessment, giving the following explanations: Moving interstate ($n=1$); new crime exposure ($n=1$); and pregnancy ($n=1$), while seven people were not contactable anymore. The final victim of crime sample consisted of 27 participants (22 women, 5 men) with a mean age of $M=50.56$ ($SD=10.71$) years, 32 to 67 years. In the control group, 41 people were interested in participating in the study. Nine people were not able to attend the assessment session due to work commitments, while one person withdrew without giving any reasons. The final control group was composed of 31 members of the general community (24 women, 7 men) with a mean age of $M=47.9$ ($SD=10.64$), ranging from 30-67 years. Table 3.1 compares demographic characteristics between the two groups, *while Figure 3.3 illustrates* the participant flow across the study.

A series of Chi-square tests were performed to determine the relationship between group membership and categorically coded- variables. No significant differences between VOC and the controls were found in relation to age, gender, parenthood and level of education, although a greater proportion of participants in the control group had completed tertiary education. It is important to note that the proportion of female participants was considerably high in both groups with 81.5 % in the VOC group versus 77.4 % in the control group.

Table 3.1
Comparison of gender and education between VOC and the control group

	Victims of crime <i>n</i> =27 <i>n (%)</i>	Control group <i>n</i> =31 <i>n (%)</i>
Gender		
Male	5 (18.5%)	7 (22.6%)
Female	22 (81.5%)	24 (77.4%)
Education		
Primary	2 (7.7%)	-
Secondary	12 (46.2%)	8 (25.8%)
Tafe	4 (15.4%)	3 (9.7%)
Tertiary	8 (30.8%)	20 (64.5%)

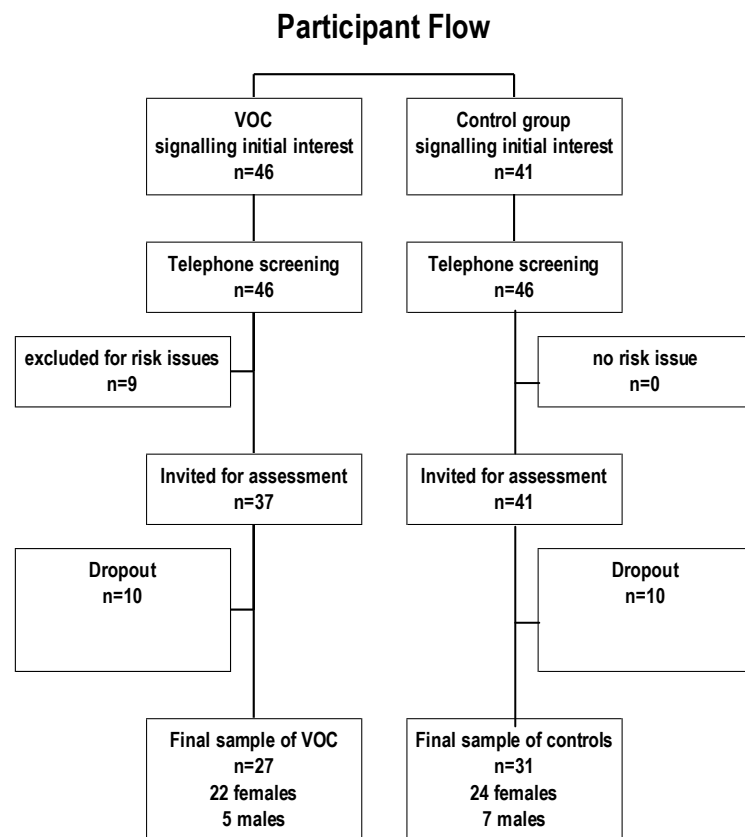


Figure 3.3. Participant Flow Study I

Victim characteristics

The victim sample comprised 19 primary and 8 secondary VOC who were first grade family members of homicide victims, apart from one person who was a parent of a victim of sexual assault. Various types of crimes were represented: Childhood sexual abuse ($n=8$), homicide ($n=7$), unlawful entry with/without physical assault ($n=4$), physical assault ($n=3$), robbery ($n=3$), fraud ($n=1$), and harassment ($n=1$). Three people had suffered from physical injuries as a consequence of the crime with one person fully recovered and two still suffering from remaining disabilities. With respect to single/multiple victimization, 14 VOC had been exposed to a single crime event, while five people had experienced several independent crimes, and eight people suffered from multiple and prolonged victimization, i.e. emotional, physical and sexual abuse during their childhood.

The time elapsed since the crime varied between 1 and 60 years with a mean of 13.88 (17.10) years. Eleven participants experienced the crime 1-5 years ago, eight experienced it 6-10 years ago, and another eight had been exposed to the crime more than 10 years ago (see *Figure 3.4*). The age at the onset of the first crime varied between 3 and 60 years with a mean of 35.96 years ($SD=20.13$). The distribution appears tri-modal with the first peak between year 1 and 10, another peak between 30 and 40 years of age and the third peak between 50 and 60 years (see *Figure 3.5*).

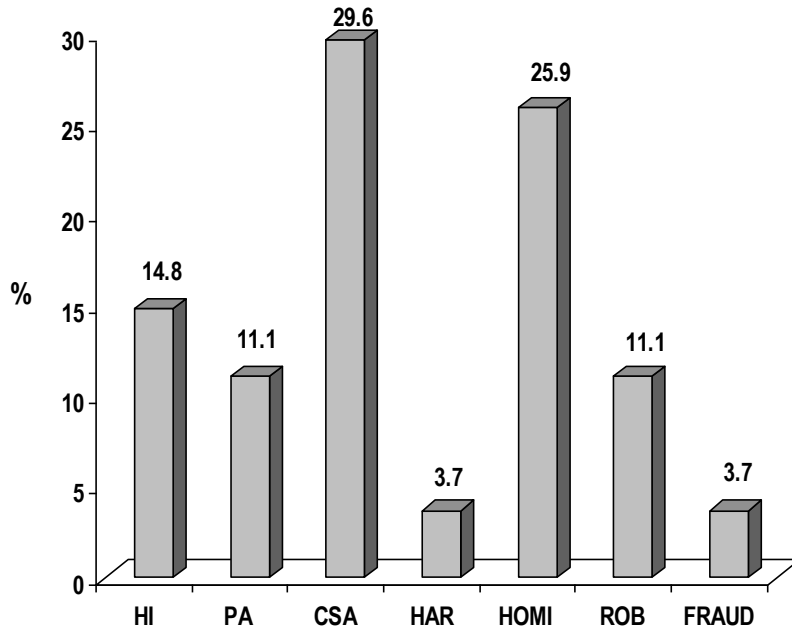


Figure 3.4 Distribution of crime types

HI= Home invasion; PA=Physical assault; CSA=Childhood sexual abuse; HARR=Harrasment; HOMI=Homicide; ROB=Robbery

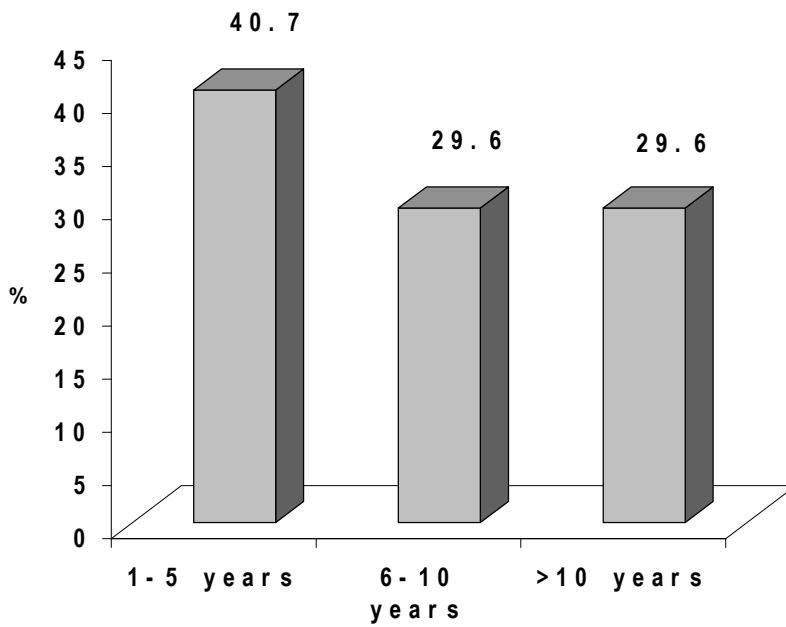


Figure 3.5 Years elapsed since crime incident

3.3.2 Measures

3.3.2.1. Standardized Psychological Measures

1. General Health Questionnaire (GHQ-12, Goldberg, 1992)

The GHQ-12 is a short version of the well validated GHQ-60 (Goldberg, 1978), a self rating instrument originally developed to detect non-psychotic psychiatric disorder in the general community. For the purpose of the present study, participants' stress level over the past four weeks was rated on a four-point rating scale. An internal consistency (Cronbach's alpha) for the GHQ-12 has been determined between .82 to .90 (Goldberg & Williams, 1988). The GHQ can be scored in two different ways: The "GHQ scoring method" represents a binary coding system with 0 indicating absent or unchanged symptom levels and 1 an increased presence of symptoms which is appropriate for the detection of cases. Goldberg and Williams (1988) suggest that a sum score of 0-1 indicates "a normal stress" level, 2-3 "mild stress", while a score of ≥ 4 designates a "severe" stress level. The second scoring method uses a Likert-scale rating, ranging from 0-3, e.g. (0) "not at all/better than usual", (1) "no more than usual", (2) "rather more than usual", to (3) "much more than usual" which allows for a comparison of the degree of stress, as the distribution of scores is expected to be less skewed than in the GHQ scoring method (Johnston, Wright, & Weinman, 1995). In the present study, the GHQ scoring method was used for the screening of control group participants and to determine changes in relation to the severity of the stress level. In addition, the Likert scale scoring was used to compare differences between the groups.

2. State/Trait Personality Inventory (STPI, Spielberger, 1996)

The State-Trait Personality Inventory encompasses scales from Spielberger's frequently used State/Trait Anxiety Inventory (STAI, Spielberger, 1983) and the State/Trait Anger Scale (STAS, Spielberger, 1980), as well as two additional scales to assess state and trait depression and curiosity. The six subscales (S-/T-depression), anger (S-/T-anger), anxiety (S-/T-anxiety) and curiosity (S-/T-curiosity) measure the intensity of emotions with a total number of 40 items. To assess state measures, participants are asked to indicate on a four point rating scale how they feel at a particular moment, ranging from (1) "Not at all", (2) "Somewhat", (3) "Moderately so", to (4) "Almost always". To indicate trait measures, participants rate how they

generally feel, e.g. “I feel gloomy” (T-depression). Average alpha coefficients were .92 for the anxiety subscales, .95 for curiosity scales, .93 for anger scales and .87-.93 for the depression subscales (Spielberger, 1996).

3. State/Trait Anger Expression Inventory (STAXI-2) (Spielberger, 1999)

The State-Trait Anger Expression Inventory assesses the intensity of state and trait anger and two different ways of anger expression and control, in this way allowing for a distinction between anger experience and anger expression (Spielberger, Sydeman, Owen & Marsh, cited in Maruish, 1999). In the present study, only anger expression and control were assessed, as state and trait anger were measured by the above described STPI. Anger expression refers to two subscales: “Anger-In” denotes a suppression of anger and a concomitant tendency to direct anger towards oneself, whereas “Anger-Out” assesses the tendency to direct anger towards the environment. In addition, the anger control scale “Control-Out” assesses individual differences to control the outward expression of angry feelings, whereas the “Control-In” scale measures the frequency of efforts to control the suppression of anger. The 32 items are rated on a four point rating scale ranging from (1) “Almost never”, (2) “Sometimes”, (3) “Often”, to (4) “Almost always”. Alpha coefficients for the subscales range from .73 to .93, whereby the highest internal consistency was determined for the “Anger-In” subscale (Spielberger, 1999).

4. Beck Depression Inventory (BDI-II) (Beck, Steer & Brown, 1996)

The second edition of the Beck Depression Inventory is a 21-item self-report designed to measure the severity of depression during the past two weeks. The symptoms correspond to DSM-IV criteria and are rated on a four-point rating scale ranging from 0-3, e.g. (0) “I do not feel sad”, (1) “I feel sad much of the time”, (2) “I am sad all the time”, and (3) “I am so sad or unhappy that I can’t stand it”. An overall BDI score is received by summarizing all individual items. According to the authors, cut off scores from 0-13 indicate a “minimal depression”, 14-19 “mild depression”, 20-28 “moderate depression”, and 29-63 “severe depression” (Beck et al., 1996). An internal consistency of .92 and a test-retest correlation of .93 was reported in a sample of psychiatric outpatients.

5. UCLA Loneliness Scale, version 3 (Russel & Cutrona, 1988)

The UCLA Loneliness scale measures loneliness as a unidimensional emotional response to unfulfilled wishes of social contact. Twenty items are presented on a 4-point rating scale, ranging from (1) "Never", (2) "Rarely", (3) "Sometimes" to (4) "Always". The authors report a coefficient α between .89 and .92 for healthy populations and a test-retest reliability of .73 (Russel, Peplau & Ferguson, 1978; Russel, Peplau & Catrona, 1980).

6. Posttraumatic Cognitions Inventory (PTCI) (Foa, Ehlers, Clark, Tolin & Orsillo, 1999)

The Posttraumatic Cognitions Inventory (PTCI) measures negative cognitions about the world, the self and self-blame after trauma exposure. Thirty six items are assessed on a 7-point rating scale from (1) "Totally disagree" to (7) "Totally agree", e.g. "The event happened because of the way I acted" or "My life has been destroyed by the trauma". Cronbach α coefficients for the three scales range between .86 and .96, with the highest internal consistency found in negative cognitions about the self. Spearman correlations revealed a test-retest reliability of .74 for the total score and values between .75 and .89 for the subscales (Foa et al., 1999).

7. Impact of Events Scale Revised (IES-R), Weiss & Marmar, 1997

The original Impact of Event Scale (IES, Horowitz, Wilner & Alvarez, 1979) is one of the most widely used trauma self report measures. In 1997, the scale was revised and adjusted to DSM-IV criteria for PTSD. For this purpose, a hyperarousal subscale and one additional intrusion item were added to the already existing avoidance and intrusion scales, comprising 22 items altogether. The presence of symptoms is rated from (0) "Not at all" to (5) "Extremely". Weiss & Marmar (1997) report a high internal consistency for the three subscales with α coefficients between .84 and .92. Earlier validation studies demonstrated that the IES avoidance and intrusion subscales comprise a suitable instrument to identify clinical change (Weiss & Marmar, 1997). Likewise, the IES-R is targeted towards an assessment of a symptom change in a defined sample which renders a determination of cutoff scores unreasonable (Weiss, in Wilson & Keane, 2004).

8. Structured Clinical Interview (SCID-I), PTSD Module, First, Gibbon, Spitzer & Williams, 1996

The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID), PTSD Module, is a semi-structured clinical interview which allows for a determination of a PTSD diagnosis according to DSM-IV criteria. PTSD symptoms are assessed by the interviewer, engaging in a trichotomous decision about the full presence (score=2), subthreshold presence (score=1) or absence (score=0) of a particular symptom. In addition, the duration of symptoms and the current severity of symptoms are assessed: A mild presence of PTSD is indicated by the existence of a few symptoms in excess of those required for a diagnosis or minor social and/or occupational impairments; moderate PTSD describes PTSD under partial remission which implies that full criteria were met previously; a severe PTSD is justified if a client presents with many additional symptoms or a marked impairment. Weiss (in Wilson & Keane, 2004) advises on the fact that there are only sparse data on the psychometric properties of the SCID. A kappa coefficient of .93 for the PTSD module was obtained in the National Vietnam Veterans Research Study (NVVRS) (Schlenger, 1992; Weiss, 1992, cited in Weiss, 2004). Despite this fact, the SCID is one of the most widely used clinical instruments which is often regarded as a “gold standard” for a clinician rated diagnosis (Weiss in Wilson & Keane, 2004).

In the present study, Cronbach α coefficients were calculated for the present sample.

Table 3.2

Cronbach alpha coefficients for psychological measures

Test	Subscales	Cronbach α
General Health Questionnaire (GHQ)		.95
Posttraumatic Cognitions Inventory (PTCI)	Overall scale	.95
	Negative cognitions self .	.93
	Negative cognitions world	.85
	Self blame	.81
Anger Expression Inventory (STAXI-2)	Anger-In	.80
	Anger –Out	.66
	Control-In .	.86
	Control-Out	.85
UCLA Loneliness Scale		.94
Impact of Event Scale	Overall scale	.93
	IES avoidance	.81
	IES intrusion	.87
	IES hyperarousal	.87
Beck Depression Inventory (BDI-II)		.96
State / Trait Personality Inventory	Overall score	.92
	Trait anger	.85
	Trait anxiety	.87
	Trait depression	.75
	Trait curiosity	.85
	State anger	.92
	State anxiety	.94
	State depression	.94
State curiosity	.76	

Invented measures**Eligibility Protocol** (see Appendix B, C, pp. 430.)

An eligibility protocol was developed to assess participants' eligibility for the study by a phone interview. As part of this screening process, participants' age and trauma/crime characteristics were documented. Furthermore, participants were asked to provide information on their physical and mental health conditions, as well as their current medication and vitamin intake. In addition, the GHQ-12 was administered to

participants in the control group to ensure that their stress level did not exceed a GHQ score of ≤ 3 (“normal” stress level).

Demographic and Health Behaviours Questionnaire (see Appendix D, p. 435)

In addition to the information collected in the eligibility protocol, the demographic questionnaire assessed participants’ current living circumstances and their level of education. Furthermore, questions on participants’ current smoking behaviours, alcohol consumption, and substance use were presented along with an assessment of their current physical activities. In addition, participants had to provide a detailed description of their current medication and vitamin intake. The questionnaire was composed by the researchers by adapting questions from the WHO Alcohol Use Disorders Identification Test (AUDIT) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) and the International Physical Activities Questionnaire (International Physical Activities Questionnaire Committee, 2004). The smoking assessment was adapted from an article by R. West (2004).

3.3.2.2 Biochemical measures

As suggested in the Oxidative Model (Blake-Mortimer et al., 1996; Chalmers, 2000) the following biochemical markers were assessed:

Table 3.3

Summary of examined biochemical markers

Biochemical markers	Expected change	Function
<i>Markers of proinflammatory process</i>		
C-reactive protein (CRP)	elevated	immune activation as part of an inflammatory response
Interleukin 1b (IL1b)	unclear	
Tumor necrosis factor alpha (TNF α)	unclear	
Tumor necrosis factor beta TNF β	unclear	
Interferon gamma IFN γ	unclear	
Cholesterol	elevated	
Homocysteine (HCY)	elevated	
<i>Markers of prooxidant state</i>		
Lymphocytic'5-Ectonucleotidase (NT)	lowered	Oxidative stress: increased oxygen radical production and/or decreased ascorbate stores, depletion of Vitamins, increase in HCY due to lowered Folate levels
Tissue ascorbate (Vit C)	lowered	
Lipid oxides (LO)	increased	
Folic acid (Folate)	increased	
Vitamin B12 (Vit B12)	lowered	

Biochemical analysis of markers:

Full blood examinations, sensitive CRP, Cholesterol, HCY and Vitamin B were analyzed by local pathology laboratories Southpath and Gribbles using commercially available diagnostic methods.

NT, LO, and Tissue ascorbate were analyzed by Dr. Ainsley Chalmers at the Flinders Medical Centre in Adelaide. Apparatus for the NT assay is described in Chalmers and Hare (1990). Ascorbate was measured in lymphocytes by the method of

Roe (1961) as adapted by Chalmers and Lark (1985) using trichloroacetic acid (TCA)/charcoal 2,4-dinitrophenylhydrazine color reagent (DNPH).

Cytokines were analyzed by Professor Antonio Ferrante, Department of Immunopathology, at the Women's and Children's Hospital in Adelaide. IL1 β ; TNF α ; LT and IFN γ in serum samples was measured by akin method using fluorescent cytokine capturing beads with the assistance of the Becton Dickinson (BD) Bead Array (CBA) Flex Set System (BD, California). The assay involved the mixing of 50 μ l of serum or serum dilution with 50 μ l of mixed capture beads. These were incubated for 1 hour at room temperature in the dark and then 50 μ l of the analyte specific phycoerythrin (PE)-conjugated detection antibody added. After a further incubation of 2 hours at room temperature in the dark, the samples were washed and transferred to a 96 well plate for analysis by flow cytometry on the BD FACsArray System.

3.3.3 Procedure

Ethical approval for the study was obtained from the Human Research Ethics Committee at the University of Adelaide. The study commenced by the end of August 2005 and took place over a course of four weeks.

As part of the procedure, a telephone screening of about 20 minutes duration served to assess people's eligibility for the study (see App...). The screening involved a report on the type of crime VOC had experienced, as well as the amount of time passed since the incident had happened. Moreover, general demographic characteristics and participants' current medication – and vitamin intake were assessed. In addition, they had to indicate whether they suffered from a cardiovascular condition, cancer, diabetes, chronic infections, autoimmune diseases, allergies, psychotic disease, anxiety or depression. People in the control group underwent the same screening regarding their physical and mental health. Additionally, they were asked whether they had ever experienced a crime or any other major trauma, using the standardized introductory question from the Composite International Diagnostic Interview (CIDI, World Health Organization, 1993). Moreover, the stress level of control group participants was assessed by the General Health Questionnaire (GHQ-

12). Given their eligibility, participants were then provided with an appointment for the assessment. Moreover, a participant information sheet, a consent form for a participation in the study and a questionnaire comprising trait measures were sent out.

Between five and ten participants were simultaneously invited for the assessment. Due to practical restraints, it was not possible to allocate participants randomly to appointment times. Thus, appointments were scheduled according to the availability of facilities and clients. The assessment took place at the Nursing laboratory of the University of South Australia, requiring about 30 minutes of time for control group participants and 60 minutes for VOC. As part of the assessment, every participant had to complete a questionnaire with state measures, followed by a collection of a blood and a saliva sample. Furthermore, VOC were invited for a structured clinical interview (SCID PTSD Module ...) to assess their posttraumatic stress symptoms.

After the assessment, participants received a voucher for a coffee, whereas no other reimbursements were provided.

3.4 Results

Data were analyzed using SPSS for Windows, Version 12. In a first data screening, normality distribution was assessed separately for both groups, using Histograms and Shapiro-Wilks statistics. Based on these results, it was decided to use non-parametric tests for the psychological measures GHQ-12 (General Health Questionnaire), BDI-II (Beck Depression Inventory) and S-anger (State-anger subscale of the State/Trait Personality Inventory), physical activity measures, as well as for the biochemical variables CRP, HCY, VitB12, TNF α , TNF β , IL1b, IFN γ , TAS.

3.4.1 Health behaviours

Chi-square tests were used to compare health-related behaviours between the two groups. The results indicated no significant differences in the frequency of

smoking and amount of alcohol consumed at any drinking occasion. However, VOC were found to drink less frequently, $\chi^2(5) = 14.23, p < .05$.

Table 3.4

Comparison of health behaviours between the VOC and the control group

	Victims of Crime <i>n</i> =27	Control group <i>n</i> =31
	<i>n</i> (%)	<i>n</i> (%)
<u>Frequency of smoking</u>		
Not at all	21 (77.8%)	26 (55.3%)
Less often than weekly	1 (3.7%)	1 (3.2%)
Daily	5 (18.5%)	4 (12.9%)
<u>Frequency alcohol intake</u>		
Never	9 (33.3%)	2 (6.5%)
Monthly	7 (25.9%)	5 (16.1%)
2-4 times / month	4 (14.8%)	6 (19.4%)
2-3 times / week	7 (25.9%)	9 (29.0%)
4 or more times / week	-	8 (28.8%)
<u>Number of drinks</u>		
1 or 2	24 (88.9%)	23 (74.2%)
3 or 4	2 (7.4%)	6 (19.4%)
5 or 6	1 (3.7%)	2 (6.5%)
<u>6 drinks or more</u>		
Never	23 (88.5%)	19 (61.3%)
Less than monthly	3 (11.5%)	11 (35.5%)
Weekly	-	1 (3.2%)

Mann-Whitney U-tests were used to examine differences in physical activities. The results are shown in Table 3.5, and indicate that VOC engage less frequently in moderate and vigorous physical activities than the control group participants. Moreover, they also spend less time engaged in physical activities apart from walking.

Table 3.5

Comparison of physical activities and number of cigarettes between VOC and control group

	Victims of Crime <i>n</i> =27	Control group <i>n</i> =31	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t /-z values*</i>
No. of cigarettes / week	7.13 (19.45)	7.00 (19.54)	-0.02
No. of days with vigorous Physical activities	0.37 (1.14)	1.69 (1.73)	-3.93**
Min. of daily vigorous physical activities	12.22 (39.25)	59.83 (69.92)	-3.94**
No. of days with moderate physical activities	1.12 (1.98)	1.98 (1.76)	-2.44*
Min. of daily moderate physical activities	20.23 (39.08)	53.83 (59.47)	-2.94**
No. of days with a 10- minute walk	3.11 (2.55)	4.25 (2.06)	-0.06
Min. of daily walking	81.54 (94.23)	56.38 (43.75)	-1.69

*Both independent sample t-tests and Mann-Whitney U-tests for not normally distributed variables were conducted.

In addition, medication intake and the intake of vitamins were assessed, and this showed no significant differences between the groups. Likewise, no significant differences were found for the use of antidepressants, anti-inflammatory medication, heart medication and hormone replacements. This, however, may be a result of the small sample size, as there is an indication of an increased intake of medication for cardiovascular conditions, pain killers/anti-inflammatory medication, and antidepressants in the VOC group. For example, 25.9 % (7 people) in the VOC group

took pain killers or anti-inflammatory medication on a regular basis, as compared with only three people in the control group (12.9%).

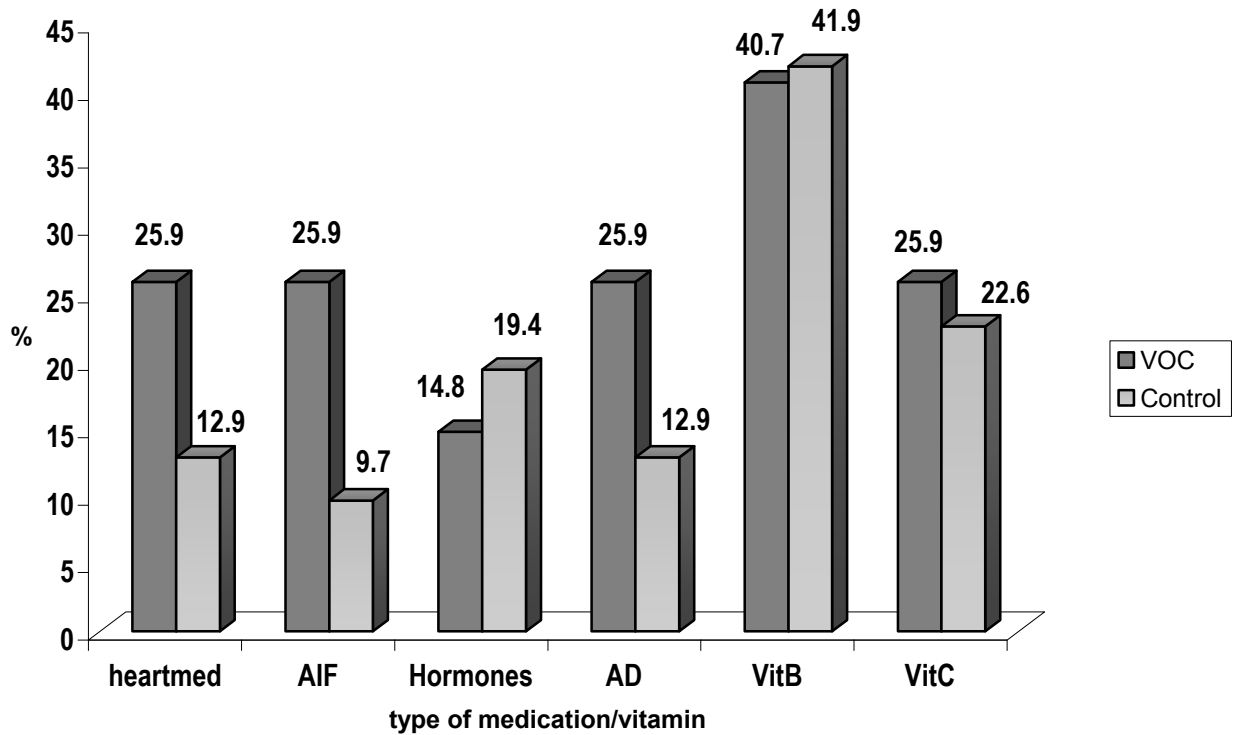


Figure 3.6 Frequency of medication intake in victim and control group

VOC=Victims of crime, Control=control group
 heartmed = cardiovascular medication, AIF = pain or anti-inflammatory medication,
 AD=Antidepressants, VitB=Vitamin B12 and folate, VitC = Vitamin C

These findings corresponded with self reported health problems. In the VOC group, more people reported cardiovascular disease (CVD), chronic pain, and recurrent infections, and statistically significant differences were found for CVD, $\chi^2(1)=4.59, p<.05$, infections, $\chi^2(1)=4.90, p<.05$, and chronic pain, $\chi^2(1)=9.16, p<.01$.

Table 3.6
Comparison of reported health problems in VOC and control group

	Victims of crime <i>n</i> =27	Control group <i>n</i> =31
Cardiovascular problems	High BP (n=6) Previous DVT (n=1), Borderline/pregnancy diabetes (n=3)	High BP (n=3)
Pain ¹	Back pain/scoliosis (n=3) Arthritis (n=4) Migraines (n=7) Fibromyalgia (n=1) Dysmenorrhoe (n=1) Multiple fractures (n=1) Unknown source (n=1)	Arthritis (n=4) Dysmenorrhoe (n=1)
Frequently recurring infections ²	Chronic bronchitis (n=2) Sinus (n=2) Flu (n=2) Ear (n=1) Bursitis (n=1)	
Eczemas/Allergies ³	Eczemas (n=3) Asthma (n=2)	Eczemas/allergies (n=4), Asthma (n=1)
Gastrointestinal problems	Irritable Bowel S. (n=1) Reflux (n=2)	Reflux (n=2) Coeliac disease (n=1)
Other health problems	Weight problems (n=3) Frontal lobe damage (n=1), Numbness facial areas (n=1) Cerebral palsy (n=1) Previous epilepsy (n=1) Hypothyroidism (n=1)	Hyperthyroidism (n=1) MS (only one episode, n=1) Glaucoma (n=1)

¹Pain included regular, as well as occasional pain.

²Infections were not existent at the time of assessment, but indicated as frequently recurring health problems.

3.4.2 Psychological results

Hypothesis I:

To examine mean differences between groups, independent sample t-tests and Mann-Whitney tests for not normally distributed variables (General Health Questionnaire (GHQ); Beck Depression Inventory (BDI-II); STPI state anger subscale (S-anger) were conducted. As stated in Hypothesis I, significant differences could be confirmed between VOC and the control group in overall stress (GHQ), state and trait depression scores (BDI, S/T-depression), state and trait anxiety (S/T-anxiety), and state and trait anger (S/T-anger), as well as the tendency to suppress anger (Anger-In). Moreover, there were significant differences in state and trait curiosity (S/T-curiosity) and loneliness (UCLA loneliness scale). Table 3.7 summarizes the results of the psychological measures for both groups. In addition, a comparison to norm data is provided.

Table 3.7

M (SD) psychological scores by group

	1 Victims of crime n=27	2 Control group n=31	3 Norms	t/z test	Effect size (1 vs. 2)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>t/z</i>	<i>Cohen's d</i>
General Health Questionnaire	6.55 (4.28)	0.45 (0.92)	-	5.72***	1.97
General Health Questionnaire	19.77 (6.55)	8.48 (2.20)	-	8.54***	2.31
Beck Depression Inventory	22.96 (14.14)	5.06 (5.50)	22.45 (12.75) a 12.56(9.93) b	4.93***	1.64
UCLA Loneliness Scale	55.85 (11.45)	42.67 (10.76)	31.5 (6.9) c 40.1 (9.5) d	5.41***	1.18
State-depression	23.74 (7.30)	13.51 (2.88)	14.79 (5.05) e	6.82***	1.84
Trait depression	27.29 (4.77)	19.03 (2.88)	18.52 (5.88) e	4.84***	2.10
State anxiety	26.55 (6.77)	14.03 (3.24)	18.17 (5.75) f	8.76***	2.35

*p<.05, **p<.01, ***p<.001

The given norms refer to the norms provided in the test manuals by test developers.

a = psychiatric outpatients, b = student sample, c = elderly population, d = students, e = female sample, f = working females > 33 years of age

Cohen's d was calculated with the following formula: $d = \frac{M_1 - M_2}{\sqrt{(SD_1^2 + SD_2^2)/2}}$

Table 3.7 (continued)

	1 Victims of crime n=27	2 Control group n=31	3 Norms	t/z test	Effect size (1 vs. 2)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>t/z</i>	<i>Cohen's d</i>
Trait anxiety	26.96 (6.35)	17.03 (4.77)	17.98 (5.45) f	6.64***	1.76
State anger	17.48 (6.86)	10.25 (0.68)	13.67 (5.24) f	5.30***	1.48
Trait anger	21.62 (5.83)	18.06 (5.67)	18.13 (4.82) f	2.35***	0.62
State curiosity	25.66 (5.16)	30.64 (3.70)	27.59 (6.73) f	4.16***	1.10
Trait curiosity	24.96 (5.78)	31.41 (3.97)	28.86 (5.73) f	4.88***	1.30
Anger-In	18.11(5.00)	15.25 (3.70)	15.69 (4.38) e	2.48*	0.65
Anger-Out	14.92 (4.59)	12.96(2.73)	14.79 (3.78) e	1.93	0.52
Control-In	22.51 (5.54)	24.90 (4.21)	23.48 (6.16) e	1.82	0.49
Control-Out	24.22 (6.11)	25.41 (4.37)	23.16 (5.21) e	<1	0.21

*p<.05, **p<.01, ***p<.001

The given norms refer to the norms provided in the test manuals by test developers.

a = psychiatric outpatients, b = student sample, c = elderly population, d = students, e = female sample, f = working females > 33 years of age

Cohen's d was calculated with the following formula: $d = \frac{M_1 - M_2}{\sqrt{(SD_1^2 + SD_2^2)/2}}$

Influences by gender, crime frequency and time elapsed since crime occurred

Analyses were conducted to determine whether psychological measures differed depending on gender, the number of the crimes experienced and the amount of time passed since the crime had happened.

Independent sample t-tests revealed no significant gender differences in psychological measures. With respect to the frequency of crime exposure, a one-way analysis of variance (ANOVA) was performed, comparing three categories (single crime experience, several independent crime experiences, multiple and repeated crime experiences). No consistent differences in psychological functioning were found when compared across the number of crimes previously experienced.

Another analysis was conducted to determine whether the amount of time elapsed since the crime was reflected in different psychological outcomes. Three categories were tested: 1-5 years after the crime experience, 6-10 years and more than 10 years. A one-way ANOVA revealed a significant difference in S-anxiety. A mean anxiety score of $M=23.81$, $SD=4.66$ was determined for the first category (1-5 years since crime event), with a slightly increased anxiety level of $M=25.25$, $SD=8.64$ in people who had experienced the crime 6-10 years ago and a further increase to $M=31.62$, $SD=4.65$ in people whose crime experience occurred more than ten years ago. Though not significant, an increase of symptoms with time was also observed for other emotions, PTSD and overall stress, suggesting that the symptoms became more chronic over time. Nonetheless, there was a somewhat different trend in trait anger, showing a significant increase after the first five years, followed by a decline in anger after 10 years.

3.4.4 Biochemical Measures

Hypothesis II

Between group differences in biochemical measures

To examine differences between groups, independent sample t-tests and non-parametrical Mann-Whitney tests for not normally distributed variables were

conducted. One-tailed significance was calculated for biochemical measures with predictable trends (CRP, HCY, Vit. B12, Folate, Cholesterol, NT, Lipidoxide, tissue ascorbate). In contrast, significance tests for the cytokine measures (IL1b, TNF α , TNF β and IFN γ) were two-tailed to allow for the detection of associations in any direction.

VOC and the control group differed significantly in C-reactive protein (CRP) levels. There was also a significant difference found in Tumor necrosis factor alpha (TNF α) levels with VOC demonstrating a much higher level than the control group. In contrast to the hypothesis, the mean Interferon gamma (IFN γ) level was significantly lower in the victim group.

For all other biochemical measures no significant results could be ascertained, although the direction of change was mostly consistent with the hypotheses. Table 3.8 shows Means, SD, reference ranges and Mann-Whitney/t-tests results for the biochemical measures.

Table 3.8
Differences in biochemical measures between victim and control group

	Victims of crime	Control group	Reference range	t- test	effect size
	<i>M (SD)</i> <i>n=27</i>	<i>M (SD)</i> <i>n=31</i>		<i>t/Z</i>	<i>d</i>
C-reactive protein (CRP)	3.96 (3.62)	2.67 (3.47)	< 6 mg/L	2.18*	0.36
Homocysteine (HCY)	8.38 (2.60)	8.70 (4.76)	6.0 – 14 umol/L	<1	0.08
Cholesterol	5.17 (.88)	5.35 (.99)	< 5.5 mmol/L	<1	0.19
Vitamin B12	347.51 (166.56)	399.96 (263.89)	145-640 pmol/L	<1	0.24
Folate	24.3 (12.32)	29.55 (10.94)	> 10 nmol/L	1.71	0.45
Interleukin 1b (IL 1b)	16.43 (47.38)	8.15 (13.04)	< 426 pg/ml	<1	0.24
Tumor necrosis factor alpha (TNF)	10.70 (35.47)	5.71 (7.40)	< 479 pg/ml	2.35*	0.19
Tumor necrosis factor beta (TNF)	6.01 (10.74)	21.83 (62.75)	< 439 pg/ml	1.34	0.35
Interferon gamma (IFN)	12.55 (21.26)	85.98 (254.27)	< 365 pg/ml	2.15*	0.41
Lymphocytic'5-Ectonucleotidase (NT)	0.50 (0.16)	0.52 (0.14)	0.4 – 1.4 nmol/h/μg DNA	<1	0.13
Vitamin C	52.07 (12.62)	59.17 (15.43)	50-150 pmol/μg DNA	1.87	0.50
Lipidoxides (LO)	6.39 (3.45)	6.26 (3.42)	not known/pmol/μg DNA	1.46	0.03

*p<.05

Hypothesis III

Correlations

Pearson product moment correlations and Spearman correlations for not normally distributed variables were conducted to examine the nature and strength of associations between psychological and biochemical outcomes. Correlations were calculated across the two groups and subsequently separately for each group to account for possible group-specific factors.

a) Correlations across both groups

Across both groups, CRP proved to be the marker most frequently positively associated with an increase in psychological scores. Thus, hypothesis III a) was partly confirmed by highly significant correlations between CRP and the GHQ-12, BDI-II, S/T-depression, S-/T-anxiety, and S-anger scores, whereas negative correlations with trait and state curiosity were found. Also, HCY correlated significantly with S-anger which is in concordance with the hypothesis.

The conducted Pearson correlations revealed only one significant negative association between Folate and the GHQ, indicating that people with high GHQ scores demonstrated lower Folate levels, which supports the hypothesis. However, this result may be based on a Type-I error due to the high number of correlations conducted.

Furthermore, many of the predicted associations could not be verified. No significant correlations with psychological measures were found for cytokines, cholesterol, and oxidative stress measures. The results of the correlations are summarized in Tables 3.9 and 3.10.

Table 3.9

Spearman correlations between biochemical and psychological results across both groups (n=58)

	CRP	HCY	B12	IL 1B	TNF α	TNF β	IFN γ
General Health Questionnaire	.36**	.11	.01	-.02	-.18	-.14	-.16
Beck Depression Inventory	.34**	.08	.05	-.01	-.11	-.16	-.11
UCLA Loneliness Scale	.19	.15	-.06	.12	.01	0	.04
STPI state depression	.36**	.03	.11	.01	-.13	-.01	-.07
STPI trait depression	.36**	-.04	.06	.01	-.14	-.13	-.19
STPI state anxiety	.36**	.17	-.04	-.07	-.14	-.17	-.16
STPI trait anxiety	.35**	.12	0	.04	-.05	-.05	-.03
STPI state anger	.39**	.24*	.03	-.02	-.13	-.09	-.17
STPI trait anger	.16	-.03	-.20	-.08	-.05	-.12	-.17
STPI state curiosity	-.23*	-.13	-.15	-.12	-.05	-.06	-.04
STPI trait curiosity	-.26*	-.10	-.15	-.23	-.04	-.13	-.06
STAXI anger suppression	.15	.15	.01	.11	.18	.01	-.03
STAXI outward directed anger	.14	.01	-.17	.05	-.01	-.06	-.07
STAXI control anger suppression	.01	.03	.12	-.08	.03	-.03	-.03
STAXI control of outward anger	-.12	.06	.16	-.16	-.08	-.09	-.16

* for $p < .05$; ** for $p < .01$

CRP, HCY, B12 = one-tailed significance test

IL 1B, TNF α , TNF β , IFN γ = two-tailed significance test

Table 3.10

Pearson correlations between biochemical and psychological results across both groups (n=58)

	FOL	CHOL	NT	LO	VitC
General Health Questionnaire	-.26*	-.15	.06	.20	-.22
Beck Depression Inventory	-.16	-.11	.17	.19	-.13
UCLA Loneliness Scale	-.06	-.19	.09	.02	-.18
STPI state depression	-.09	-.17	.12	.19	-.17
STPI trait depression	-.14	-.19	.04	.22	-.18
STPI state anxiety	-.13	-.03	.09	.11	-.14
STPI trait anxiety	-.08	-.12	.21	.09	-.11
STPI state anger	-.11	.01	.06	.01	-.10
STPI trait anger	-.04	-.16	.07	.01	-.06
STPI state curiosity	.02	-.01	-.08	-.07	.20
STPI trait curiosity	.08	.03	.04	-.18	.19
STAXI anger suppression	-.20	-.09	.13	.10	-.24
STAXI outward directed anger	-.03	-.15	.04	.10	-.03
STAXI control anger suppression	.01	.10	-.22	.05	.02
STAXI control of outward anger	-.07	.16	-.15	.01	.05

* for p<.05; ** for p<.01

Significance test were one-tailed except for PBR

When one considers only the victim of crime group, a somewhat different pattern emerges. HCY and cytokines were most frequently associated with increases in psychological measures and posttraumatic stress, supporting predictions made in Hypothesis III a). TNF α appeared as the most prominent cytokine marker, showing significant associations with the BDI-II, T/S-anxiety, S-anger, Anger-In and a negative association with T-curiosity, as well as significant correlations with negative posttraumatic cognitions about the self and the world. HCY was positively correlated with depression (BDI-II), loneliness (UCLA), state anger, negative posttraumatic cognitions and hyperarousal.

In contrast to our expectations, VitB12 was very significantly related to avoidance, depression and overall stress which could be an indication of an increased vitamin intake with more severe symptoms.

Calculating Pearson correlations, Lipidoxide (LO) was significantly associated with overall stress, depression and posttraumatic stress. Contrary to the hypothesis, NT correlated positively with S-/T-anxiety.

Control group

Considering the correlations in the control group, CRP appeared again as a marker frequently associated with psychological stress and aversive emotions, thus verifying the prediction in hypothesis III a). However, not all the results showed changes in the expected directions. The results from the Spearman and Pearson correlations can be viewed in Appendices E and F, pp. 438.

Table 3.11
Significant Spearman correlations between biochemical and psychological results in the VOC group (n=27)

	CRP	HCY	B12	IL 1B	TNF α	TNF β	IFN γ
General Health Questionnaire	.07	.18	.34*	.41	.28	.21	.26
Beck Depression Inventory	.13	.38*	.32*	.53*	.55**	.32	.27
UCLA Loneliness Scale	-.17	.52**	-.09	.49*	.34	.41*	.33
STPI state depression	.19	.22	.28	.34	.34	.25	.17
STPI trait depression	.11	.15	.23	.34	.36	.21	.14
STPI state anxiety	.09	.39*	.16	.24	.40*	.18	.34
STPI trait anxiety	.09	.37*	.13	.34	.56**	.35	.44*
STPI state anger	.37	.52**	.16	.17	.41*	.26	.32
STPI trait anger	-.08	-.14	-.03	-.11	-.08	-.17	.02
STPI state curiosity	-.28	-.16	.07	-.23	-.37	-.24	-.18
STPI trait curiosity	-.24	-.18	-.15	-.41	-.29	-.45*	-.11
STAXI anger suppression	.11	.22	.06	.33	.42*	.19	.12
STAXI outward directed anger	.10	-.15	.06	.06	-.11	.01	.03
STAXI control anger suppression	-.09	.05	.04	-.28	-.01	-.19	-.08
STAXI control of outward anger	-.02	.11	.12	-.16	.13	-.05	-.04
Posttraumatic cognitions (world)	.34	.49**	.03	.36	.43*	.36	.36
Posttraumatic Cognitions (self)	.10	.40*	.07	.41	.41*	.36	.29
Posttraumatic Cognitions (blame)	.17	-.01	-.15	-.07	.05	-.16	-.22
Posttraumatic cognitions sum	.15	.37*	.07	.38	.37	.27	.20
IES-avoidance	.20	.05	.55**	.40	.30	.17	.11
IES-intrusion	.09	.21	.23	.22	.28	.10	.13
IES-hyperarousal	-.01	.35*	.24	.46*	.33	.23	.23
IESS sum	.10	.24	.42*	.43*	.30	.19	.19

* for p<.05; ** for p<.01

CRP, HCY, B12 = one-tailed significance test; IL 1B, TNF α , TNF β , IFN γ = two-tailed significance test

Table 3.12

Significant Pearson correlations between biochemical and psychological results in VOC (n=27)

	FOL	CHOL	NT	LO	VitC
General Health Questionnaire	-.14	-.15	.22	.32*	-.09
Beck Depression Inventory	-.09	-.18	.24	.33*	-.04
UCLA Loneliness Scale	-.01	-.18	.08	-.11	-.15
STPI state depression	0	-.20	.27	.30	-.01
STPI trait depression	-.15	-.31	.10	.36*	-.18
STPI state anxiety	.13	.08	.33*	.25	.11
STPI trait anxiety	.11	0	.44*	.13	.06
STPI state anger	-.07	-.03	.17	.01	.02
STPI trait anger	.09	-.33*	.08	-.29	-.02
STPI state curiosity	-.13	.02	-.18	-.10	.06
STPI trait curiosity	-.12	-.06	.05	-.27	.01
STAXI anger suppression	-.16	.01	.09	.16	-.32*
STAXI outward directed anger	.06	-.35*	.15	-.01	-.04
STAXI control anger suppression	-.20	.06	-.19	.25	-.18
STAXI control of outward anger	-.20	.26	-.11	.24	-.01
Posttraumatic cognitions (world)	.02	.13	.22	.19	-.09
Posttraumatic Cognitions (self)	-.02	-.16	.10	.19	-.19
Posttraumatic Cognitions (blame)	.09	-.15	.04	-.17	-.14
Posttraumatic cognitions sum	.01	-.12	.13	.15	-.18
IES-avoidance	-.15	.11	.06	.26	-.01
IES-intrusion	-.15	-.06	.23	.47**	-.22
IES-hyperarousal	-.05	.03	.32	.34*	.09
IESS sum	-.13	.03	.23	.41*	-.06

* for p<.05; ** for p<.01

Significance test were one-tailed

Effects of PTSD, depression- and overall stress severity on biochemical outcomes in VOC

Independent samples t-tests were conducted to test whether biochemical

results differed according to the severity of PTSD, depression and overall stress. This analysis was considered relevant, as VOC differed markedly in their degree of symptom severity. PTSD severity was assessed by the Structured Clinical Interview for DSM-IV (SCID, PTSD Module): Twenty out of 27 victims of crime were diagnosed with either mild/remittent PTSD (n=6), moderate PTSD (n=7) and severe PTSD (n=7). The results showed no significant differences in biochemical markers between victims of crime suffering from mild/remittent PTSD (n=6) vs. moderate/severe PTSD (n=14), whereas a trend towards the expected direction of change could be observed (Table 3.13). Similar trends were found for mild/moderate depression (n=14) versus severe depression (n=10) and normally/mildly stressed (n=17) vs. severely stressed victims of crime (n=10) (Appendix G, H, pp. 440). However, these trends should be interpreted with caution, as they are based on a categorization of continuous variables.

Table 3.13
Comparison of M, SD in biochemical markers depending on PTSD severity

	Mild/remittent PTSD <i>n</i> =6	Moderate/severe PTSD <i>n</i> =14
	<i>M (SD)</i>	<i>M (SD)</i>
C-reactive protein (CRP)	3.83 (3.81)	4.71 (4.02)
Homocystein (HCY)	7.98 (3.19)	8.42 (2.55)
Vitamin B12	295.50 (15.22)	426.78 (175.23)
Interleukin 1b (IL 1b)	3.52 (2.03)	29.55 (65.81)
Tumor necrosis factor alpha (TNF α)	3.14 (1.42)	17.55 (48.04)
Tumor necrosis factor beta (TNF β)	3.83 (2.71)	7.11 (13.86)
Interferon gamma (IFN γ)	8.95 (7.12)	15.00 (27.45)
Folate	19.91 (12.94)	25.50 (10.97)
Cholesterol	5.58 (1.11)	5.08 (0.95)
Lipidoxide	6.01 (2.43)	7.42 (4.06)
Lymphocytic'5-Ectonucleotidase	.56 (.20)	.52 (.17)
Vitamin C	53.50 (17.13)	51.21 (12.25)

Differences in biochemical markers in relation to crime characteristics

No consistent pattern and no significant differences in biochemical markers were found with respect to the frequency of crime exposure. Similarly, no differences in biochemical markers could be established dependent on the time elapsed since the crime had occurred.

Finally, it was tested whether there was a significant difference in biochemical markers between males and females. Across both groups, NT levels proved to be very significantly lower in males ($M=41.00$, $SD=.08$) than in females ($M=.54$, $SD=.16$) with $t(54) = 2.37$, $p < .001$, one-tailed).

Correlations between biochemical markers across both groups

Pearson and Spearman correlations across both groups were conducted to examine the relationship between biochemical markers.

Examining indicators of a proinflammatory response, strong correlations could be demonstrated between cytokines: IL 1b was very significantly correlated with TNF α , $r(51)=.83, p<.01$, two-tailed; TNF β , $r(51)=.85, p<.01$, two-tailed; and IFN γ , $r(51)=.56, p<.01$, two-tailed. TNF α correlated significantly with TNF β , $r(57)=.80, p<.01$, two-tailed; and IFN γ , $r(56)=.62, p<.01$, two-tailed. TNF β correlated very significantly with IFN γ , $r(56)=.70, p<.01$, two-tailed. Moreover, there was a significant negative correlation between CRP and IFN γ , $r(56) = -.27, p<.05$, two-tailed.

With respect to indicators of a prooxidant state, NT correlated very significantly with Vitamin C, $r(56) = .43, p<.01$, two-tailed; whereas Vitamin C correlated significantly with Folate, $r(56) = .5, p<.001$, two-tailed. As proposed, there were significant negative correlations between HCY and Folate, $r(58) = -.34, p<.01$, two-tailed, and between HCY and Vitamin B12, $r(58) = -.39, p<.01$, two-tailed. Moreover, a positive association was found between HCY and IFN γ , $r(56) = .27, p<.05$, two-tailed.

Apart from one positive correlation between Folate and Cholesterol $r(58) = .26, p<.05$, two-tailed, all determined correlations were in line with the assumptions postulated in the Oxidative Model. There were no significant correlations between cytokines and oxidative stress measures.

Logistic Regression (LR)

Although in a causal sense it is group status that influences outcome variables, a Logistic Regression was undertaken to determine the extent to which scores on these outcome variables differ between the two groups. As part of this analysis, significant variables from the previously conducted t-tests and Mann-Whitney tests were entered as covariates or independent variables, while the group membership constituted the binary dependent variable.

No significant results for CRP, TNF α and IFN γ could be established in the LR analysis, meaning that a one unit change in these variables does not change the probability to belong to the victim of crime group. This result is inconsistent with the findings from the t/Mann-Whitney-tests.

Significant results were found for all psychological measures which had yielded significant t-test results. Table 3.14 summarizes the results of the logistic regression analysis. The most important information in the table is derived from the odds ratio. For example, the variable trait depression yielded an odds ratio of 1.71. This means that each unit increase in the trait depression score is associated with a 1.7 (or 71%) greater likelihood of being a VOC.

Table 3.14
Logistic regression: Psychological scores as predictors of membership in the VOC group

	B	S.E.	Wald	Odds ratio	95% C.I. for Odds ratio
General Health Questionnaire	1.19	.39	8.83**	3.27	1.5-7.16
Beck Depression Inventory	.19	.05	13.03***	1.21	1.09-1.34
UCLA Loneliness Scale	.11	.03	12.12***	1.11	1.05-1.18
STPI state depression	.41	.12	14.17***	1.51	1.22-1.87
STPI trait depression	.53	.13	16.41***	1.71	1.32-2.21
STPI state anxiety	.52	.14	12.80*	1.68	1.26-2.22
STPI trait anxiety	.29	.07	15.97***	1.34	1.16-1.55
STPI state anger	.89	.30	8.67**	2.43	1.34-4.39
STPI trait anger	.12	.05	4.84*	1.11	1.01-1.22
STPI state curiosity	-.25	.07	11.42**	.78	.67-.90
STPI trait curiosity	-.28	.08	12.70***	.75	.64-.88
STAXI anger suppression	.15	.06	5.23*	1.16	1.02-1.32

B=predictor, S.E.=standard error, Wald=Wald statistic, df=degrees of freedom, Sig=significance value, Exp(B)=Odds ratio; *p<.05 **p<.01 ***p<.001

3.4 Discussion

The major goal of this exploratory study was to examine differences in psychological stress and related negative physical health outcomes in victims of

crime, as compared to a normative community sample. A further aim was to investigate the relationship between psychological and physical measures and the extent to which victims of crime experience deteriorations at both psychological and physiological levels.

3.4.1 Psychological results

In contrast to the control group of people without traumatic experiences, VOC had significantly poorer scores on nearly all measures of psychological functioning and this was consistent with the predictions set out in Hypothesis I. However, although increased levels of overall stress and adverse emotions such as depression, anxiety, and loneliness were observed in the VOC sample, the results for anger measures were less conclusive, even though VOC reported a greater propensity to suppress anger. In addition, VOC displayed a comparatively low sense of curiosity in the STPI which may be a reflection of avoidance behaviours, social withdrawal, and a reduced willingness to take risks.

It is of clinical importance that more than 50% of the crime victims met the criteria for a current PTSD diagnosis, with 26% presenting with severe PTSD. Moreover, 37% suffered from severe depression and another 66% demonstrated a stress level which, according to Goldberg & Williams (1988), puts people at risk of a mental breakdown. Importantly, those who presented with severe PTSD also suffered from a concomitant severe depression and high levels of overall stress, suggesting that a substantial proportion of the victim group faces considerable mental health problems. These results are particularly alarming, given that the majority of the victims (nearly 60%) had been exposed to the crime(s) more than six years ago.

Comparison with other studies

In comparison to other studies, the mean BDI-II score in the present VOC sample was similar to Beck's (1996) norm sample of psychiatric outpatients ($M=22.45$, $SD=12.75$), indicating a moderate degree of depression. Similarly, the depression scores obtained by the STPI resemble those received in samples of

“mildly” ($M=22.18$, $SD=7.05$) and “moderately” ($M=28.72$, $SD=7.35$) depressed” people, as determined in Spielberger’s validation study on a sample of females (1996).

In the present VOC sample, unexpectedly low scores on the STPI were displayed (Arthurson, 2003; Oliver, 2004). For example, Arthurson and Oliver found mean state anxiety results between 32.64 ($SD=8.4$) and 43.58 ($SD=8.15$) in stressed psychology students which is considerably higher than the mean state anxiety score of 26.55 ($SD=6.77$) in the present VOC sample. However, these studies used an exam stress paradigm which may not be comparable to the chronic stress and anxiety experienced by VOC. Nonetheless, higher scores on the Spielberger state and trait measures have been obtained in other studies involving traumatized populations. For example, Jolly (2004, unpublished thesis) found significantly higher state anxiety ($M=46.60$, $SD=8.47$) as well as trait anxiety ($M=47.00$, $SD=6.72$) in a sample of elderly Vietnam veterans.

It should be noted that in the current sample of VOC a mere focus on mean scores may be misleading, in that the distribution of clinical symptoms in the VOC sample was trimodal. About one third of the sample suffered from a severe depression, whereas nearly 50% of the VOC exhibited only few depressive symptoms. The same pattern emerges with respect to PTSD symptoms. Six VOC did not meet criteria for current PTSD, while two thirds presented with a mild to moderate symptom severity. Notwithstanding this, seven people presented with severe PTSD in conjunction with severe depression and a high overall stress level. Thus, the moderate degree of symptom severity as determined by the mean does not adequately represent many VOC in the study.

In addition to adverse emotions and posttraumatic stress symptoms, dysfunctional posttraumatic cognitions were assessed. Consistent with Foa et al.'s observations (1999), negative beliefs about the self, world, as well as self blame, were found in those VOC with more severe posttraumatic stress symptoms and depression. At an item level, the highest mean score was observed for item 34 "*You never know when something terrible will happen*", which may reflect the compromised sense of safety in VOC.

3.4.2 Biochemical results

Hypothesis II was only partly confirmed by the results of the present study. In contrast to the control condition, VOC showed higher levels of C-reactive protein and TNF α , as well as a significant decrease in IFN γ . However, there was no evidence of changes in oxidative stress markers, meaning that the results of the current study do not provide support for an oxygen radical pathway in VOC, as proposed in the Oxidative Model of Stress and Disease. Nonetheless, the results point to some interesting directions which will be outlined below.

3.4.2.1 Markers indicating a proinflammatory process

The observed higher levels of C-reactive protein (CRP) and TNF α indicate a proinflammatory process in VOC.

As stated in the Literature Review, a rise in CRP levels has been demonstrated in several studies on posttraumatic stress (Melamed et al., 2004; Miller et al., 2001). Furthermore, an increase in CRP is meaningfully related to the demonstrated increase in TNF alpha, as the CRP synthesis from the liver is promoted by a TNF alpha and IL-1b mediated release of IL-6 (Miller et al., 2001; Sing, Devarah & Jialal, 2005). It is notable that an increase in CRP was also associated with a higher intensity of aversive emotions and a higher level of overall stress, thus providing support for the predicted relationship between an increase in CRP and deteriorated psychological functioning (Hypothesis 3a). This association was further supported by rising CRP levels with an increased severity of PTSD, depression and stress, even though these results were not significant.

Similarly, TNF α was significantly associated with depression (BDI-II), trait anxiety, the tendency to suppress anger and posttraumatic cognitions about the world and the self in the VOC group. Moreover, TNF α was increased in severe PTSD ($d=-.42$), severe depression ($d=-.52$) and severe stress ($d=-.40$), as compared to low symptom levels.

In contrast to the initial assumptions, the cytokine IFN γ was significantly decreased and not increased in the VOC group. Looking at the overall cytokine pattern in the present study, some interesting relationships can be detected. TNF α was elevated along with IL1b. Conversely, the cytokine IFN γ was decreased together with TNF β .

To understand this mechanism, the reader should be reminded of the fact that Th1 and Th2 cells downregulate each other (see Literature Review), meaning there is usually a predominance of a certain T helper type response, associated with the secretion of specific cytokines (Webster, Torpy, Elenkov and Chrousos, 1998; Woods, 2004). As mentioned previously, TNF α and IL1b are known to be part of the Th2 or humoral immune response which targets extracellular pathogens such as parasites and bacteria, while TNF β and IFN γ are cytokines released during the Th1 or cellular immune response, promoting immune action against intracellular pathogens such as viruses (Segerstrom & Miller, 2004). However, it should be acknowledged that a number of other immunological markers are also involved in Th1 and Th2 responses.

Table 3.15
Overview of Th1 and Th2 responses

	Th 1 response	Th 2 response
Cytokines involved	IL-2, IFN γ , TNF β , Natural Killer Cells	IL-4, IL-5, IL-6, IL-10, IL-13, TNF α , IL1b
Type of adaptive response	Cellular: inflammation and defense against intracellular microbes	Humoral: defense against parasites, induces B-cells to produce antibodies
Glucocorticoid release	decreased?	increased?
Examples for physical symptoms as mentioned in the literature	increased risk for autoimmune disorders, chronic pain, somatoform disorders	increased susceptibility to infections, tumors, allergies

(Decker, J. : Immunology tutorial www.microvet.arizona.edu, retrieved 03/01/2006; Friedman & McEwen, 2004; Segerstrom & Miller, 2004; Woods et al., 2005)

In an article on bio-psycho-immunological responses to intimate partner violence, Woods (2004) proposed a model in which the Th1 and Th2 response are related to clinical symptoms of PTSD and depression, respectively. In her study on victims of intimate partner violence, Wood (2004) found an increase in IFN gamma which was mediated by PTSD severity. Even though Woods' findings are inconsistent with the results in the present study in which a decrease in IFN γ was identified, her model is of significance, in that it links the cytokine responses with the above mentioned HPA axis activities.

According to Woods' model (2004), the Th1 response (indicated by IFN γ , TNF β) is associated with the previously mentioned increased HPA axis activity and decreased cortisol levels due to a hypersensitivity of glucocorticoid receptors, thus representing a specific bio-psycho-immunological process in PTSD. Woods further suggests that, in contrast to PTSD, depression may be related to increased cortisol levels, a hyposensitivity of the negative feedback loop and a Th2 response (indicated

by $TNF\alpha$, $IFN\gamma$). *Figure 3.7* illustrates Wood's Bio-psycho- immunological framework:

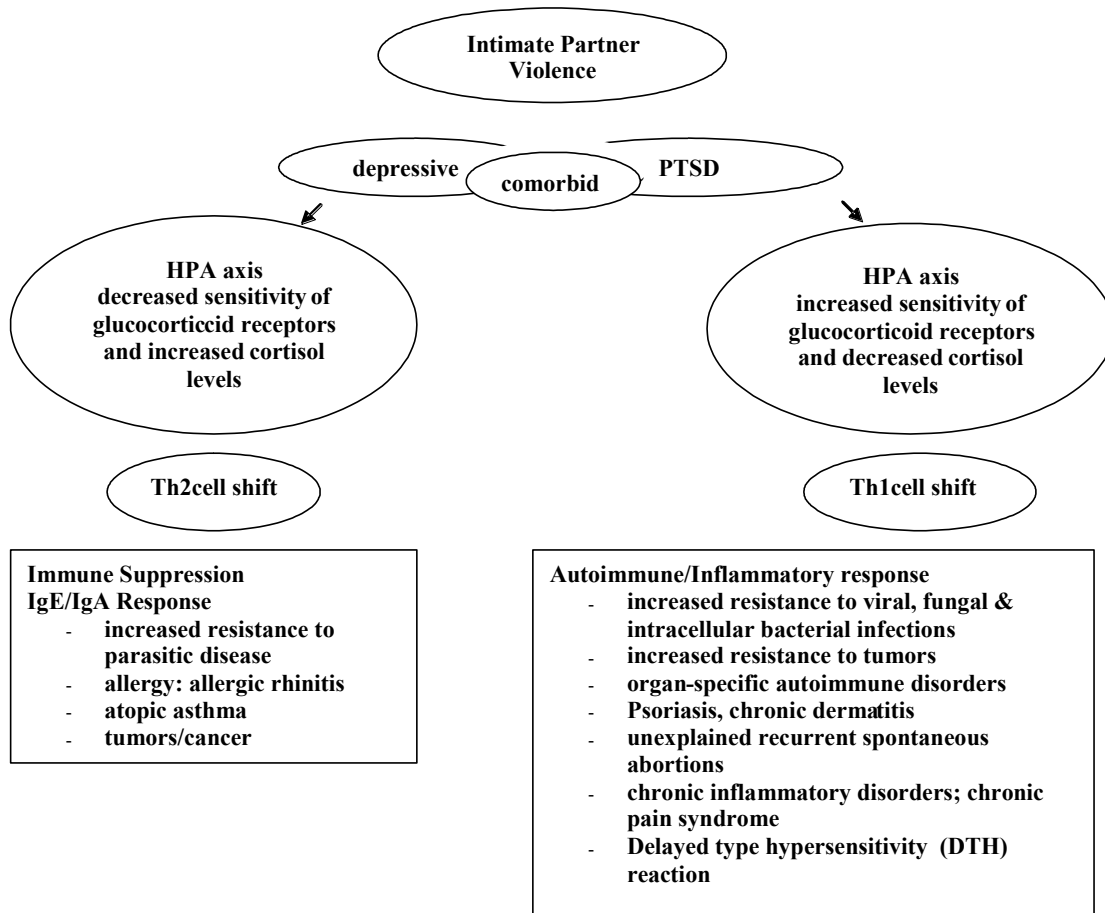


Figure 3.7. Bio-Psycho-Immunological Framework (Woods, 2004; Woods...2005)

Although it would be tempting to adopt Wood's model, the findings in the present study suggest a dominant Th2 rather than a Th1 response.

In light of these inconsistencies, it is of interest that some researchers have pointed to a possible shift in specific immunity under stress conditions. In a comprehensive metaanalysis, Segerstrom and Miller (2004) raised the idea that certain forms of stress may elicit a simultaneous enhancement and suppression of the immune response as part of an adaptive response. Importantly, this mechanism is thought to be reflected in altering patterns of cytokine secretion. Hence, the Th1 cytokines which

activate cellular immunity may be suppressed, while the Th2 cytokines activate humoral immunity. A shift in cytokine patterns has also been demonstrated in several empirical investigations. Everson, Shi, Aldrige, Bartolucci and Blackburn (2000) conducted a study with Gulf War veterans, suggesting a shift from a Th1 to a Th2 response, whereby this cytokine shift was understood as an expression of dysregulation rather than a mechanism to reconstitute balance.

As mentioned in the Literature Review, increased IL-1, IL-6, and TNF α levels in PTSD have been found in several studies (Baker et al., 2001; Maes et al., 1999; Spivak et al., 1997; Sutherland et al., 2003) which supports a Th2 response. Moreover, Rohleder, Joksimovic, Wolf and Kirschbaum (2003) demonstrated increased IL-6 levels in Bosnian war refugees, but no increased TNF α levels were found. Consistent with the findings in the present study, there is also some evidence of a *suppression* of cellular immunity in PTSD that is associated with a Th1 response. For example, Kawamura, Kim and Asukai (2001) found lowered T cell and NKC numbers, as well as decreased levels of IFN γ and IL-4 in men with a past history of PTSD.

Segerstrom and Miller (2004) found increased IFN γ levels in people exposed to acute, time-limited stressors (e.g. laboratory tasks), while in brief naturalistic stressors (e.g. academic exams) a shift from a Th1 to a Th2 pattern was observed. This is an interesting finding, as it suggests that the cytokine pattern may be related to the duration and course of the stressor which has also been suggested by other authors (Dougall & Baum, 2004). However, in concordance with Wood, Segerstrom and Miller also highlight that trauma and bereavement may be associated with two qualitatively different immune processes, related to an increased or decrease of cortisol, respectively.

Although the idea of qualitatively distinct immunological processes as a response to different emotional categories is fascinating and may account for the findings on unique neurobiological mechanisms in PTSD, it appears difficult to clearly distinguish between single emotional qualities. Moreover, it would be expected that an assessment of emotional stressors is confounded by factors such as cognitive appraisal, social support and coping strategies (Kiecolt-Glaser et al., 2002).

When one considers the psychological results in the current VOC sample, a high degree of comorbidity between PTSD and depression is evident along with other adverse emotions such as anxiety and anger. Moreover, there is little doubt that the VOC in the present study suffered from long term stress conditions, accompanied by cognitive distortions, negative appraisals, social withdrawal and restrictions in overall functioning. These findings indicate a possible flaw in Wood et al.'s (2005) study, in that they did not aim at confirming the Th2 response, particularly given that 51.5 % of her sample of battered women suffered from high levels of depression, and 31.7% demonstrated a comorbid condition with depression and PTSD symptoms.

Th1 and Th2 response profiles can also be influenced by a variety of other biochemical processes such as catecholamine secretion. For example, it is assumed that both, glucocorticoids and catecholamines, favor the Th2 response, e.g. by an inhibition of IFN γ (Webster et al., 1998).

Finally, it should be noted that an inversed relationship between Th1 and Th2 activity has not been fully supported by the correlations in the present study. Also, all measured cytokine levels rose with increased symptom severity, whereas, according to the Th1 –Th2 shift hypothesis, lower levels of IFN γ and TNF β would be expected with more severe clinical symptoms.

3.4.2.2 Markers indicating a prooxidant state

In contrast to the predictions, no significant results were obtained for measures indicating a prooxidant state. Only minor differences between the two groups in NT, LO and ascorbate levels could be established, while there was an unexpected increase in Folate and Vitamin B12 levels. Both these markers were even more elevated with more severe psychopathology in VOC. Clearly, these results stand in sharp contrast to the above mentioned previously conducted studies in stressed and depressed participants (Blake-Mortimer, Winefield & Chalmers, 1996; 1998), while further analysis of the possible mechanisms underlying the results obtained in the present study is warranted.

As explained in the introduction to this chapter, the Oxidative Model adds a second immune controlling mechanism, the oxygen radical pathway, to the above mentioned stress or infection related HPA activation. Thereby, a critical hypothesis of

the Oxidative Model is that an increased and prolonged release of corticosteroids may give way to an increased innate immunity, while acquired immunity is downregulated by an increased production of oxygen radicals and respective impacts on lymphocyte maturation.

As described before, there is mounting evidence for an opposite effect in PTSD with a concomitant low level of cortisol which may play a key role in the unique neurobiochemical processes in PTSD (Friedman, 2004a). Thus, the suggested cortisol-oxidative stress link may be different in PTSD and could be one explanation for the lacking evidence on oxidative stress. Moreover, the previously mentioned concept of allostasis (Friedman & McEwen, 2004) could serve as a valid explanation for the observed processes. Thus, a particular shift in cytokine patterns could be interpreted as an adaptive process with an associated *decreased* cortisol level, while no oxygen radical pathway is promoted. Furthermore, this cytokine shift could reflect a shift from a tonic to a phasic state of biological functioning (Friedman, 2004; Friedman & McEwen, 2004).

The suggested shift in cytokine patterns could involve a change from a Th1 to a Th2 pattern. In the present study, VOC demonstrated decreased IFN γ levels which indicate a lowered Th1 response. This may result in a reduced cellular immune response, and as a consequence, a weakened defense against extrogeneous organisms. These organisms could then stimulate proinflammatory cytokines such as TNF α , IL-1b, and IL-6 (Th2 response) which in turn promote CRP production (A. Ferrante, personal communication, May 2006). This process is illustrated in *Figure 3.8* below.

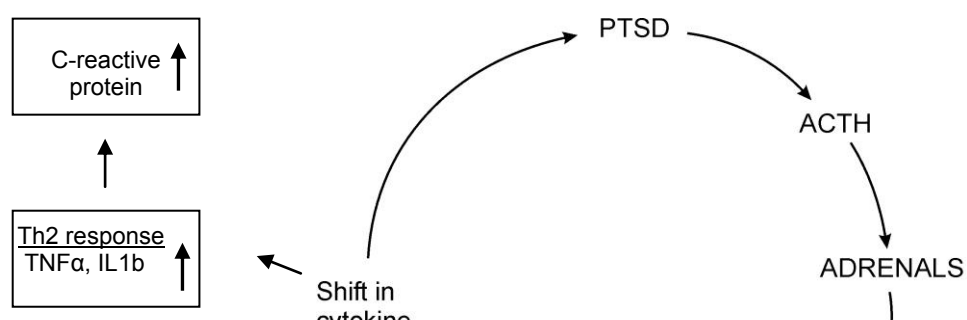




Figure 3.8 Proposed psycho-bio-immunological process in PTSD

Besides these explanations, there may be other reasons for the lacking evidence on oxidative stress. The established NT levels were comparatively low in both groups which may be another explanation for the lack of a group difference in NT. For example, the mean NT result in the VOC group was .50 (.16), whereas the control group had an equally low mean NT of .52 (.14). In Oliver's (2004) sample of honours students, mean NT levels between .87 (.28) and .91 (.15) were identified. Jolly (2004), on the other hand, found even lower NT levels with a mean of .35 (.18) in a sample of elderly Vietnam veterans, while Hapuarachchi (2002) reported a mean of .43 (.16) in highly stressed and .68 (.28) in low stressed university staff. Thus, there seems to be a lot of inconsistency across different populations.

Although efforts were made to ensure that there were no major differences between groups in relation to other confounding variables such as participants' general health condition, health behaviours and medication/vitamin intake, some significant differences in self reported health problems were found. Victims of crime reported more cardiovascular problems, more regular pain and more frequent infections which may have contributed to a proinflammatory response and increased oxidative stress. In addition, VOC engaged less in physical activity than the control group which may have contributed to poorer health outcomes.

Differences in the nutritional intake of participants were also not controlled in the present study. Although no significant group difference was found in vitamin intake, 40 % of the participants in both groups supplemented their diet with Vitamin B, while 24% took Vitamin C. These considerations are important as Chalmers, Blake-Mortimer (1998) showed that antioxidant intake protected against a decrease in NT levels or led to a reversible effect in that NT levels were reconstituted to a normal level. In addition, the unexpected positive correlations between the B Vitamins (Vitamin B12, Folate) and impaired psychological health suggest that people may be more inclined to supplement their diets with vitamins when they feel particularly drained and unable to activate other strategies. Another important consideration is that the high vitamin B and Folate levels may account for the unexpectedly normal HCY levels as, according to the Oxidative Model, HCY levels are expected to increase with decreased Folate and Vit. B12 levels (Blake-Mortimer et al., 1996, 1998).

Another factor which could account for low NT values may be age which would also explain the abovementioned higher NT levels in students, because there is some evidence that NT levels naturally decrease with age (Chalmers, personal communication, September 2004). Moreover, a recently conducted study by Gil et al., (2006) lends further support to the idea of an accelerated oxidation during aging. Another age related factor is the hormonal status of the predominantly female sample, with most participants having entered menopause. As mentioned in the Literature Review, systems other than the HPA, e.g. the Hypothalamic-Pituitary-Thyroidal axis, the Hypothalamic-Pituitary-Gonadal or the Hypothalamic-Pituitary-Ovarial axis operate as part of the stress response (Berga & Loucks, 2005; Friedman, 2004). Even though the single mechanisms cannot be explored here, sex hormones may have a considerable influence on the results. A natural loss of estrogen has been related to increased oxidative stress and an activation of the sympatho-adrenal response (Kajantie & Phillips, 2006; Miquel, Ramirez-Bosca, A., Ramirez-Bosca, J.V., & Alperi, J.D., 2006; Unfer, Conterato, da Silva, Duarte, & Emanuelli, 2006). Moreover, estrogen has been related to CRF and ACTH secretion, along with other critical mechanisms such as serotonin activity (Friedman & McEwen, 2004). However, in the present study significantly higher NT levels were found in females, which could be interpreted as a protective effect of estrogen which may have been promoted by

hormone replacement therapies.

Associations between psychological and biochemical measures

In Hypothesis III it was predicted that psychological stress and aversive emotions would be associated with particular alterations in biochemical markers, as defined by the Oxidative Model. Across both groups, C-reactive protein was most consistently positively associated with all depression and anxiety measures, loneliness and state/trait anger. In addition, CRP was negatively related to curiosity.

Interestingly, a somewhat different picture emerged when VOC were examined separately. Here, HCY became the most prominent marker which was positively correlated with state anger, anxiety, depression (BDI) and loneliness. In addition, measures of negative posttraumatic cognitions and posttraumatic stress symptoms such as hyperarousal were associated with increased HCY levels. In addition, TNF alpha emerged as a significant marker in VOC, correlating positively with anger, anxiety, depression and posttraumatic stress measures, while negatively associated with trait curiosity. The relationship between anger and HCY, as well as TNF alpha levels, is interesting, as these results have been confirmed in previous studies (Hapuarachchi et al., 2003; Suarez et al., 2002). Moreover, this finding may explain why this relationship has only been found in the VOC group who displayed a higher degree of anger.

Nevertheless, many correlations were not as expected which means that Hypothesis III can only partly be confirmed. The different relationships with biochemical markers in the two groups appear noteworthy, as they underline the proposed unique psycho –bio-immunological mechanism in posttraumatic illness. However, a logistical regression analysis was unable to demonstrate a statistical independence of biochemical measures for the two groups.

3.4.3 Clinical significance of the results

An important goal of the study was to gain a better understanding of the

relationship between psychological stress, changes in immune functioning and disease. However, a stress related increase or decrease in biochemical markers does not necessarily result in a health risk or the development of a disease, as it may as well only reflect an allostatic or compensation mechanism.

In the present study, the mean CRP levels were still within the normal clinical reference range (Chalmers, personal communication, September 2004) which would not require further clinical interventions. On the other hand, CRP is considered as a prototypic marker of inflammation, while at the same time a risk marker for the development of a cardiovascular condition (Sing, Devarah & Jialal, 2005). More specifically, CRP has been assigned a proatherosclerotic role, while it is frequently associated with a prothrombotic effect, insulin resistance and diabetes mellitus (Freeman et al., 2002; Pradhan, Manson, Rifai, Buring, & Ridker, 2001). Tuomisto, Jousilathi, Sundvall, Pajunen and Salomaa (2006) examined the relationship between CRP, IL-6, TNFalpha and CVD in a long term study with more than 6000 people over a period of nine years. They found that CRP and TNFalpha predicted CVD incidents as well as total mortality in men, though not in women.

Cytokines have been associated with a whole range of diseases as well as increased mortality rates and aging (Kiecolt-Glaser et al., 2002). Similar to CRP, TNF alpha is supposed to be involved in all stages of arteriosclerosis and to alter endothelial cell function (Ikuta et al., 1991, cited in Suarez et al., 2002; Ross, 1999; Schwartz, 1993). Moreover, IL1b has been related to adrenal activation and related changes in appetite, pain threshold and sleeping patterns (Plata-Salaman, 1991; Van Snick, 1990). Furthermore, excess Th2 cytokine secretion has been linked to asthma and allergies (Busse & Lemanske, 2001; Luster, 1998), while Th1 responses have been related to chronic proinflammatory conditions such as Rheumatoid Arthritis and chronic pain (Woods et al., 2005). In addition to the direct effects on the cardiovascular system, the inflammation process per se plays an important role in diseases which carry an indirect increased CVD risk such as renal disease, metabolic syndrome, diabetes (Singh et al., 2005).

Despite these alarming findings, there is only very limited knowledge about the critical clinical reference range, time frames or interactions between different

markers. Similarly, little is known about the influence of other factors, e.g. the circadian rhythm, age, sex, hormonal status and body mass (Asai, Hiki, Mimura, Ogawa, Onou, & Kaminishi, 2001; Petrovsky et al., 1998; Vural, Canbaz, & Akul, 2006).

Overall, it is not yet possible to determine the mechanisms of how a change in biochemical markers may affect clinical presentation, e.g. posttraumatic stress symptoms. So far, all the evidence is of a correlational nature which does not allow for the determination of a causal relationship. Consistent with our findings, cytokines have been related to adverse emotions and cognitive functioning, but there is sparse knowledge on the actual bi-directional processes, e.g. how cytokine patterns may affect thoughts, feelings and behaviour (Maier & Watkins, 1998; Melamed et al., 2004; Reichenberg et al., 2001; Suarez et al., 2002; Wilson, Finch, & Cohen, 2002).

3.5 Limitations

The study has many limitations which may have important implications on the results.

One crucial aspect is the generalizability of the results. As shown above, the present VOC sample comprised a very heterogeneous group with respect to crime characteristics which raises the question whether VOC should be conceptualized within one category. Some researchers differentiate between adult and child trauma survivors and/or single versus multiple and prolonged crimes (Kilpatrick, 2006; Van der Kolk et al., 2005), even though in the current study no differences in psychological and physical health could be determined with respect to crime characteristics. However, this may have been a result of a lack of power due to the small sample size.

The VOC sample was strongly divided in relation to symptom severity. Thus, about one third of the VOC group was very severely affected, while another third displayed very few symptoms. This observation may be the result of a selection bias in relation to a study participation. Some VOC may have wanted to share their current

suffering, while others may have felt a need to communicate their experience after a successful recovery. Another important question is whether people who had not attended the assessment were more severely affected. Unfortunately, it was not possible to assess the psychological and physical parameters in non-attendees due to their unavailability. It is also important to note that a significant number of participants rescheduled their appointment one or several times. Thus, it may be possible that people were assessed on their “better days” only which would lead to an underestimation of symptom severity in victims of crime. In addition, the generalizability of the results may be further compromised by the high percentage of female and mature aged participants which could have impacted on the physical and psychological results, e.g. given the suspected higher rates of PTSD in women (Fullarton, 2001).

Another potential flaw in the study was the design of the control condition. Comparatively healthy people with mild stress levels were included in the control group which may have attracted people who are particularly health conscious. As a consequence, it may have been of merit to include a control sample of stressed, but not victimized individuals to find out more about specific characteristics in VOC. However, such studies have been conducted previously and can serve as a reference sample (Hapuarachchi et al, 2003).

Furthermore, the study revealed the challenges involved in collecting reliable information on participants’ health status. There may have been a self selection bias in that either people with an already affected health or, conversely, people who are particularly healthy may have been interested in participating. Moreover, there is a possibility that VOC over-represent with physical complaints due to misattributions of physical sensations or physical concomitants of a mental health problem such as depression or somatoform dissociation. The frequently raised idea of malingering (Hall & Hall, 2006; Rosen & Taylor, 2007) and overemphasizing of symptoms due to an involvement in the criminal justice process, however, should be treated with caution.

In relation to the measurement of biochemical markers, it would have been of advantage to analyze the biochemical markers at the same time of the day, as there

may be diurnal fluctuations. Moreover, potentially interfering variables such as nutrition, body weight, and menstrual cycle were not controlled. While a good health status was ascertained by an examination of a comprehensive blood test (Full Blood Picture), there is still a possibility that preexisting health conditions such as chronic inflammatory processes may have contributed to the results.

Finally, some methodological limitations should be mentioned. As with most studies on complex clinical populations, the sample size was quite small. As a result, some results of statistical tests may be type-II errors, in that the analyses may not have had sufficient statistical power to detect a number of small to moderate effects. To address this issue, effect size measures are reported where appropriate so as to indicate the magnitude of associations or differences that were observed. It is also important to recognize that some results (around 5%) may represent Type I errors because of the very large number of statistical tests that were conducted. Caution therefore needs to be applied when interpreting the results. However, where multiple significant results are more conceptually consistent, it is more likely that these results represent genuine effects rather than effects that have been detected merely due to chance.

3.6 Implications for research and practice

The findings of this study suggest detrimental physical health impacts in VOC which may be influenced by changes in immune functioning. These results have important clinical and theoretical implications which will be briefly summarized here.

From a psychological point of view, it is critical to be aware of possible physical health impacts and at the same time not to dismiss psychological causes of physical symptom manifestations. On the other hand, many victimized people may present with physical rather than mental complaints, implying that awareness and screening of psychological problems should be improved in primary care settings.

One of the key questions derived from the study is whether a measurement of biochemical markers is justified in further research and practice. A possible advantage is an early detection of health impacts such as proinflammatory processes which could

result in severe long term consequences. Conversely, the clinical significance of alterations in biochemical markers is widely unknown and therefore does, not at this stage, warrant further clinical interventions. Thus, on a practical level, it must be asked whether it is appropriate to expose traumatized participants to the burden of such an invasive procedure. Moreover, it needs to be reflected whether the high costs involved in psychoneuroimmunological research can be justified, given that many measures did not yield the predicted results. Also, an operationalization of biochemical measures is extremely difficult, due to limited resources, varying methods of analysis, and the multiplicity of factors that need to be controlled. Similarly, these very restraints impose great difficulties on the interpretation of the findings.

In conclusion, psychoneuroimmunological research in trauma populations appears as a fruitful undertaking, if the goal is to further clarify underlying psychological mechanisms such as the relationship between various stress response systems and cytokine patterns. However, a measurement of biochemical markers seems less promising when it comes to an identification of physical health problems in VOC. Instead, VOC may benefit from a more thorough assessment of their physical health history which would simultaneously provide valuable information on concomitant psychological processes.

Individual Stress Experiences in Victims of Crime

This chapter elaborates on the findings from Study I by exploring individual stress conceptualizations in victims of crime. While Study I has yielded differences in biochemical and standardized psychological measures, in this study the major focus is on the range of consequences experienced beyond clinical symptoms, taking into account individual perspectives and circumstances of victims. The findings in this chapter are based on semi-structured interviews, using a thematic framework analysis. After an establishment of a preliminary conceptual framework with pre-determined and emergent themes, the main contents of the interviews will be elaborated. This is followed by a summary and discussion of the outcomes in light of current empirical findings. Finally, the results will be interpreted in terms of implications on the development of a treatment program for VOC.

4.1 Introduction of pre-determined themes

4.1.1 Impacts beyond psychological and physical illness

To date, most studies into the impacts of trauma have solely focused on a manifestation of a mental or physical illness, often without a consideration of the context such as personal histories, temperaments or environments (Van der Kolk & McFarlane, 1996). The characteristics of the context, however, are critical with respect to the intensity of the consequences to extreme experiences (Kleber, Figley, & Gersons, 1995). Besides psychological and biological symptoms, there are multiple other impacts of criminal victimization, imposing a challenge not only to the individual, but also to society (McFarlane & Van der Kolk, 1996).

Some researchers have tried to capture impacts of victimization in terms of financial and personal losses. A significant proportion of victims experience financial strain after their crime experience due to legal and medical expenses, disability, work incapability or decreased work performance, relocating and the establishment of security devices, or missing work days (Bard & Sangrey, 1986; Newburn, 1993). Miller, Cohen and Wiersema (1994) determined an economic cost of homicide of 2.94 million \$US for a homicide victim, comprised of productivity losses and medical bills, as well as intangible costs such as emotional pain and suffering. The latter is of particular relevance, as not much attention has been paid to the overall suffering after a crime, nor to implications such as restrictions in creativity and flexibility, the inability to pay attention to daily situations, or a less colourful life in general (Van der Kolk & McFarlane, 1996).

VOC can also be affected by their involvement in the criminal justice process. Many people find it very overwhelming coping with the conflicting aims of this bureaucratic and legal apparatus (Daly, 2003). Also, a great amount of dissatisfaction has been expressed regarding victims' treatment by the criminal justice system (Israel, 2003), with some people referring to a "secondary victimization" (Goodey, 2005; Israel, 2003).

Moreover, cumulative effects of trauma, the nature and onset of trauma, pre-victimization adjustment, and the existence of additional stressors are important factors that should be taken into account (Ford et al., 2005; Herman, 1992; Kilpatrick, 2005; Van der Kolk et al., 2005). Scott (2008) examined the differential and combined impacts of multiple life time stressors in a mixed sample of clinical and non-clinical participants. Exposure to multiple traumatic experiences was related to increased PTSD symptom severity. Furthermore, childhood sexual abuse survivors had an even higher risk of developing PTSD. Schumm, Stines, Hobfoll, and Jackson (2005) compared childhood sexual abuse with childhood physical abuse survivors to find out how these experiences might predict and sensitize women to the effects of current stressors. Childhood sexual abuse predicted resource loss in terms of personal, social, instrumental and material resources, while resource loss was a predictor of PTSD and depression. In addition, women who had been exposed to more physical violence were more negatively impacted by resource loss than those who had

experienced less physical abuse. Hence, childhood abuse survivors face a double burden by their early traumatic experience and an increased sensitivity to current stressors. Regarding the cumulative effects of stress, Raphael, Taylor and McAndrew (2008) investigated the relationship between acute and chronic stressors in women including a whole range of adverse experiences such as death, loss, victimization, demoralization, shame, stigmatization and helplessness. They concluded that these cumulative impacts may have major impacts on mental health and well-being which may often be silent and unrecognized.

4.1.2 Traumatic stress versus other stress

In contrast to most other psychiatric disorders, the concept of traumatic stress focuses on external reality, which makes the stressor criterion particularly relevant (McFarlane, 1995). At the same time, understanding the role of the stressor in relation to traumatic sequelae is a challenging task, due to the multiplicity and interrelatedness of factors involved, as well as the difficulty to assess all pertinent dimensions (McFarlane, 1995).

Another question is whether there is a qualitative difference between traumatic stressors and other stressors such as life events (Shalev, 1996). While some authors have categorized traumatic stress as a type of “chronic stress” (Dougall & Baum, 2004), Shalev (1996) emphasizes that historically the field of traumatic stress has developed independently from traditional stress research. Classical Stress theory (Selye, 1956) follows a three phase paradigm with an acute phase, a phase of resistance, and a recovery or exhaustion phase. An adaptation to stress is understood in light of a reconstitution of homeostasis, by taking into account physiological and psychological mechanisms such as predictability, controllability, coping and appraisal (Lazarus & Folkman, 1984). In contrast, traumatic stress reflects intermediate and long-term impacts of exposure which are not in an immediate proximity of the stressor (Shalev, 1996). As a result, a prolonged form of recovery is required with a consideration of causal mechanisms. Some authors have argued that traumatic stress is characterized by a chaotic response, disorganization and a structural breakdown, whereas other stress responses take place within an intact structure (Benyakar, Kutz, Dasberg, & Stern, 1989).

4.1.3 Meaning of crime

The subjective evaluation or the meaning assigned to an experience is the critical factor which makes an experience “traumatic” (Van der Kolk & McFarlane, 1996). Importantly, an interpretation of the experience continues well after the trauma and depends on prior experiences, as well as how the past can be integrated into current attitudes and beliefs (Van der Kolk & McFarlane, 1996). Interpersonal violence challenges one’s sense of vulnerability, self-worth, and a perception of the world as orderly and just. As a consequence, views of self, others and the world change inevitably and permanently. Moreover, the attached meaning to traumatic experiences is very much influenced by the age at crime onset and other life experiences. Besides interpretations on an individual level, a generation of meaning is also subject to social, cultural and political influences (Summerfield, 1995). Victims of crime are exposed to horrific events which may create adverse reactions in the social environment, but also attract blame and disbelief. One reason for these reactions may be that an experience of violence not only shatters the crime victim’s sense of predictability and safety, but also those of people surrounding the person (McFarlane & Van der Kolk, 1996).

4.3 Goals and research questions

The present study seeks to elaborate the various stressors faced by individual VOC with a broader aim of informing the development of a treatment program. Therefore, the aim is to understand individual stress conceptualizations from a victim perspective. In addition, it is important to examine whether victims themselves perceive traumatic stress as fundamentally different from other stressors. A further goal is to find out more about applied coping strategies, adversarial growth and experiences with professional services, as well as the individual meaning of the trauma.

To pursue these goals, the following research questions will be addressed:

1. How do individual VOC conceptualize and experience “stress”?
2. Are VOC able to differentiate between “traumatic stress” and other stressors?
3. What coping strategies and resilience factors can be activated?
4. Which previous therapy experiences do exist and how do clients evaluate these experiences?
5. What meaning is assigned to the experience by individual participants?
6. What motivated participants to take part in this research project?

4.4 Methods

4.4.1 Introduction to Framework Analysis

A Framework analysis approach was used to analyze the conducted semi-structured interviews. This systematic, matrix-based method was developed during the 1980s at the National Centre for Social Research in the UK (Ritchie, Spencer, & O’Connor, 2003) and is increasingly used in applied and policy-relevant qualitative research. A major advantage of this method is its potential to integrate predetermined objectives and goals, meaning it starts deductively from pre-set aims (Mays & Pope, 2000). A further benefit of this structured approach is that it can be easily linked with quantitative findings, making it a valuable tool in the present project, as it can expand upon the findings in the previously described pilot study. Furthermore, a deductive approach that, at the same time, allows for an integration of new themes, appears most useful for the current research project which is based on a priori hypotheses such as higher stress levels in victims of crime. Five stages of data analysis are involved in the framework approach. Table 4.1 provides an overview over the different stages:

Table 4.1

Five stages of data analysis in the framework approach

NOTE:
This table is included on page 178
of the print copy of the thesis held in
the University of Adelaide Library.

4.4.2 Participants

Participants from Study I were approached and invited to attend semi-structured interviews. Seventeen VOC, 14 females and three males with a mean age of $M=50.53$, $SD=10.87$ volunteered to take part in the study. Various types of crime were represented: CSA (6); Shooting with remaining physical injuries (1); Armed hold-up (1); Robbery (1); Homicide (4); Harrassment and threat to physical integrity (1) Home invasion with physical assault (1); Home invasion without physical assault (2); Domestic violence and loss of son to a car accident (1). For this reason, it is important to note that nearly 50%, i.e. nine out of 17 people, have been exposed to crime experiences prior to or following the index crime¹, either in form of prolonged violence (8) or in single incidents (1). Also, one of the participants had experienced several other traumatic events before being subjected to a crime. Ten participants had previously received support from the Victim Support Service (VSS) in Adelaide, while four people were still attending monthly support group meetings at VSS. It should be mentioned that the researcher was also attending these support group

¹ Index crime=crime that qualified participants for a participation in the study

meetings and in this way was more familiar with the history of participants who were group members. Interviewees were not reimbursed for their study participation (see Appendix I, Participant information sheet, p. 442).

4.4.3 Apparatus

A semi-structured interview questionnaire (Appendix J) was developed by the researcher, focussing on three major topics: (1) Individual stress conceptualizations; (2) Coping strategies; (3) Meaning of the trauma. The interviews were audiotaped and data were transcribed manually using a conventional word processing program. The transcripts involved a simple record of the words and an annotation of pauses, but no other non-verbal expressions.

4.4.4 Procedure

Participants from Study I were approached by a letter detailing the goals of the interview (see Appendix I). Once informed written consent was obtained, participants were invited to the Victim Support Service in Adelaide. Individual interviews of 90-120 minutes duration were conducted by the researcher, using the above described interview schedule (Appendix J, p. 443). All interviews were audiotaped. Subsequently, all data were transcribed by an independent professional. Next, a qualitative framework analysis was conducted following the process detailed above (Table 4.1).

Ethical Approval for the study was obtained from the Human Research Ethics Committee at the University of Adelaide.

4.5 Framework analysis

The framework analysis concentrated on four pre-determined major themes:

- 1) Individual stress conceptualizations
- 2) Coping strategies
- 3) Experiences with professional assistance
- 4) Individual meanings of the crime

For an interpretation of the results, it was considered important to also take into account participants' motivation to be part of the study as well as their perspective on the interview questions. Therefore, a further theme, called "Motivation to take part in this research" was added. Table 4.2 shows the preliminary conceptual framework.

To protect the confidentiality of participants, any information that could reveal their identity was omitted or changed. After every quotation, the participant code is indicated to allow for an identification of quotes from the same participant.

Table 4.2

Preliminary conceptual framework

1. Individual stress conceptualizations

Individual stressors

Individual stress conceptualization

Perceptions of stress on a physical, emotional and cognitive level

Reactions to stress

Most stressful components of crime experience

Pattern of stress (e.g. fluctuating vs. persistent)

Ability to differentiate between traumatic stress and other stressors*

2. Stress coping strategies

Most helpful coping strategies from a participant perspective

Unconscious coping efforts

3. Professional assistance

Experiences with professional assistance

Critical elements of professional assistance from a participant perspective

4. Individual meanings of crime

Crime as a life changing experience

Perceived impacts on life trajectory

Perceived impacts on personality

Perceived impacts on relationships

Perceived loss

Posttraumatic growth

5. Motivation to take part in this research/perception of the interview

*Emerging themes are expressed in bold letters

4.6 Elaboration of themes

1) Individual stress conceptualizations

Perceptions of "stress" differed widely among participants. For some people, their stress was clearly related to the crime experience, whereas for others previous traumatic experiences and current life circumstances contributed significantly to their suffering. More specifically, "stress" was mainly captured in terms of emotional reactions to a particular stressor. In relation to the crime experience, however, traumatic memories were highlighted as a major source of distress. Most of the participants also indicated that they were affected by stressors secondary to the trauma such as relationship problems and separations, legal proceedings and physical injuries. While some people could clearly distinguish between the quality of "traumatic stress" and other stressors, this differentiation appeared more difficult for people with prolonged and multiple trauma.

1a) Perceived indicators of stress

Various ideas about "stress" were expressed. Some participants referred to stress evoking situations, while others focussed on their reactions to stress. Therefore, a major emphasis was placed on emotional responses such as anxiety, fear, panic, depression, and anger. Furthermore, possible dissociative processes such as numbness or an inability to feel, and mechanisms like "shutting down" were indicated. On a behavioural level, withdrawal was frequently mentioned, while cognitive impacts involved worrying about significant others, concerns about acceptance by others and a perceived lack of self-efficacy to cope. In addition, a multiplicity of somatic symptoms was reported.

The following quotations state examples of emotional reactions to stress:

(...) I guess for me it is a lot of anxiety, it is a lot of pressure placed upon me whether it be from other influences as in family, work. I guess I feel it more in my neck and back which also comes through with migraines... and then also on the flip side of that are the depression side of things as well (...) (4).

(...) It means panicking, high anxiety levels, lack of sleep (...) It means all sorts of bodily feelings that are not normal. Like I would tremble some days and wonder why I would be trembling - so fear, quite a lot of fear especially at night, because the things that happened as a victim were at night. (...) I have a constant bitter/sweet taste in my mouth. I have depression. I feel depressed and disorientated someday with my memory. I went to the doctor this morning, he is dealing with that with me and is medicating me but he also said that these symptoms are not real - for me they are real, but they are really a repercussion of depression and anxiety. (9)

Other participants emphasized their inability to feel under stressful circumstances:

(...) 'numbness', I guess 'numbness' is a word for it, I just don't feel, I walked into the door, two days later there is a big massive bruise on my arm and I didn't even feel it. It is like the whole body is just to me in a 'don't feel shut yourself off cocoon'. I could stand in the shower and someone could turn the tap on downstairs and the shower would go hot and I wouldn't feel it. (4)

Stress is when you can't cope, literally hanging from the ceiling, agitated, when you are really different from the norm, way outside how you normally behave - Yes and I talk very quickly. I notice that, but I am not aware of what is actually happening in my body (...) (25)

Stress was also expressed in terms of behavioural and cognitive reactions:

I am not usually stressed unless I worry about someone badly, someone I care about, because I have had that responsibility all my life... When I was a kid, it was a matter of life and death just to survive and that sort of thing (...). (2)

(...) very withdrawn, very quiet, don't want to know what is going on around, not interested in anything. Just couldn't care less (...) I get annoyed very

quickly, agitated, which is not me, and I couldn't care less which has only happened since 4 years ago. (3)

Moreover, a lack of confidence and a perceived loss of control were reported:

(...) Just lack of confidence, it is amazing the confidence that I lack now, because I used to have a manager's job and speak to groups, today I don't have any of that confidence. (9)

When I talk about being stressed it means I have got 7,500,000 more things to do in one day that what I could possibly fit in there and plus there are still millions more that you hadn't planned on. It is a time factor. Everything out of control (...) (19)

1b) Traumatic memories

Traumatic memories were emphasized as a major source of crime-related stress, in that they led to a sense of not being able to control these memories and responses such as hyperarousal, fear, "freezing", and avoidance.

(...) yes, you do remember it, unfortunately I do, I would love to say I don't remember it, but I do remember it all the time. When you haven't had a normal childhood and you have been abused so much, you just can't (...) (2).

(...) yes, definitely. I thought it was going to go away but it hasn't (...). Thinking about it today before I come to see you, it has had more of an effect on me now than I realized. I thought too I will never get over this. (3)

I am really hypersensitive to sound and it still affects me today, balloons popping, and cars backfiring. I can't handle that (...) people yelling at me particularly customers at work, my partner, if they start yelling at me, I tend to shut off. I stop listening. (4)

(...) somebody could be talking about it and all the stuff then, it is like a panic attack, you can't breathe properly, I shake. One time my heart started racing real fast. (7)

I do too much thinking on what has happened in the past. If I go to a movie with anything at all violent, I have to leave the movie because I can't watch it (...) because it brings back memories. It becomes quite clear in my head and then I see my husband lying dead on the ground and I see my son who has been beaten and assaulted and those pictures come back. (9)

(...) like the other day, this guy was talking and all of a sudden he put his hands around me and I froze. I felt 'aah' for 2-3 days and that happened a week ago (...) (25)

(...) I don't want to go back to the focusing of seeing my son, the torture of seeing him shot. All that sort of comes up again, it resurfaces. (27)

Also, some participants stressed the persistence of these memories over a long period of time:

It can throw me right back to what has happened. Sometimes you sort of think over the years, nothing happened and then it could be the slightest, it may even be a song that could start it off, a conversation, or heard something, someone having a similar experience...(16)

1c) Differences between traumatic stress and other stressors

Most of the participants indicated that they were able to distinguish between “traumatic stress” and other forms of stress. For example, crime-related strain was captured as a state of absorption, a sense of derealization and an absence of a sense of time. Moreover, the fragmented nature of memories was emphasized, not allowing for an integration of the experience. Also, the failure of usually employed stress coping strategies was delineated, associated with an inability to “escape” from traumatic memories, and that this reinforced a perceived loss of control.

It is a totally different quality - like the stressful things that happen to me because of the event [secondary stressors as a consequence of the crime, see below] are the things that are happening everyday in my life and you can sort of file them, you can deal with them (...), that is copeable, doable. But traumatic stress is where you don't even know - you can't even tell the difference between day and night. You have no perspective at all on time. You are not even sure if you are alive or dead or awake or dreaming. It is a nightmare and that is what I call traumatic stress.... It is very difficult because it is such an overwhelming, all consuming, self obliterating nightmare. (19)

You suffer stress; everyone suffers stress, but not 'deep stress' where it puts me out. Where I can't - like I said after the abuse I felt I wasn't able to rationalize things. My trauma or traumatic stress stops me in my track and I find when it stops me in my track, headaches set in and once again it is a vicious circle. I can't seem to find the door to get out of the dark hole (...) I don't seem to be able to rationalize it, because I can't get away from it. Any other normal stress you seem to be able to get out of, it is a quick stress - this stress lives with you for ever. You cannot escape this because for me it is not over. It is never over because it is a vicious cycle (20)

The perceived loss of control and the high sense of vulnerability during the crime was illustrated by two participants:

(...) when he hit me personally to my body and my stomach, it takes away your control. With all the other traumas I have been in control, because I have been able to control the situation and help other people and that is how I deal with trauma (...) (20) [participant was in her 34th week of pregnancy].

(...) my sort of stress that I have had previous, I can put that aside to what this one is. Because it is the unknown, the person was never found. It is not knowing. And to be asleep and whatever – it was a feeling I cannot describe. It was like everything was draining from me (...) I think the stress is being here

[in the house]. *I feel like running out of the house sometimes. I get a close feeling, as if I am in the dark somewhere (...)* (16)

Another participant described the physical reactions to her trauma along with other responses such as the reliving of the experience and her inability to focus.

(...) Stress to me means that your mind can't focus on the normalities of life - of going to work and functioning normally. At the time of the actual murder, I could just feel the adrenalin, I couldn't eat, sleep. I was just pacing because I just had so much adrenalin, I just felt the pumping of the adrenalin. It results in me not thinking straight, losing things. My mind is not focused on the task, because there are other factors impinging on my focusing on the task (27)

(...) I see it [traumatic stress] as a great difference, but for people who haven't had traumatic stress, they wouldn't really. Traumatic stress is the repetitive visualization of what went on and trying to control the thought to get out of that (...). (27)

c) Aggravating circumstances

Influences of other life circumstances and previous crimes on stress levels were mentioned besides the experience that qualified people for a participation in the study (index crime). Various interactions were reported: The index-crime re-triggered previous experiences of victimization, whereas the recovery from the current crime event was complicated by consequences of the earlier victimization. Other aggravating circumstances mentioned were pre-existing mental and physical health problems, mentally ill relatives, convoluted family dynamics and interpersonal difficulties.

One person described how her own experiences of sexual abuse were re-triggered by a recent sexual assault of her son:

...it brought up all the violent issues, the sexual issues. It has been at this level and I think that is probably because like when XXX told me it was like how I felt that I could not understand how XXX was feeling. But there are a couple of times where I have woken up and I have seen XXX and XXX and then my dad and it has all been jumbled together. (6)

Another participant displayed great difficulties to make sense of her reactions to a recent physical assault experience in light of various other forms of victimization:

I was actually seeing a counselor at one stage before that, that was about my ex husband and what I had been through with him, the abuse and that. But then that changed. I think I haven't gotten over all that. Because I have had problems with my dad, dad and I don't get on (...) and now I have gone back to how I was before (...) I know I have been told I was not like this before. But I have always had relationship problems (...). It [her current withdrawal symptoms and depression] might be from the memories, I don't know. All I know is that I never used to be this bad, but I am not saying that that is from that. I don't know. I just know I have changed (7)

There were other who described stress that had arisen as a consequence of childhood abuse:

(...) so every corner I turn I have to deal with stress, because even to deal with lawyers who handle my case and they charge exorbitant prices (...) It is mixed up because I am 64, take 3 of that; there is where it all started. There is a delayed stress which was never dealt with. It was bottled up, the trauma, stress. My solicitor picked it up. She said coming from a dysfunctional home was enough, that is trauma enough and then to be dumped at a place when you are 3 ½ when you are conscious of who your mother is and suddenly you don't see her. Then having to live with life, poorly educated, speech impediments, can't comprehend some things, explosive, you are defenseless, frustrated and the hopelessness you feel, that all builds up (...) (8)

One participant elaborated how the homicide of her husband interfered with her reactions to a recent physical assault of her son:

(...) I fear for my son, he has been assaulted twice now... My son is suffering severe traumatic stress and I really want to try and help him through that but at the same time I am also suffering it, so we are not real good for one and other at the moment really...(9)

Another interesting example of how additional traumatic experiences impact on one's sense of vulnerability and safety was provided by a participant who was physically assaulted in an advanced stage of her pregnancy. In a previous pregnancy, the participant had suffered from a rare medical complication, associated with a considerable risk of losing her child. She had also been confronted with other traumatic experiences before and after her physical assault:

I had something awful happen to me when I was pregnant before, I was 24 weeks pregnant when I got ... [a rare health condition, name omitted] and I was the first female in [location] on record to have ... [name of disease] after the first trimester - the doctors were absolutely blown away, they didn't know what to do (...)

I got to work and was there for a couple of months and I got bashed at work. So now I am back to square one (...). I am not safe at home, work, and where am I safe. I am safe in my car, - well nearly two years ago I had a car accident and that triggers back to getting bashed up 5 years ago (20)

The analysis also revealed how the crime experience made it more difficult to cope with other losses:

I think it is mixed and I think before my son's death, I sort of would shrug it [domestic violence] off and go. I can handle that and that is not a big deal, but since my son's death, I have actually noticed that if someone yells at me for about four days I am shivering, so I have noticed it affects me a lot more physically (...) I guess with my son - the grief and loss and sadness that some

of the time we had together was not good times. I think the main thing for me at the beginning was the loss of the future, because I was always thinking that we could make up time and spend time together, because he was torn between his father and me. (26)

Moreover, one participant illustrated how the mental illness of her remaining son impacted on the meaning of her other son's death:

(...) this boy that was killed was the lifeline really of the family, for the other boy. My other son will never have children [he has been diagnosed with schizophrenia]; the other boy was our future as far as family, children, nieces and that. My other boy loves kids but he won't have any. It is all gone for him. (27)

Stress patterns

Fluctuating patterns of stress were described, characterized by intense and rapid stress responses to a wide range of stimuli and phases of extensive exhaustion on the other hand.

(...) It does fluctuate, it definitely peaks and troughs. Sometimes I am feeling good and everything is fine and coping with everything, then I come down again...I tend to build it all up, and then something happens like a migraine or I will blow a fuse, I have a very short temper outburst and then all of a sudden I will bottom out and slide down. Feel very tired. I don't want to do things. I just want to bury myself and let the world go past. (4)

(...) On and off now for six years. It is coming and going. I have good periods and then bad periods. I have spent a couple of stints in hospital at a time of the month each time, and that is when I couldn't handle anything... At the moment I am going through a low period again and I will get through it eventually and then I will go through a higher period and I just can't seem to stay in the middle. I am either down or up.... We are trying to get me on an even keel in

the middle that is the doctor's aim of medication, to try and get me balanced, so that I don't do one or the other...(9)

(...) It can change, sometimes it might be just a minute or so and then I take a few deep breaths and I might go and have a drink and do something and then I can settle. Other times it might be an hour or so where I feel anxious and then it will settle down. Sometimes it might be two or three days of me feeling everything that happens after that - so it all adds up sometimes over a few days (26)

1d) Secondary stressors

A variety of secondary stressors were highlighted by participants, with relationship and family problems emerging as the most prominent factors. More specifically, feelings of inadequacy, irritability, and disinterest in sexual activities were indicated. Other secondary stressors involved crime-related physical disability, legal proceedings, and dealing with the media.

Relationship problems

(...) It has, my relationship has been extremely difficult. I could have walked out, they could have walked out. I have said to a lot of people I am surprised the family hasn't walked away or I haven't walked away. It hasn't been easy and I haven't been easy (3)

(...) Also in my personal life, it is very hard for me to have a partner in my life because I am so worried about them not accepting me for what I am and who I am.... I have tried to have a relationship and it has always failed and so I get to the point of thinking well no one really wants me anyway because I bring too much baggage and I bring problems to a relationship.(9)

(...) but stress also causes so many other things outside just your own body, like sexual relationships with my husband. That is a tough one – not for my sexual relationship, but my relationship with him. (20)

Another participant underlined his stress as a consequence of the public interest in his case:

(...) At the moment it is the public, it may sound silly. Normally the public don't worry me, but I still get pointed and stared at and everything else. Normally it doesn't bother me. But lately in the last few weeks it has, and I can't explain why (...) (3)

Furthermore, he outlined his stress perceived during the court hearing:

..Yes the court was (...) [stressful]. Sitting in front of three high court judges, telling them, looking at them straight in the face. That was stressful; I don't want to do that again. (3)

Two of the participants mentioned remaining injuries as a result of the crime: *(...) I had problems occasionally. I wish I had my sight back, but that is not going to happen. But I live with it, I deal with it. (3)*

I do get a bit stressed myself when my legs start aching, I get a lot of pain which unfortunately that is getting worse (...) very bad, my feet, both my legs, hips and my right arm. But my legs are getting shocking now. (2)

2) Coping strategies

Multiple ways of coping were described by participants. In this analysis, any endeavor used to adjust to extremely adverse and life threatening conditions was considered, rather than merely extracting adaptive coping qualities. In addition to commonly recommended coping strategies such as exercising, reading, relaxation, and gardening, five subthemes could be identified: (1) Avoidance (dissociation); (2) Social support; (3) Activity; (4) Spirituality; and (5) Idealization. It was evident that, besides a conscious and active activation of certain strategies, many of the coping efforts seemed to be employed outside of conscious awareness.

2a) Escape/avoidance

Active escape and avoidance were frequently mentioned strategies along with dissociative features.

One participant contemplated to move to another city to avoid reminders of the trauma: (...) *I think the only way that it is going to be fixed is if I leave, which is a drastic measure. There are too many memories here (...)* (3).

The advantages of frequent moving were also illustrated by another participant:

(...) I have always moved, that was a good thing for me because I didn't have to have this, I had an excuse not to make close friendships because we were moving all the time, so I could rub that page out and restart my life again every two years (25)

Another participant described her efforts to avoid thinking about the experience:

I am a realist, I deal in fact, my sister is gone, that is a fact. Really what happens, when, how, who, I can't deal with it. I can't. There is no point even trying to think about it. I have learnt that you can go over and around and around in your head 985 times and every time you do it you will have a different story. I haven't got the energy to do that. I haven't even rationally tried to sort out how I feel or anything else because I have not got the energy (...). (19)

On a more subconscious level, one of the participants mentioned her attempts to avoid detailed reporting of her crime experience, as well as her tendency to "shut off" :

(...) I tend to more brush over the fact of it rather than going in-depth with people saying to me how did it feel and all the rest of it. I tend to brush it off, make light of the situation, rather than actually really talking about it to them. When they say you were in a holdup, I say: 'yep, I worked in a bank, I was sworn at, spat at and shot at. That is what you do when you work with people and money. I tend to just say yes a guy came in with a gun, whether it was by pure coincidence or luck, that I went from facing him to getting some more

cash out when he fired the shot, well yeah he got away with the money and walked out the door. So you tend to just gloss over it. (4)

(...) this whole shutting down process, to me it is almost like a self preservation thing, to preserve myself I started closing off, which when I get under stress or pressure now I do the same thing, I shut off...(4).

A similar example was provided by another participant:

I am starting to explode which I never used to do or I go really 'turtle mode'. It bounces off that huge wall that I have put up. You know the security walls in the bank, the wall just goes down. Mine does that too, it can go up that quickly, half the time I don't even know it has gone up. I shut right off and no one can get near me. (25)

2b) Social support

Social support was acknowledged as an important resource by most of the participants.

One participant explained his difficulties to confide in his family in contrast to a support group.

(...) not normally, no. That is one thing I have never done, I never have and I don't know why. I have been like it for four years now. Friends I haven't talked to much about it. It is mainly people that you and I know in this group which helps, that has helped a lot. (3)

(...) I try and meet up with friends as much as possible. I have a friend who likes to go to the pictures, so we try and organize a day to go to the movies (26).

One participant referred to her children as her most important motivator to overcome her trauma:

(...) If I didn't have any of those crutches in my life, I wouldn't be here. Because it would be easy. If I was on my own and I was going through this it

would be easy just to turn the light off. To me I wouldn't be hurting anyone.
(20)

(...) but I have got very good friends. They will come to my aid; I know there are people to help me. In the end you have to do it on your own, really. I have been anchored by a lot of people. I have a sister who I can ring anytime, she talks me through stuff. (27)

Similarly, acknowledgment by others has been mentioned as a critical resource.

(...) yes it has helped in some respect, being recognized (...) Yes, people care; it is amazing after all this time. (3)

Well nothing really [“ helps”], apart from allowing people to understand it. That is the biggest thing that has helped me. (20)

2c) Activity

Activity and the maintenance of a daily structure appeared to be another critical psychological resource, although it became evident that some participants frequently over-engaged in activities, or tended to “make up” for lost opportunities or needs that have not (yet) been fulfilled.

(...) If I care about someone who has been badly treated and especially for no reason, ooh that gets my goat, I get very anxious and very concerned and I try and right it. (...) I have never stopped saving people but I am learning to calm down - before I used to save them to the point where I would irritate them (...)
(2)

I like to help my friends out and if they have problems I am always the first one there- (...) they say I'm the rescuer who needs rescue. (4)

You have to make up and also deliver and satisfy and you don't want to shame yourself. (8)

I cannot sit idle. I guess I am my worst enemy in that respect because I will go until I drop. (16)

I am exhausted, but I am busy, I keep busy because I know normality has helped me. I am worse if I am not busy, just sitting around. I feel like I am riding it out now, just riding life out. I am here on this horse and cart and just doing what you have to do and trying to do it well, what is left to do. (27)

I try to be available in case my family needs me at any time. So I tend to stay inside so I can hear the phone, I write letters to people. We have come from a very big, extended family and I do keep in touch with the family more than my brothers and sisters do. You can't worry too much on yourself when you have got them to worry about. I hope I live as long as possible so I am here if they do need me. (17)

Furthermore, activities seemed to provide a sense of empowerment and control. In this context, one of the participants elaborated on the benefits of her engagement in a Witness Awareness Program:

(...) I find it empowering, because I am doing something very positive at the end of the day, I am basically in control. When I am talking to these young offenders in the victim awareness program, when I go up there and talk to the kids and feel empowered, it is because I am in control of the situation for an hour. There is nobody in that room who is in more control than me talking to the kids about what happened to me. (20)

Another participant referred to her efforts to change traffic policies after her son had been killed in a collision with a car:

(...) Now I have been writing to parliament and the attorney general to try and get the laws looked at, as well because they are a topic at the moment (...) it might affect someone else and help that victim's family. (26)

2d) Spirituality

Another frequently cited resource was spirituality which seemed to work in various ways. First, participants were provided with a sense of a higher order, and this appeared to promote a sense of stability. Moreover, it seemed to facilitate acceptance of what has happened and to make meaning of the adverse event(s). At the same time, distance could be created which allowed for more inner peace. Finally, a sense of protection was conveyed by a power that can take care of things, in this way helping to let go of control efforts.

(...) I have turned to my bible and held my bible and say to myself that I am protected by God, no one can hurt me, I try and sleep with my bible. (9)

I have my faith, I am a strong believer, so each day I am happy to get out of bed and think I am feeling good. I can get out and do stuff. (16)

I go to church, the rest of the family don't. I find going to church helps me.... I think it helps to calm me because in one way you feel like your life is out of your hands. I feel like I can either accept it or stress out about it all the time. One or the other. I don't really accept it, but at the same token I think it does give me some sort of calmness (17)

When I really feel like I am off my rocker I read my bible, because I know it is calming. My belief is that I believe there is a greater being and I suppose in my world it is chaos but overall everything is in control. So that helps. (27)

(...) talking about the universe and our planet and the solar system and everything (...) the greater things still things are happening, it is only what men intervene and wreck and do that is making it wobbly. But for the greater part of life everything is working together, it is our little world. Our earth that we are destroying, it is what we are doing because really it is a perfect plan (...) (27)

The two places on this earth where I have been to where I have felt that me and my problems and everything else relating to it are totally insignificant in

the great scheme of things is standing up at the very edge of the 'Great Australian Bight' and right at the top of 'Ayers Rock'. In both of those places it doesn't matter what you have got when you go there, while you are standing there, nothing on earth matters but the complete and absolute and total peace and beauty and if anyone said to me what is the closest to being dead that you can imagine, that would be it. (...) It was just like, get it into perspective this is right, this is awesome, it doesn't matter about me, it doesn't matter about any thing else. (19)

2e) Idealization

One participant in particular showed a strong tendency to idealize her experiences and the people involved.

(...) I have always been liked. I have always had the respect of my friends and my mother's family adores me, I am the favorite because I am a survivor. (...) I have millions of friends, everyone wants to be my friend (...). (2)

(...) My mother had very good strong genes. Even when she committed suicide it saddened me and my family, but I can understand why (...) but even though she died she was still intelligent. I am very grateful to come from good genes. I know other people with both parents who are alcoholics, both drunks, the father abused the child, none of that happened. I was lucky. I might have gone through it with strangers, but not my own family. They weren't like my wonderful mum who gave us that wonderful advice and that is what saved me to protect them [her siblings]. (2)

However, the same person also elaborated on the violence she had experienced in her family of origin which eventually led to her entrustment into state care:

My father was a violent alcoholic; he has been in several institutions, mental ones. He wasn't actually mental, but he was so obsessed with my beautiful mother that he became an alcoholic. He was an alcoholic also before she knew him. He was extremely violent; I was bashed as a child by him. (2)

A more active effort to avoid realizing of the event and its impacts was illustrated by another participant:

I depersonalize things. I always talked about 'him'. I took the abuse away from him. Abuser/person I would never use the word I. That is how I have distanced myself from it, so it is not real, it is not me.-25

3) Experiences with professional services

3.1 Benefits of professional services

All of the participants had at least some experiences with individual and/or group therapy sessions which they generally perceived as helpful. In addition, support groups were considered as beneficial in that they promoted a forum to share experiences.

To me the groups are really helpful... So the support groups were good because if someone is talking about their situation, you are looking at them and thinking you could actually say that is me. But they will say something and I am thinking 'but that is me, that is exactly what I do' when they talk about things like suicide and you can talk openly about suicide. You mention suicide to some people and they absolutely freak. Whereas suicide is a normal part of our lives, for us. (25)

Perceived individual benefits were illustrated as follows:

(...) to come to terms with the fact that I can now look in the mirror and think I am not hideous, ugly I am not going to burn in hell or be a prostitute. I am me, I am XXX I am not some hideous thing from hell like they told me. It takes you a while but you learn to realize that you are as good as everybody else. (2)

(...) someone different who can ask questions like yourself and then I answer them truthfully, which helps. It relieves the tension, relieves the pressure. Just someone different that you can get your frustrations..., not so much

frustrations, but you can actually explain how you feel and what is bothering you. (3)

(...) It is getting me to look at myself and start to know who I am, because I really don't know who I am (...)(6)

(...) Knowing that they care about what I was feeling (...). They don't push anything. If you don't want to talk about something, they won't talk about it until you are ready. That was good. (7)

I go and see XXX and all of a sudden I can get that desk cleared and filed and I have the energy and ability to face tomorrow and start my work again....When I talk to her about the week or the month or whatever that I have had which is usually pretty bad, I can walk out of there and think right I have had that month, it has been hell but I don't have to deal with that month anymore. (19)

I am seeing a clinical psychologist which has been very helpful because he is teaching me how to rethink things about positive things and not so negative all the time. (19)

I went to the work counselor and she identified the triggers so that was really helpful for her to identify the triggers (...). I was also going to XXX and they were talking about taking care of myself and how to manage myself. That I found a little bit more difficult to do. I have also come here to victims of crime and they have been very good with practical help, attending court, I have been writing letters and that sort of thing and they have helped me with the practical things...(26)

Nonetheless, two participants also indicated that their expectations were not met in their therapy:

Finding the right, even the psychologist she is not really... she said I will write down everything you say, but I am expecting her to ask me the questions, like you are, you are directing, well we have covered that point, she will just cover today's current stress not of the orphanage and all that sort of thing. She says I will write down whatever you want me to write down. I think that is stressful

because it is not really dealing with the issues. It is dealing with the present ones, because old people are hard to deal with (...). I find I am wasting my time so I want to change (...) (8)

The counselor I was going to, I saw her for a year and she said we are becoming friends, - bang I bolted, I never saw her again (...) (25).

3.2 Critical considerations in therapy

Asked what factors they considered as critical to therapy, participants stated that compassion, feeling listened to and feeling believed was a vital prerequisite for a engagement in therapy. Moreover, regular meetings and the possibility to contact the therapist between sessions were regarded as a crucial factor. Some participants considered a relaxed atmosphere to be critical, along with an opportunity for their own reflections, whereas others preferred more concrete strategies. In addition, participants stressed that it was significant to focus on the traumatic experience. They were also aware of transference issues, indicating that trauma survivors might get overly attached. Moreover, the importance of therapist self care was highlighted by participants.

(...)The most critical thing is genuine compassion that you believe them. People don't believe you, even your own family. So you have to have their trust, but be careful they don't get too close to you, because they will get over attached to you.... Kindness of course, compassion, a warm person (2)

Appointments once a week, if you get stressed just go and talk to someone. If it is important, just ring up. The person I see I have rung a lot, she seems me straight away, I have been an absolute mess at times. (3)

I think I prefer the workers to [let you] think for yourself, they will ask you open questions and that type of thing, rather than being taught that.....relaxed... I have had cases where it has not been as a relaxed atmosphere (...). Not somebody that gives you just advice. (6)

To really dig out what is there and what has to be dealt with. To say get it all off your chest, lets see what has affected that part of your life and what do you do about it and how do you cope. Because you are not going to eliminate it and deal with it properly unless you bring it out. It is there, it has scarred you. (8)

Number one is that you be the best psychologist that you can, that you know the human needs and be a good listener and work out and say here is a suggestion, here is what I want you to do, stage by stage, so that you have given the person something they haven't thought of, or tried. You want this person to walk away and say I have come all this way, I spent an hour and I can apply that now for the whole week, something beneficial. (8)

You have to look after yourself, that is the most important thing; I understand that, because it can get you down. It can trigger things off for yourself, which I am starting to realize (...) (25)

4) Meaning of the crime experience

The individual meaning of the crime experience was explored in terms of impacts on one's personality and relationships with other people. Moreover, the perceived permanence of the impacts was investigated. Also, a more detailed impression of perceived losses was examined, along with participants' perceptions of growth.

4.1 Perceived permanence of changes

Nearly all of the participants felt that the crime had been a life changing experience with enduring impacts.

(...) everything changed when this happened four years ago (3)

(...) definitely, it is a life changing experience. As I said it makes you more aware of goings on and people around you. (4)

Always I wake up in the morning knowing that I will never escape it. (20)

Interestingly, a sense of permanent impacts is also promoted by health professionals:

I suppose the doctor makes me think that way a little bit, because he said I would be on medication for the rest of my life. I hope they might be temporary and I find myself in a loving relationship (...) (9)

I come from a different place, I view the world differently. (25)

4.2 Sense of loss:

Different forms of losses were mourned by participants, e.g. the loss of opportunities, trust, a positive world view, friendships, personality features, dignity and of the planned future.

...I realize I can't work but I am damn annoyed that somebody like me didn't go to Uni, because I could have done so, I wanted to, but I had no chance of an education whatsoever which is tragic. But I could easily have done anything; I wanted to be an archaeologist or a music producer (2).

I have not reached my full potential, I have been denied that. I am a singer and I think I could have gone a long way. But a lot of your potential and abilities were denied because you weren't in the position where you could grow and develop and contribute to community better than you are doing now. (8)

(...) Dignity. I seem to have lost life in general if that makes sense. (3)

(...) mistrusting, not trusting people. I am very careful, so not trusting, lack of confidence. I have lost a lot of confidence and self esteem, shame, guilt. (9)

(...) some others [friends] just dwindled and I wonder some days whether it is my fault, whether I am the one who just didn't make a contact and slowly divorced myself from them, or whether they have divorced themselves from me. I am not sure either way. (9)

I said I feel like I haven't got a family anymore, so there is that too. You are kind of on your own. The kids don't need me. XXX doesn't need me. And I have lost XXX. (17)

My future was with XX and now he is dead. He was my companion. (27)

(...) I still feel like life is a lot less (...). I feel like 'well that is it, that is my life now'. There is no real point in my life anymore, except maybe to help my brothers and sisters and the kids. (17)

(...) all of a sudden the world is not such a nice place, and you can't trust anybody in it. You can't trust your own brothers and sisters. The truth of the matter is how do you know what is going to set them off. I think over time you become very cynical, cynical of the legal systems, cynical of people, like a person comes up to you, once upon a time you would trust your instincts, this is someone I can talk to, someone I can get to know. Now it is what this person is hiding, obviously it is not that bad, but your whole perspective, the world literally as you knew it has changed. The world doesn't hold people that hold your morals; it is not a place where you are safe - my whole belief system in the structure of society was absolutely shattered and I certainly haven't got it back yet. How can you...(19)

(...) definitely a personality change. I think from all this my personality has definitely changed. That is really hard to live with, when you try to be that person again and to know you will never be that person again. (20)

4.3 Posttraumatic growth:

Besides life changing impacts and losses, all participants could also acknowledge some form of gain from the adverse experience(s).

Many participants felt a foreshortened sense of future and, as a consequence, tried to enjoy life more than before the crime:

I might not have had a future, so I look at it now and say lets do it now, not ten years time. It may never happen. I could even go blind which I hope never happens, but it is a possibility. So I am thinking well if my future is cut short, make the most of it now. (3).

Furthermore, more insight into internal psychological processes were mentioned besides an improved understanding of other people's reactions:

(...) It has also made me take more notice of me as an individual, my thoughts and understandings of what goes on within yourself. (4)

I think it has made me a better person actually. Because it gives me an understanding. (...) when I had the breakdown myself, it totally changed my views because then I could understand how she [mother] was really feeling. I think it is the same for this situation as well. I am doing a counseling course, because that is what I really want to get into. (6)

I am more aware of what goes on around me now (...). I think it has made me wiser. I sort of don't take anything for granted now. I count my blessings everyday. When I think of the things I have been through I think I have come a long way. I definitely would say I have a different outlook through all of it. Hopefully it has made me a better person. (16)

I have found a strength I never knew I had. I knew I was strong because I survived.... Since my husband left I have coped on my own and I have not only coped I have done a bloody good job. I have learnt that I can say that I have too. I would like to say that I have learnt that life is too short to waste on crap if that is all I have got. I have a dream to go to XXX. (19)

They say as a child, if something happens you stop dead, parts of you grow, but parts of you don't grow so you still have that imagination, that fantasy that children have, if I could change the world, we still don't lose that whereas a lot of people lose it. We are still in contact with our inner child, or are protecting that inner child (...) (25)

I think with the death of my son, it is really important to notice the people in your life, to spend time with them. So I hope that stays... I think who I am inside is still the same and it is just learning to deal with situations a lot better and growing myself so that I can cope with situations and noticing my family and friends and appreciating them a bit more and showing them.-26

Yes. I am different, I feel different. I want to get every inch of good things in life; I am meaning that by relationships as my priority, loyalty in my relationships... I am more politically active. I have always been, I am more intense now (...). (27)

5) Motivation to take part in this research

By the end of the interview, participants were asked what motivated them to take part in this research. The most common motivational factor mentioned was a need to talk about one's experience in a confidential setting. Additional incentives were to help other people and to influence the criminal justice process.

(...) Unfortunately the branch [church] I am going to now is not helpful at all. So I have to sit down and talk and by talking to you or other people. I can say right I have been down this track and they are listening, they understand what I am doing, why aren't you listening, because they are not trained, they don't understand what my additional stress is and how it can interfere with things (8)

When I read the article I thought it was a help, I thought this could help me, help to solve some of the things I was feeling, being able to speak about it in confidence. I guess I am one of those people that like to help. I have always been classed as a helper. (9)

I think so, I am not sure it is just wishful thinking but I think that from the first time that we talked, that I could actually articulate what is going on better and

less emotionally now than I could the last time. I want to get to the stage where I can talk about it and it is not tears that are coming. (11)

I wanted to come and do this because it is great (...) that somebody cares about how people feel, this helps you to cope. So it has been a big thing - I feel like I have had a counseling session. But to me - it is important for me to know that someone cares enough to do this because otherwise you could have opted out for something that might have been easier. (17)

Two participants expressed their hope that the research could serve their political and legal interests:

(...) I am just hoping that your investigations - the government has to listen to somebody how people feel, to know people out there are hurting (...) why is he so stressed the way he handles his affairs (...) (8)

(...) I think people like you and other people like you should start, not so much you, but other people you might be able to influence - they should start doing something about the laws (...). (2)

Finally, it was indicated that attending the interview provided a structure and purpose: *(...) like today - I knew I was coming to see you. If there is something I am doing that is good for me, something to get up for (...) (9)*

Comments on interview questions

Finally, participants were asked for some feedback on the interview questions. Most participants expressed that they appreciated the thoroughness of the questions, as well as the focus on their feelings. Two participants, however, articulated their disappointment that the traumatic experiences themselves were not explored in more detail:

(...) what has been good about participating is that a lot of questions were asked that weren't asked before. I have been able to share a lot more, different

level of questioning, going into the feelings. I think you have looked at a whole lot of other things that I haven't talked about before. (9)

(...) it wasn't what I was expecting; I thought you might have taken me back to the orphanage and what happened there. I wasn't sure whether you were going to go down that track, because that is when I get emotional or break down. (8)

4.7 Summary and discussion

The Framework analysis yielded four major focal themes and an additional exploration of participants' motivation to take part in this research.

4.7.1 Individual Stress Conceptualizations

Even though participants held different views on “stress”, there was considerable agreement in relation to the overwhelming nature of traumatic memories. Other important stressors included concerns about significant others, interactional difficulties and relationship problems, work demands, legal proceedings, dealing with media, and physical injuries. Most participants felt able to distinguish between traumatic stress and other forms of stress. In accordance with various trauma theories, traumatic stress was portrayed as a state of absorption (Spiegel & Spiegel, 2004) without a temporal context (Brewin & Holmes, 2003). As delineated by many other authors (Foa et al., 2000; Van der Hart et al., 2006), participants also emphasized their perceived inability to escape from the past and to employ their usual stress coping strategies. Reactions to traumatic stress were mostly portrayed as intense emotional experiences, whereas cognitive and behavioural aspects, as well as somatic symptoms were described to a lesser degree. Indeed, overwhelming emotional states have been described as one of the most difficult aspects of posttraumatic reactions (Foa & Rothbaum, 1998). Several participants also pointed to dissociative mechanisms in overwhelming situations. While this phenomenon is often associated with survivors of prolonged and early trauma (Coe, Dahlenberg, Aranski, & Reto, 1995; Nash, Hulseley, Sexton, Harralson, & Lambert, 1993; Putnam, 1985; Van der Hart et al., 2005), in the present study dissociative features were also prevalent in people with single crime

experiences. Another important finding was the interdependence of crime related stress, previous traumatic experiences, and other difficult life circumstances, in that previous trauma was re-triggered by the more recent crime experience and recovery from the present experience hindered by both, prior trauma and intricate life conditions. The pattern of stress was described as fluctuating which corresponds with observations on post-traumatic neurobiological and immunological functioning (Friedman, 2004; Friedman & McEwen, 2004).

4.7.2 Coping Strategies

Participants reported a remarkable range of coping strategies. “Coping” encompassed any effort to deal with the adverse experience, in this way also including symptoms. Moreover, both, beneficial and maladaptive strategies were considered. An interesting aspect evolving from the study was the realization that many coping strategies were applied with varying degrees of conscious awareness.

One of the most frequently cited coping strategies was an engagement in activities which allowed for structure, distraction and a sense of control, although this was frequently accompanied by a tendency to overexert and to be driven by ideas to “make up” for experienced losses or unfulfilled needs. Furthermore, dissociation and detachment were mentioned as a way of coping, along with active avoidance behaviours. An understanding of dissociation as a coping strategy, however, is somewhat problematic and may require further differentiation. Dissociative mechanisms are well acknowledged symptoms of traumatization, reflecting severe posttraumatic psychopathology with immense impacts on functioning (Bremner & Marmar, 1998; Spiegel, 1992, Spiegel & Spiegel, 2004; Van der Hart et al., 2005). The detachment described by participants in the present study was perceived as helpful, but may not represent a pathological dissociation, nor an adaptive strategy. Thus, it would need to be clarified whether participants did indeed dissociate or rather experienced an alteration of consciousness (Van der Hart, Nijenhuis, Steele, & Brown, 2004). In line with other empirical findings (Kimerling & Calhoun, 1994; Yap & Devilly, 2004), positive impacts of social interactions were emphasized by participants, whereas at the same time difficulties to relate to people were outlined. Another frequently mentioned strategy was an adoption of a spiritual or religious philosophy, which allowed for putting the experience into a wider context, as well as

a restoration of order. A spiritual development has been observed in several studies on posttraumatic growth (Linley & Joseph, 2004; Tedeschi & Calhoun, 2004). Moreover, one study on long-term effects of the bombing of Dresden in WWII suggested that religious beliefs may have a moderating role between trauma exposure and avoidance, i.e. avoidance behaviours were increased with a higher degree of religious attitudes (Maerker & Herrle, 2003). Finally, idealization of abusive or neglectful family members should be mentioned. This phenomenon has been observed in other studies in people with childhood abuse experiences. Reiker and Carmen (1986) suggested that this tendency may be the only way for children to uphold an illusion of a sense of control and to deal with their intense emotions. Moreover, Spiegel (1989) highlighted that young children may not fully comprehend independent causation which could provide another explanation for an idealization of abusers.

Besides individual coping strategies, experiences with professional services were generally perceived as beneficial on both, an individual therapy and a group therapy level. Some disappointment was expressed regarding a missing concentration on the trauma itself. Moreover, it was stressed that a close attachment with the therapist can be overwhelming and may lead to treatment discontinuation. In terms of the critical considerations for effective therapy, participants suggested that therapists should listen as much as possible and aim to achieve a genuine understanding. The sessions should be regular, but with emergency contacts between sessions. Moreover, a focus on the traumatic experience was emphasized as an important therapy goal.

4.7.3 Meaning of the crime experience

Nearly all participants had a sense that life would never be the same again. Participants felt that they had lost their positive world views and that the future was no longer predictable. Also, they mourned missed opportunities. Furthermore, they reported reduced trust in other people, a loss of friendships, as well as a loss of dignity. At the same time, experiences of growth were acknowledged by nearly all participants, with a major emphasis on a better understanding of others, more insight into personal processes, and a greater participation in life. As mentioned above, the multidimensional concept of posttraumatic growth has been the subject of several studies, predicting improved relationships, new possibilities for one's life, a greater

appreciation for life, a greater sense for personal strength and spiritual development after trauma (Tedeschi & Calhoun, 2004). Some interesting findings have been revealed with regards to the relationship between growth and distress. Although, at a first glance, they appear to be located on opposite ends of a continuum, evidence rather promotes the idea of two separate, independent dimensions (Linley & Joseph, 2004). For example, sexual assault survivors have revealed negative changes in beliefs about the world, safety and the benevolence of others, while simultaneously highlighting a sense of increased personal strength (Frazier, Conlon, & Glaser, 2001). Accordingly, symptom severity and severity of exposure have been related to growth, rather than an alleviation of distress (Linley & Joseph, 2004; Morris, Shakespeare-Finch, Rieck, & Newbery, 2005). Thus, while overlapping with coping strategies, growth may represent a different construct with respective implications for therapy.

4.7.4 Motivation to take part in this research

An opportunity to share their experience appeared as a major incentive to take part in the interview. Even though at the time of the interview most participants were actively engaging in therapies, there was an indication that additional help was still welcome. Specific questions were directed towards issues such as sexual problems or medication intake. Moreover, there was some hope that this research could influence policies and legal proceedings. Participants seemed generally satisfied with the questions. Several people stressed their appreciation of a detailed enquiry of their emotions. Two participants, however, felt that the interview should have addressed their crime experience in more detail, rather than solely focussing on consequences of the crime.

4.8 Implications of findings for psychological treatment

Taking into account the enormous burden of traumatic memories, the results suggest that a treatment of VOC should focus on posttraumatic stress symptoms with a concomitant processing of traumatic memories. Notwithstanding this, there are other factors which may impede focussing on posttraumatic stress: A high incidence of additional stressors and previous trauma experiences became apparent in the study, exacerbating symptoms and encumbering recovery. Accordingly, a thorough

assessment of individual circumstances appears paramount. Furthermore, a reduction of current non-traumatic stressors may need to be given priority before the crime experience can be targeted. The study also showed that people's level of functioning can vary considerably which may require flexibility in terms of the strategies applied, but also with respect to scheduling sessions.

Moreover, the findings show that VOC do possess a reasonable range of coping strategies which can be utilized in therapy. Nonetheless, some strategies (e.g. dissociation of the experience, avoidance, idealization) may be less beneficial and require a replacement by more adaptive means. However, it needs to be determined carefully when people can let go of these strategies, as they may indeed promote stability at this stage. The study also indicated some intricacies with respect to client-therapist interactions. As a consequence, an establishment of a stable relationship seems essential, as VOC may display strong avoidance behaviours and difficulties with attachment.

Meanings of the trauma emerged as another critical factor to allow for an integration of the crime experience. It became evident that meanings were not only shaped by previous beliefs, but also present individual circumstances, e.g. the impact of a homicide on family dynamics. The findings on personal developments as a result of the crime experience can be utilized as a further important resource. Tedeschi and Calhoun (2004) advise that the clinician should be attentive to the elements of posttraumatic growth, while at the same time acknowledging the suffering. They further emphasize the experiential quality of growth which requires a subtle facilitation of growth, rather than an intellectual discussion.

4.9 Limitations

The study had several limitations which will be outlined in the following sections. First, a great proportion of the themes was pre-determined and did in this way not allow for a more independent exploration of ideas. Nevertheless, the structured approach was also helpful to extract desired information, particularly given that many of the participants reported their experiences in a fairly unstructured way with a lot of attention to detail. This is illustrated by the following example:

(...)“It is not that I worry about this situation that XXX has put XXX in but XXX is worried sick about how is she going to save XXX and XXX keeps saying she has to get XXX out and I have to keep telling her that she can’t because there is only certain legal avenues and we have them all going. But she is terrified that XXX will hurt her sister because XXX hurt her. (19)

Moreover, it appeared that the participants of the present study were functioning on a comparatively high level which may be the result of selection bias. For example, no evidence was collected on current financial strain. Furthermore, participants did not suffer from any major physical conditions, and most participants were able to build and maintain social relationships. On a clinical level, none of the participants demonstrated current self harm - or risk behaviours. Five participants suffered from severe PTSD and six from moderate PTSD, while the remaining four participants displayed PTSD in partial remission. In addition, a moderate level of depression was indicated by a mean BDI score of 26.64 (11.96). Another important observation is that all participants in this study were, at least to some degree, able to engage in regular treatment which may not be representative for a victims of crime population.

A further disadvantage of the study may have been that the Framework approach does not allow for a coherent case history which may facilitate an understanding of interactions and individual circumstances. On the other hand, the Framework analysis can contribute to a more general explanatory account and protect participants’ confidentiality. Some readers may disagree with the comparatively high number of quotations used in the description of the results. This approach was intended to illustrate the commonalities of the experiences, while at the same time alluding to the richness of the constructs.

Finally, the reliability and credibility of the outcomes may be compromised by a missing fidelity check or re-analysis by an independent researcher, due to limited time and financial resources. Also, some non-verbal information may have been lost to the outsourcing of the transcription process.

Description of a Combined CBT/Hypnotherapy Treatment for Victims of Crime

This chapter describes the CBT/Hypnotherapy treatment program used in Study III. It will familiarize the reader with hypnosis interventions in the treatment of traumatic stress, as well as with the broader framework of hypnotherapy.

Throughout the whole chapter, a greater attention is given to hypnotherapy. This decision is based on the fact that, at present, there is only limited scientific acknowledgement of hypnotherapeutic interventions in chronic trauma, and there are few systematic descriptions of conducted hypnotherapy treatments. CBT approaches, on the other hand, have been elaborated in many detailed treatment manuals.

To provide a rationale for the treatment components used in Study III, a brief presentation of commonly applied cognitive-behavioural trauma treatment elements will be provided. This is followed by an elaboration on general principles of contemporary hypnotherapy and its distinct contributions to the treatment of traumatized individuals. The goals of the conducted intervention will then be outlined for both treatment groups, followed by a comprehensive explanation of the combined CBT/Hypnotherapy program.

The chapter concludes with an illustration of the complementarity of cognitive-behavioural and hypnotherapy components.

5.1 CBT treatment components

As outlined in the Literature Review, cognitive behavioural interventions for PTSD have yielded the most consistent results in relation to treatment efficacy (Australian Centre for Posttraumatic Mental Health, 2007; Foa, Keane & Friedman, 2000; Foa & Rothbaum, 1998).

The next section illustrates the specific relevance of single CBT treatment components for the treatment of posttraumatic illness by outlining the underlying mechanisms for change. It should be noted that the chapter does not aim at a detailed explanation of general CBT principles, as it is assumed that the reader is well acquainted with this approach. The treatment components described are psychoeducation, exposure techniques, anxiety management techniques, and cognitive restructuring techniques.

5.1.1 Psychoeducation

Psychoeducation fulfils a number of different purposes. (1) It involves information on the prevalence of the trauma, underlying theoretical aspects (e.g. conditioning theories), as well as common reactions to trauma (Harvey et al., 2003; Resick, 2001). (2) Psychoeducation aims at the establishment of an individual case conceptualization (Harvey et al., 2003). More precisely, it permits clients to interpret their individual responses to the trauma as being the result of individual life experiences and current life circumstances. (3) A rationale for the planned treatment program can be provided (Foa & Rothbaum, 1998; Harvey et al., 2003) along with an explanation of the single treatment components. (4) Psychoeducation also provides a commendable opportunity to validate previous and current coping efforts (Armstadter et al., 2007). (5) Psychoeducation also tries to accommodate the needs of specific trauma populations. For example, a more comprehensive psychoeducational component may be necessary in the treatment of victims of crime, as it requires addressing safety concerns, risk reduction strategies and interpersonal difficulties (Armstadter et al., 2007).

5.1.2 Exposure

As illustrated above, exposure components are considered to be the quintessential element in cognitive-behavioural and a whole range of other trauma treatments (Robertson et al., 2004). In trauma treatment, this typically involves overcoming the avoidance to internal and external triggers and sustained emotional processing of the traumatic memories in a safe environment (Solomon & Johnson, 2002).

As mentioned in the Literature Review, exposure techniques have originally been informed by conditioning theory, while there is now mounting support from later theoretical models. Without doubt, Foa et al.'s (1996, 1998) Emotional Processing Theory (EPT) has made a particularly strong contribution to the underpinning of exposure based practices. Nevertheless, the importance of the recovery and processing of traumatic memories has been highlighted by nearly every recent theory on trauma, with differing ideas about the process underlying memory impairment. As a consequence, the theories make different predictions on how changes in memory processing can be achieved (Brewin & Holmes, 2003).

With respect to underlying mechanisms, exposure is expected to work on different levels. Based on their EPT, Foa and Kozak (1986) suggest that a correction of the pathological elements of the fear structure is most critical to a successful PTSD treatment which necessitates both, an activation of the fear structure and the provision of new (corrective) information (Foa & Rothbaum, 1998).

Therapy related changes in the fear structure can be recognized by habituation processes and the concomitant reduction of fear, as well as changes in threat appraisals (Foa & Rothbaum, 1998). However, although habituation is acknowledged as an important mechanism in traumatic recovery (Harvey et al., 2003), there seem to be many additional processes that play a role.

Through habituation, the trauma victim learns that anxiety levels cannot increase indefinitely or persevere forever. At the same time, the negative reinforcement cycle is disrupted by no longer avoiding trauma related stimuli.

Moreover, other misassumptions can be corrected, e.g. by learning that one can be reminded of the trauma and yet be safe, that remembering the trauma is different from actually experiencing it, and that a confrontation with the symptoms is not equivalent to a loss of control (Foa & Jaycox, 1996). In addition, exposure facilitates the distinction of the traumatic event from other events. This means that the trauma is understood as a discrete, specific event that does not allow for general conclusions about the world and the self (Foa & Rothbaum, 1998; Harvey et al., 2003).

Another beneficial result of exposure is that a sense of mastery can be acquired. Thus, the deeply engrained perceptions of “failing” and “incompetence” can be replaced by experiences of “success” (Foa & Rothbaum, 1998).

A very important expectation regarding exposure is the construction of a verbal narrative that has been emphasized by many theorists (Brewin & Holmes, 2003; Ehlers et al., 2005; Foa & Rothbaum, 1998; Van der Hart et al., 2006). Accordingly, exposure is associated with a more organized memory record which can be easily integrated with existing schemes (Foa & Rothbaum, 1998). Similarly, Brewin et al. (1996) stressed the importance of transference of the emotion laden, timeless representations into verbally accessible memories with a temporal and spatial context by a “retrieval competition” (Brewin & Holmes, 2003).

While most of these processes have been highlighted in relation to imaginal exposure or a confrontation of traumatic memories, similar mechanisms apply to *in-vivo* exposure, though with different priorities. For example, rather than constructing a coherent verbal narrative, *in-vivo* exposure serves the correction of erroneous estimates of the likelihood of danger (Foa & Rothbaum, 1998).

Technically, exposure techniques vary on the exposure medium (e.g. imaginal exposure vs. *in-vivo* exposure), on the exposure length (prolonged vs. short exposure) and the arousal level during exposure (low vs. high) (Foa & Meadows, 1998). Earlier work has focused on systematic desensitization which involves a short imaginal exposure in a relaxed state (Wolpe, 1958), while prolonged imaginal exposure (PE) is currently the most frequently used approach, along with *in-vivo* exposure.

5.1.3 Cognitive restructuring (CR)

Cognitive restructuring is characterized by an identification, evaluation and alteration of dysfunctional beliefs about the trauma, the self, the world, the future and others (Ehlers & Clark, 2000; Harvey et al., 2003; Marks, Lovell, Noshirvani, Livanou, & Trasher, 1998). As mentioned previously, particularly information processing models of PTSD have emphasized the importance of corrective information incompatible with the pathological fear structures (Harvey et al., 2003).

In contrast to the abovementioned cognitive corrections as part of the exposure process, CR involves a conscious, formal effort to change dysfunctional beliefs, e.g. by the well known “Socratic method” which is used to debate irrational thoughts (Ellis, 1985) and Beck’s account of “Common Cognitive Errors” (Beck, Rush, Shaw, & Emery, 1979). Unhelpful thoughts have to be identified, challenged, distinguished from rational thoughts, and corrected. Foa and Rothbaum (1998) distinguish between “negative automatic thoughts”, signifying cognitions that accompany (often overwhelming) emotional responses and the more automatic “dysfunctional beliefs” which refer to general assumptions about the world, self and others (Foa & Rothbaum, 1998).

There is growing evidence relating to particular dysfunctional beliefs and the importance of appraisals in PTSD (Foa and Rothbaum, 1998; Ehlers & Clark, 2000), whereby assumptions before, during and after the trauma have to be taken into account. According to this view, ideas about one self, the safety of the world, evaluations of one’s reaction to the trauma, one’s perspective on PTSD symptoms, and the interpretation of others’ reactions seem of particular relevance.

Trauma treatments differ in their emphasis and implementation of cognitive techniques, whereas CR techniques are mostly used in conjunction with exposure and behavioural techniques (Foa et al., 2000). The previously mentioned study by Ehlers et al. (2005) provides an example of a cognitively oriented treatment with a major focus on the sense of serious, current threat in PTSD. The treatment is based on their Cognitive Model of trauma (Ehlers & Clark, 2000), and assumes that the extreme perception of threat reflects a disturbance in the autobiographic memory, a strong

associative memory, and strong perceptual priming. Accordingly, Ehlers et al.'s approach is directed towards a change in negative appraisals, correction of the autobiographical memory and a modification of behavioural and cognitive strategies. Cognitive interventions, however, are complemented by exposure practices to test dysfunctional thoughts and to endorse a distinction between the present and the past (Ehlers et al., 2005).

Another well validated treatment approach is the Cognitive Processing Therapy, originally introduced by Resick and Schnicke for victims of rape and other crimes (Resick & Schnicke, 1992; Resick, 2001; Resick et al., 2002). This approach is a combination of exposure and cognitive therapy. After an educational session, clients are asked to document what the event meant to them. Next, associations between the event, thoughts and feelings are explored. This is followed by an exploration of traumatic memories and related thoughts and feelings. The subsequent exposure practice is conducted in the form of a written account which is reread on a daily basis. After that, the cognitive challenging phase commences by using techniques such as the abovementioned Socratic method with a major focus on self blame, safety, trust, control, esteem and intimacy (Resick & Schnicke, 1992; Resick 2001).

5.1.4 Anxiety management

Anxiety management training aims at providing coping skills to reduce arousal – and anxiety levels as well as gaining a sense of mastery (Harvey et al., 2003). As with exposure techniques, there may be an indirect change of dysfunctional beliefs, e.g. about self capacities. At the same time, this increased sense of competence may encourage self-directed exposure (Foa & Rothbaum, 1998). Moreover, cues that trigger fear reactions can be identified (Resick, 2001).

Commonly used techniques are diaphragmatic breathing and progressive muscle relaxation or relaxing imagery (Amstadter et al., 2007; Resick, 2001). A more complex, but also popular approach is Stress Inoculation Training (SIT) which is a multi-component coping skills approach encompassing three different stages (Dobson, 2001). The idea is that, when people are inoculated, they can deal with a low dose of stress in a controlled manner which can then be expanded to more

difficult situations. The first stage of SIT focuses on education and the provision of a conceptual framework. This is followed by a rehearsal phase, involving behavioural and cognitive strategies. In the context of trauma, Resick (2001) points to the management of avoidance behaviours by a use of techniques such as CR, guided self dialogue and relaxation. The third phase involves an active use of problem solving skills and techniques such as covert modelling or role plays, hence an application of the learnt coping skills. Lastly, traumatized people learn to reinforce themselves for an employment of the skills (Meichenbaum, 1974; Meichenbaum, 1975; Resick, 2001).

In summary, CBT oriented approaches to trauma treatment encompass a variety of different treatment components. Moreover, these treatment components are implemented in various ways. The CBT condition in the present treatment program included all of the abovementioned components, with a major emphasis on an activation of resources, the processing of traumatic memories and an integration of the crime experience. A more detailed description of the techniques and the intended mechanisms will be presented below in Table 5.1.

5.2 Hypnosis

Similar to CBT interventions, there is no uniform approach to hypnotherapy in trauma treatment. In the Literature Review, early uses of hypnosis were elaborated in light of particular theoretical positions. The following section will focus on a contemporary understanding of hypnotherapy, comprising an outline of current conceptualizations of hypnosis in the context of trauma, followed by an explanation of general principles of modern hypnotherapy.

5.2.1 Contemporary conceptualizations of hypnosis in trauma treatment

Spiegel and Spiegel and their colleagues (Spiegel, 1992; Spiegel & Cardena, 1990; Spiegel et al., 1988) pointed to the remarkable resemblance between hypnotic phenomena and posttraumatic stress symptoms. In their view, hypnosis can be conceptualized as a controlled and structural dissociation which is of particular

interest with respect to the previously mentioned dissociation model of trauma. However, the hypnotic experience is not only defined by dissociation, but also by two closely related concepts: Absorption and Hypnotic Suggestibility.

(1) Absorption refers to a form of highly focused attention, directed towards a particular idea, memory or perception. This focused attention occurs at the expense of other experiences, thus leading to a decrease in peripheral awareness. According to Spiegel (1992), absorption is similar to reexperiencing symptoms in PTSD where memories are so vividly relived that they are not perceived as memories, but a real (re)-occurrence of the traumatic experience (Spiegel, 1992). This means that people feel as if they are drawn back into this situation and cannot orient themselves towards the past or the future.

(2) The concept of hypnotic suggestibility denotes an elevated responsiveness to social cues or suggestions which is concordant with an increased sensitivity to environmental cues in traumatized individuals (Spiegel & Cardena, 1990). However, an increased suggestibility is also closely related to absorption (and dissociation), as a person who focuses on a particular aspect of awareness is less willing to analyze instructions critically or to anticipate possible consequences. In Spiegel's (1992) view, this heightened suggestibility is analogous to increased startle responses or an enhanced sensitivity to stimuli in traumatized people. Empirical evidence for an increased hypnotic suggestibility in trauma survivors comes from research on Vietnam and Gulf War veterans, who displayed a higher degree of hypnotizability than other psychiatric patients and a non-clinical population (Frischholz, Lipman & Braun, 1992; Stutman & Bliss, 1985; Spiegel, Hunt & Dondershine, 1988).

(3) Dissociation has been defined as an alteration in normally integrative functions of memory, identity and consciousness (Cardeña & Spiegel, 1989). Spiegel (1989) emphasizes that, during a hypnotic state, dissociation is complementary to absorption, in that certain sensory impressions, motor activities and/or memories which would normally be part of one's conscious awareness may not be experienced consciously in a trance. Moreover, the concept of dissociation is inextricably linked with increased hypnotizability, as the latter comprises the essential capacity to

experience dissociation, while Spiegel (1992) conceptualized hypnotisability per se as a dissociative response.

As mentioned before, dissociative processes are frequently observed in trauma survivors (Cardeña, 1996; Dancu, Riggs, Hearst-Ikeda, Shoyer, & Foa, 1996; Hyer, Albrecht, Poudewyns, Woods, & Brandsma, 1993). Moreover, there is mounting evidence of a relationship between dissociative symptoms and early traumatization (Coe, Dalenberg, Aransky, & Reto, 1995; Liotti, 1993; Perry, Pollard, Blakely, Baker, & Vigilante, 1995; Mullen, Martin, Anderson, Romans, & Herbison, 1993; Nash, Hulse, Sexton, Harralson, & Lambert, 1993). Thus, if Spiegel's (1992) assumptions are valid, people who display strong dissociative symptoms such as amnesia, fugue, or dissociative identity disorder should also prove highly hypnotizable (Spiegel et al., 1988). Indeed, this positive association between dissociation and hypnotizability has been supported by a number of studies (Bryant et al., 2003).

While the similarity of dissociative phenomena in clinical hypnosis and pathological dissociation in trauma provides a very interesting perspective, Van der Hart, Nijenhuis and Steele (2005) caution against a confusion of pathological dissociation and normal alterations in consciousness such as absorption, daydreaming, and an altered sense of time which are commonly experienced trance phenomena. Thus, even though Spiegel and Spiegel's analogy deserves merit for providing a useful framework for a hypnotherapeutic approach to trauma, the actual underlying processes may be inherently different.

5.2.2 Clinical implications for hypnotherapeutic trauma treatment

In line with multiple other trauma therapy approaches, Spiegel & Spiegel (2004) see the major benefit of a hypnotherapeutic approach in the controlled access and processing of traumatic memories. While this goal is also followed in other approaches, it is important to realize that hypnotherapy can facilitate specific processes, not otherwise targeted in treatments such as CBT.

Hypnotizability

First, traumatized clients can utilize their abovementioned high hypnotizability to induce and control a hypnotic state (Spiegel, 1992). This is a promising prerequisite for successful treatment, supported by findings on positive correlations between hypnotic suggestibility and treatment outcomes (Cardeña, 2000; Krause, 2001).

Control

Trauma not only generates a sudden discontinuity in cognitive and emotional experiences, but also a perception of being made into an object, associated with a profound loss of control and an extreme sense of helplessness (Spiegel & Cardena, 1990; Spiegel & Spiegel (2004). In this context, the perceived loss of control over one's physical integrity and the concomitant sense of invulnerability appear critical for the development of dissociative processes (Spiegel, 1992). Hence, dissociation can be understood as a way to maintain mental control when facing a loss of physical control (Spiegel & Spiegel, 2004).

As indicated above, hypnosis can be used to regain a sense of control over processes that were previously perceived as uncontrollable. Therefore, various hypnotherapeutic processes can be used to re-establish control across different domains of functioning. For example, self hypnosis provides people with a sense of an overall mastery, as well as a sense of control over their physical functions (Revenstorf & Zeyer, 2000). Another important aspect is a sense of control over the traumatic memories, in that trauma survivors can learn that memories can be activated and turned off in a controlled manner. Furthermore, traumatized individuals can learn that accessing these memories is associated with the ability to reconsolidate themselves with a new perspective (Spiegel, 1989).

Accessing traumatic memories

Spiegel and Cardeña (1990) conceptualized hypnosis as a structured means to elicit dissociative phenomena. Accordingly, the concept of state dependent memory (Bower, 1981) serves as a useful model to explain the mechanism of how hypnosis can facilitate access to traumatic contents. Spiegel and Spiegel (2004) assume that, during trauma, a person finds him/herself in an altered state of mind (e.g. a dissociative state) which affects not only encoding, but also the storage of memories.

As a consequence, memory storage may happen in a more focused way, while the range of associations to context may be more restricted. At the same time, these associations are accompanied by a strong affective quality. Hence, the fundamental hypnotherapeutic principle is a facilitation of retrieval by an induction of a similar (dissociative) state. This enables a reversal of the dissociative fragmentation, processing and assimilation of the memories (Spiegel & Spiegel, 2004).

Cognitive restructuring/reframing of the experience

As discussed above, merely accessing and abreaction of traumatic memories is insufficient (Spiegel & Cardena, 1990) or even harmful (Van der Hart & Brown, 1992), making reframing of the traumatic experience an essential treatment component of treatment. The hypnotherapeutic restructuring and integration process is often referred to as grief work (Spiegel, 1981; Spiegel, 1992(...)) *in which old fantasies of invincibility and absolute control are mourned and replaced (...)* (Spiegel, 1989, p. 300). Moreover, integration requires balancing one's view on a particular aspect of the traumatic experience with information from outside the traumatic experience (Spiegel, 1992). Spiegel further accentuates the necessity to acknowledge, bear and put the painful experience into perspective to allow for a conscious processing of the traumatic memories (Semrad, 1972, cited in Spiegel, 1992).

5.2.3 General principles of hypnotherapy

Various hypnotherapeutic techniques can be applied to promote the abovementioned processes. However, it is essential to understand that hypnotherapy involves far more than a mere harnessing of hypnotic techniques.

To provide a better understanding of the conducted treatment, the following section will briefly outline the major characteristics of modern hypnotherapy which was very much shaped by the unorthodox approach of the psychiatrist Milton Erickson (1901-1980 in Rossi, 1980). For more detailed explanations on Ericksonian hypnotherapy the reader is encouraged to refer to (Erickson & Rossi, 1981; Lankton & Lankton, 1983).

Definition of hypnosis

While many authors have tried to explain what hypnosis is, it is not an easy phenomenon to describe, because it involves a non-verbal or even pre-verbal *experience*, rather than a concept that can be articulated in conscious terms. Spiegel and Spiegel (2004) characterized the hypnotic experience as (...) "*an ability to sustain a state of attentive, receptive, intense focal concentration with diminished peripheral awareness in response to a signal*" (Spiegel & Spiegel, 2004, p. 19). To be able to focus one's attention, it is necessary to eliminate distracting external influences, while a diffuse awareness requires the opposite, namely a reduction in focal attentiveness. Hence, at the core of a trance state lies the dialectic between focal and peripheral awareness. At the same time, every individual experiences many different levels of awareness across various situations (Spiegel & Spiegel, 2004). This means, alterations in awareness occur constantly in everyday life, e.g. in daydreams or during intense states of concentration. In contrast to these normally occurring states of increased focusing, clinical hypnosis utilizes these naturally occurring phenomena to achieve a particular therapeutic goal.

Hypnotherapy as a holistic approach to treatment

Contrary to a hypnotic or trance state, *hypnotherapy* goes beyond a state of altered awareness in that it represents a holistic, resource-oriented and problem focussed therapy approach, grounded in a humanistic tradition (MEG Tuebingen, 2002). Nevertheless, hypnotherapy also shares common elements with other schools such as a utilization of unconscious elements (psychodynamic approaches) and a focus on problem solving strategies (CBT) (Revenstorf, 2001a).

Central to a hypnotherapeutic approach is the assumption that every individual develops his own meaningful model of reality. As a consequence, an important purpose of therapy is to validate and at the same time utilize this reality along with all existing conscious and unconscious coping efforts or resources. Another important assumption is that every person possesses the skills to engage in hypnotherapy, whereby the therapist's role is to facilitate this process. Furthermore, Erickson's approach is known for its use of "indirect" techniques with the purpose to bypass clients' conscious efforts to follow suggestions (Revenstorf, 2001a). One example for

this indirect approach is the random formulation of actually central contents which is thought to reduce the tendency to engage in logical problem solutions.

The utilization of “resistance” is another characteristic of Ericksonian Hypnotherapy, meaning that the whole range of individual skills and resources, but also resistance patterns should be embraced and incorporated in the therapeutic process. A closely related concept is “pacing” which includes mirroring clients’ verbal and non-verbal behaviours to achieve a common pace or “rhythm” between therapist and client. Critical to this process is a thorough analysis of the therapeutic relationship and transference processes by taking into account non-verbal behaviours and communication styles (Revenstorf, 2001b). This can include an observation of preferred sensory systems, one’s emotional expression and the body posture. In addition, the type of attention (e.g. diffuse or focused), formal thinking patterns (linear or associative) and the desire to take control can be gauged. Once this common rhythm is established, the therapist can assume a more leading role by a careful implementation of changes. Importantly, changes can be initiated on an interactional level by utilization of the abovementioned transference processes, as well as on other levels, e.g. by a search for alternative solutions to a problem (Revenstorf, 2001b).

Another way of encouraging more creative (and less rational) problem solutions is the use of “symbolic techniques” or a symbolic representation of symptoms. For example, various parts of the self such as the adult ego, child ego, future ego etc. can be invited to an imaginary “family conference”, in this way promoting an internal dialogue. Lankton and Lankton (2001) refer to this technique as a dissociative-associative method: Particular aspects of an experience are dissociated to then allow for an association or re-integration of affective, cognitive or perceptual resources. Another frequently used symbolic method are rituals. According to Schales (2001), a major gain of rituals is that they can tolerate contradictions or ambivalent contents which would be unacceptable on a rational level. This phenomenon is often referred to as *trance logic* (Orne, 1959), constituting a useful tool to resolve ambivalence and, on a more philosophical note, assists in coming to terms with the existential paradox of human life and suffering (Schales, 2001). Moreover, Reddeman (2004) refers to rituals as imaginations which have been translated into actions, e.g. by writing letters to a deceased person or by burying a symbol.

Aiike symbols, therapeutic narratives and metaphors are frequently used in hypnotherapy. Similar to symbolization and ritualization, metaphors are thought to promote thinking processes on a primary processing level which allows for blurred boundaries and knowledge transfer across different contexts, along with less linear solutions and greater potential of cognitive processing capacities (Revenstorf, Freund, & Trenkle, 2001). Moreover, acceptance is increased by an indirect description of an experience without actually referring to it, well illustrated by Weitzenhoffer (1989): *(...) the most common definition of a metaphor is that it is an "as if" statement* (1989, p.345). With respect to information processing, Revenstorf (2001a) assumes that metaphors encourage a translation of verbal into non-verbal representations, in this manner activating not only semantic, but also episodic and procedural memory processing. Interestingly, the previously introduced information processing models on PTSD have highlighted the significance of the opposite process, e.g. making situationally accessible memories (SAM) available to the verbal memory system (VAM) (Brewin et al., 1996). However, it is conceivable that hypnotherapy facilitates a transfer into both directions which would further strengthen its applicability in trauma therapy.

5.3 Description of the treatment program

To examine the additive benefits of hypnotherapy, a combined CBT/Hypnotherapy treatment was designed by the principal investigator of this project. The combined treatment condition was compared to a CBT treatment only. Importantly, both treatment conditions followed the same treatment goals within a standardized treatment format of nine weekly treatment sessions of 90 minutes duration.

In line with previous approaches to trauma treatment, the present treatment program consisted of a phase-oriented treatment with a stabilization, memory processing and integration phase. The interviews in Study II revealed that intrusive recollections and concomitant aversive emotional states were perceived as the most distressing consequence of the crime, while participants felt that they did not have adequate coping strategies to deal with these memories. Hence, the major focus of the

treatment was a reduction of posttraumatic stress symptoms, reflected in an improved management of trauma related emotions, an increase in adaptive strategies and an ability to integrate the experience.

5.3.1 Pursued treatment goals in the three phases of treatment

1) Preparation and stabilization phase (session 1-4):

- Establishment of rapport
- Provision of information on the course of the treatment program
- Provision of a rationale for the treatment program (CBT and CBT/Hypnotherapy, respectively)
- Psychoeducation on common reactions after criminal victimization and an establishment of an individual case conceptualization
- Gathering of detailed information on the individual problems and circumstances of the client, as well as previous trauma
- Activation of resources to manage anxiety and increase clients' sense of safety
- Raising awareness of maladaptive strategies and fostering beneficial strategies
- Provision of a rationale and psychoeducation on the single treatment components (exposure therapy; hypnosis (CBT/Hypnotherapy group); cognitive restructuring (CBT group))
- Establishment of an exposure hierarchy and definition of exposure goals for in-vivo and imaginal (hypnotherapeutic) trauma exposure

2) Processing of traumatic memories (session 4-8)

- Control over traumatic memories
- Observation and management of anxiety
- Conduction of in-vivo and imaginal (hypnotherapeutic) exposure
- Rehearsal of exposure experiences and (re)-definition of exposure goals

3) Integration phase (major emphasis in sessions 4-9)

- Exploration of individual meanings of the crime experiences
- Grief work/addressing perceived losses

- Cognitive restructuring/reframing of the experience(s)
- Rehearsal of skills
- Relapse prevention/establishment of future goals

Although presented in a chronological order, it is important to note that the different phases comprised a recurring, rather than a linear process. While processing of traumatic memories can only take place after an establishment of a stable rapport and a conveyance of essential risk – and emotional management strategies, other goals such as the rehearsal of treatment rationales and skills took place throughout the course of the treatment. Similarly, the integration process reflected an ongoing process of evaluating and re-evaluating current views, as well as the integration of new perspectives. Table 5.1 compares the contents of the CBT and the combined CBT/Hypnotherapy group for each treatment session.

Table 5.1
Comparison of the treatment techniques in the CBT and CBT/Hypnotherapy group

	CBT group	CBT/Hypnotherapy group
Session		
1	Explanation of treatment rationale Assessment interview Breathing technique	Explanation of treatment rationale Assessment interview Self hypnosis technique: “Sensory systems and safe place”
2	Psychoeducation Explanation of SUDS scale Exploration of resources	Psychoeducation Explanation of SUDS scale Self hypnosis technique: “Observer/Inner Helper”
3	Explanation of Exposure concept Exposure hierarchy Planning of in-vivo exposure	Explanation of Exposure concept Exposure hierarchy Self hypnosis technique: “Distancing” Planning and imaginary preparation of in-vivo exposure
4	Explanation of cognitive restructuring technique Cognitive restructuring practice Preparation of imaginal exposure	Self hypnosis technique: “Inner conference” Preparation of hypnotherapeutic trauma confrontation
5	Imaginal exposure Cognitive Restructuring	Screen technique Self hypnosis technique: “Self Nurturing”
6	Imaginal exposure Cognitive Restructuring	Screen technique Self hypnosis technique: “Empathy Practice”
7	Imaginal exposure Cognitive Restructuring	Screen technique Split screen technique Self hypnosis technique: “Meeting with Inner Child” (Age regression)
8	Imaginal exposure Cognitive Restructuring	Split screen technique Self hypnosis technique: “Book of life”
9	Time line Relapse prevention worksheet Evaluation of therapy Outlook	Hypnotherapeutic age regression/progression Evaluation of therapy Outlook Metaphor: “The days that shouldn’t be”

5.3.2 Treatment contents of the combined CBT/Hypnotherapy program

As illustrated in the Literature Review, one major limitation of treatment studies is a missing comprehensive description of the treatment contents. This means it is often not clear what has actually been done and how the various treatment components were implemented. In the context of the current project, this is considered as a particularly important issue, as there is a lack of systematic investigations on Hypnotherapy treatments in survivors of chronic trauma. In addition, there is little empirical evidence on combined approaches and treatments targeted towards VOC. As a consequence, it was attempted to describe the conducted CBT/Hypnotherapy treatment in more detail.

The CBT treatment condition follows closely Foa's and Rothbaum's treatment of rape survivors and will therefore not be detailed here (Foa & Rothbaum: *Treating the trauma of rape*, 1998). Furthermore, it is assumed that the reader is well acquainted with general principles of cognitive-behavioural interventions. Hence, the focus lies on the description and utilization of hypnotherapeutic techniques.

Prior to a description of the treatment contents, a short comment should be made with respect to the relationship between psychological interventions and assessment. Without doubt, psychological assessment is closely related, and sometimes entwined, with interventions or, in other words – the assessment process may already initiate change and thus constitute a part of the intervention. On the other hand, assessment is influenced by the perception and evaluation of the therapeutic process. Thus, in clinical practice, assessment and diagnostics reflect a mutual, ongoing process of an accumulation of knowledge, in this way leading to a more and more complete picture and a deeper understanding. Conversely, independency and objectivity of assessment have been emphasized as major requirements of clinical research (Foa & Meadows, 1997; CONSORT statement, 2001). Hence, while the mutual influence of assessment and intervention are acknowledged, the assessment process will be presented separately in the chapter on the evaluation of the treatment program (Chapter VI).

I. Preparation and stabilization phase

Session 1:

- ❖ Provision of treatment rationale
- ❖ Overview of treatment program
- ❖ Clarification of expectations towards hypnosis
- ❖ Informative interview
- ❖ Self hypnosis technique: Exploration of sensory systems, “safe place”

The major goals of the first treatment session were the provision of a treatment rationale, an overview of the treatment components and the course of the treatment, and the gathering of information on participant and crime characteristics. Lastly, the session aimed at an initiation of a first reassuring experience of hypnotherapy.

The session started with an introduction of the therapist and her rationale for the conduction of this particular treatment program. Next, the general structure of the treatment sessions was explained, followed by an outline of the treatment goals. To foster a cooperation with other treating mental health professionals, participants were asked for their consent to inform their GP upon the commencement of the treatment program. As a safety measure, they were required to sign a treatment contract stating that they would seek help if they felt at risk between treatment sessions. For this purpose, they were provided with contact details of appropriate mental health emergency services.

a) Rationale for the treatment program, treatment goals and treatment components

The principles of a trauma related cognitive behavioural treatment were explained by an elaboration of the behavioural aspects (e.g. avoidance behaviours, insomnia, irritability) and cognitive components (shattered beliefs as a consequence of the crime).

Next, the therapist explored whether participants had any previous experiences with hypnosis or meditative techniques. In this way, an emphasis was placed on their

understanding and expectations of hypnotherapy. The concept of a trance was explained by referring to spontaneously occurring changes in awareness such as daydreams and states of intense concentration. Further, it was explained how these skills could be used in the context of trauma by illustrating the resemblance between a hypnotic and a traumatic state. It was also considered important to explain that hypnotherapy aims at a controlled experience of these phenomena, while posttraumatic stress symptoms are usually perceived as uncontrollable. In this context, it was stressed that every hypnosis is a self hypnosis, so as to emphasize that the experience is fully determined by people themselves rather than being solely imposed by the therapist.

As many misconceptions circulate around the concept of hypnosis, it was considered important to address the most common erroneous assumptions (Spiegel & Spiegel, 2004; Trenkle, 1998; Revenstorf & Zeyer, 2000) which are listed below.

- (1) Hypnosis is often compared to a state of sleep or a sleep-like phenomenon. Thus, many people expect that they may not remember anything once they have woken up. Associated with this belief is a fear of not “waking up” or an inability to re-orient oneself.
- (2) On the other hand, some people believe they must experience a state of amnesia for the hypnosis to be successful.
- (3) Another feared misconception is that hypnosis can be projected onto clients against their will, thus associated with an anticipated loss of control which is particularly difficult for traumatized people.
- (4) Other problematic ideas refer to the retrieval of “forgotten memories”. Many people believe that hypnosis can help to retrieve “all” their memories, while the assumption that the retrieved memories reflect the truth is even more intricate.

- (5) Other ideas are that only weak or sick people (or women!) could “be hypnotized” or that hypnosis could be misused and result in psychotic reactions.
- (6) Lastly, there is sometimes an expectation that the hypnotherapist must have special attributes such as a particularly deep voice or special charisma.

Evidently, a thorough explanation and “de-mystification” of the concept of hypnosis is essential. After a careful provision of information, participants received an information sheet on common “myths about hypnosis”.

b) Assessment interview

A semi-structured interview was conducted by the therapist (and researcher), adapted from Foa and Rothbaum’s (1998) “Assault Information and History Interview” (Appendix N, p. 450). The questions focused on clients’ current life circumstances, followed by a brief account of the crime situation. It was considered important to not overwhelm clients with too many detailed questions about the crime and to provide them with an opportunity to ventilate their experiences. Crime related life changes were assessed as well along with current legal processes. Lastly, the current risk of self harm and potential harm against others was assessed, as well as other current and past mental and physical health conditions.

c) Self hypnosis: Sensory systems/safe place

The session concluded with a first experience of a self hypnosis, aimed at an exploration of preferred sensory systems and the establishment of a “Safe Place”.

Procedure

Following an approach by Bernhard Trenkle (October 1999, personal communication), the clients were encouraged to repeatedly focus on their visual, auditory, olfactory and kinesthetic sensory systems. Bearing in mind that this was participants’ first experience with hypnosis, this was done in a very systematic way, whereby people firstly described four different objects which they could see, then four different sources of noise, four different qualities of taste etc. After that, the procedure

was repeated by describing three different observed sensory qualities (...), until they had reached a calm state of focused attention.

In a next step, participants were encouraged to visualize a safe place. This can be a challenging task for people whose sense of safety has been compromised for a long time. Thus, sufficient time needed to be allowed to find an appropriate image. Once this task was accomplished, clients were asked to indicate a successful exploration of a safe place by ideomotor signalling¹ and were then suggested to explore the “safe place” with all their senses. After an imaginary anchoring² of the safe place, the people were asked to reorient themselves towards the outside world. Subsequently, their first impressions of the hypnotic experience were discussed.

Comment:

The conducted trance was supposed to take effect on several levels. One goal was to achieve a state of physical relaxation which is an important element of hypnotherapy. On a physical level, a calm, relaxed state is accompanied by a change into another modus of autonomic functioning, called “tropotrophe Reaktion”, which is characterized by a decreased heart rate and blood pressure, a lower muscle tone, a reduced frequency of breath and an increased immune activation (Bongartz, 1993; Heimann, 1952; Revenstorff, 2001a). With respect to trauma therapy, this is important as memories are not only associated with anxiety and pain, but also a state of comfort and relaxation (Spiegel & Spiegel, 1990). At the same time, a sense of control over physical reactions is experienced which is a critical resource in the traumatic memory processing stage, but also when it comes to spontaneous reoccurrences of traumatic memories and/or dissociative states (Groenendijk & Van der Hart, 2001). An establishment of a “safe place” adds to this process by providing an opportunity to take a break and recover, and to strengthen the part of the personality that remains in charge, is competent and trustworthy (Kluft, 1990). Finally, a concentration on the various sensory systems helps to evoke a more vivid imagination. In this way, people gain an idea of which sensory systems are most related to their memories.

¹ Ideomotor signalling: frequently used psychological phenomenon wherein a person makes motions unconsciously, thus acting reflexively to ideas without consciously deciding to take action (adapted from Wikipedia, 2008)

² Anchoring: used for an identificatio of verbal and non-verbal memories which elicit experiential responses (adapted from Valente, 2004)

Session 2:

- ❖ Psychoeducation on common reactions to victimization
- ❖ Subjective Units of Distress scale
- ❖ Hypnotherapeutic activation of resources

The second treatment session involved psychoeducation relating to common reactions to victimization and the establishment of an individual case conceptualization. In addition, the SUDS (Subjective Units of Distress) scale was introduced as a self monitoring instrument gauging the perceived level of distress across different situations. Furthermore, a hypnotic trance was conducted to promote the generation of an internal distance to emotionally demanding situations as well as an activation of existing resources.

a) Psychoeducation

First, participants were asked to indicate which symptoms they currently experienced and how much they felt restricted by these reactions. Based on these accounts, common reactions to victimization were explained. An important goal was to validate clients' present coping strategies by conveying that their reactions were reasonable and meaningful in light of their difficult circumstances. A big part of the psychoeducational components was adapted from Foa & Rothbaum's treatment manual (1998).

Fear and anxiety were emphasized as primary reactions to victimization, It was shown how fears are triggered by various situations including those which may not be directly attributable to the traumatic experience. In addition, the relationship between fear and traumatic memories was illustrated. In this way, differences between memories, nightmares and flashbacks were described along with the unique nature of traumatic memories, e.g. that memories may be very fragmented or missing or that they may not be perceived as a coherent story. Previous efforts to cope with these memories were acknowledged, while a conducted behavioural experiment served as an illustration of how much effort is needed to control these memories.

Another part of the psychoeducational component focused on hyperarousal symptoms. Survival mechanisms were explained in terms of the fight/flight and freeze response, so that participants were able to understand their own reactions as ongoing efforts to survive a life threatening situation. In this context, somatic and neurobiological reactions to stress were outlined and linked with psychological reactions such as increased irritability.

Avoidance mechanisms were acknowledged as a rational and normal response to threatening situations, but shows to be not optimal or adaptive. A first indication of participants' degree of avoidance was obtained by exploring situations that they try to escape. Moreover, various mechanisms of avoidance and protection were elaborated such as an active escape from a situation, numbing and detachment processes, or difficulties with social interactions.

Psychoeducation also included a recognition of other aversive emotional reactions such as depression, grief, anger, feelings of guilt, self blame and a lack of self-esteem. A first indication of the association between these emotions and individual thinking patterns was provided, as well as how these thinking patterns may have been affected by the experienced trauma.

b) Subjective Unit of Distress Scale

The SUDS scale was introduced as a measure and monitoring instrument for participants' perceived level of distress (Creamer, Forbes, Phelps, & Humphreys, 2004; Foa & Rothbaum, 1998). Moreover, it was explained that the scale constituted an important means of communication between the therapist and the participant with a particular relevance for the planned exposure practices. A special emphasis was placed on a precise monitoring of body reactions, thought processes, feelings and actions. Also, participants were encouraged to compare their reactions to situations that are not perceived as stressful.

c) Hypnotic trance: Observer technique and Activation of Inner Helper

In contrast to a cognitive exploration of resources in the CBT group, an imaginative activation of resources was pursued in the CBT/Hypnosis group. The

techniques used are adapted from Louise Reddemann's (2004) book "Imagination als heilsame Kraft" ("the healing power of imagination").

Procedure

The trance commenced with a thorough observation of single body reactions, whereby a major emphasis was placed on an observation and acceptance of the current state, rather than *change*. Suggestions were directed towards effortless, an acceptance of the present moment, and one's mental removal from daily struggles. Observing was portrayed as a useful means to create distance, while a sense of distance was also encouraged by certain body images, e.g. the distance that can be created between the shoulder blades, between the neck muscles etc. At the same time, physical connectedness was emphasized, thus allowing for an alogical (or trance-logical) coexistence between distance and connectedness. After considering body reactions, the suggestions were expanded to thoughts and emotions, thus conveying that even difficult thoughts (or memories) and associated painful feelings will pass, while at the same time observable from a distance.

Finally, the ability to observe was reinforced by an introduction of an inner witness. Next, an opportunity was given for an imaginary communication/ exchange of advice to encourage an inner search for resources, but also to give reassurance upon the existence of (unconscious) resources which are untouched by the traumatic experience.

Comment

The described practice can be understood as an example of the abovementioned dissociation-association technique (Lankton & Lankton, 2001), in that it initially involves dissociating certain parts from oneself to then reconnect with existing resources. In this way, the ability to observe and create distance can be promoted, while simultaneously fostering a sense of connectedness and a greater sense of control. Furthermore, this technique conveys that a person is not defined by his/her current body reactions, thoughts, or emotions, thus constituting a valuable means to reframe perceptions of incompetence as a result of overwhelming trauma symptoms.

Session 3

- ❖ Rationale for exposure
- ❖ Establishment of exposure hierarchy
- ❖ Imaginative preparation of in-vivo exposure
- ❖ Hypnotherapeutic resource activation

Session 3 focused on the conveyance of a rationale for exposure, an establishment of an individual exposure hierarchy, and an imaginative preparation of the first in-vivo exposure practice. Moreover, a trance supporting the setting of boundaries, self protection and the generation of a safe, inner space was conducted.

a) Rationale for exposure therapy

A major part of the session was devoted to a comprehensive explanation of exposure therapy principles. This included a validation of avoidance behaviours, as well as any efforts made to cope with the trauma related emotions. Accordingly, avoidance behaviours were accredited as a normal response to dangerous situations, whereas an over-estimation of danger was acknowledged as a logical response to such a harmful experience. Then, the emphasis was shifted towards restrictions and missed opportunities to prove one's fears wrong. Also, a reference was made to clients' tendencies to expose themselves to overwhelming situations which necessarily results in „failure“, meaning they have to leave the situation and cannot achieve their goals. A metaphor of an undigested meal was introduced to symbolize that the intrusive recollections of the trauma have not yet been adequately digested. However, to be able to digest this experience, the traumatic material needs to be processed in small, acceptable portions (Foa & Rothbaum, 1998).

In the next step, the principles of a gradual and repeated exposure practice were highlighted. A more realistic understanding of anxiety was encouraged by emphasizing that anxiety levels cannot continue to increase indefinitely nor stay at a maximum level for an extended period of time. Habituation was explained, along with information on common erroneous beliefs about the nature and uncontrollability of trauma related anxiety.

b) Development of an individual in-vivo exposure hierarchy

Participants were asked to rank their anxiety provoking situations on an exposure hierarchy which was facilitated by the preceding observation of SUDS levels. If the person had experienced several crimes, the same principle was applied to anxiety provoking memories.

The next step involved an exploration of situations to which participants wanted to expose themselves. In this context, it was considered critical that a conscious decision was made on an appropriate, practicable exposure goal. As most of the participants had extensively engaged in avoidance behaviours, it was assumed that they might have found it difficult to identify avoidance behaviours and to determine exposure goals. Thus, it was not always possible to prepare *in-vivo* exposure practices in the third session, and to encourage participants to reflect on their exposure goals at home.

c) Imaginative preparation of *in-vivo* exposure

In contrast to the CBT only group, an imaginative preparation of the planned *in-vivo* exposure practice was conducted in the combined CBT/Hypnotherapy group.

This technique was thought to serve the following purposes:

- (1) It provided an imaginative preparation of the planned experience similar to techniques used to enhance athletic and academic performances. In this process, it is crucial to visualize the different aspects of the challenging situation on a cognitive, affective and behavioural level. For example, visualization of motor tasks such as walking to a particular location feels like an actual physical experience and, in this way, improves neuromuscular coordination, and therefore becomes an important physical resource (Henschen, 1990).
- (2) To increase a sense of control over the experience by approaching exposure in a calm, relaxed and safe environment.

- (3) A translation of these visualizations into practice by an employment of posthypnotic suggestions³, thus allowing for a desensitization of fear related to *in-vivo* exposure (Haberman, 1990).

To support the idea of an increased performance by an imaginary preparation, the induction of the trance was preceded by a behavioural experiment. As part of this, people were asked to stretch out an arm to the left until they felt that they had reached their limits. After that, they were encouraged to repeatedly imagine this movement several times in detail, e.g. which muscles would be activated and how much energy would be required. They were then asked to stretch out an arm again and to pay attention to the improved degree of movement.

Before the imaginative preparation of the *in-vivo* exposure, the participants were asked to provide some information about the anticipated situation, e.g. about start – and endpoints, the location, the anticipated time frame, and expected major difficulties.

Next, a trance was induced by a concentration on breath and body reactions. Once a relaxed state was achieved, people were encouraged to visualize the starting point of the feared situation and to pay attention to their feelings, thoughts, and body reactions. Careful attention was paid to people's perceived anxiety level to ensure that the experience was not too overwhelming (SUDS levels no higher than 70). If the anxiety levels rose further, people were asked to refocus on their body and were provided with calming suggestions. Once clients felt prepared to visualize the situation, they were encouraged to proceed through the visualized situation while constantly communicating their experiences to the therapist. Once the imaginal exposure was completed, people were again encouraged to reorient themselves to their body reactions. Suggestions were given to people to reward themselves for having achieved their desired goal.

After the imaginative preparation of the *in-vivo* exposure, time was allowed to discuss the impressions along with potential difficulties or hindering factors. This was

³ Posthypnotic suggestions: suggestions given under hypnosis, expected to be acted upon in a full waking state (adapted from Barrie, 2008)

followed by a clarification of the planned in-vivo exposure which was to be conducted between sessions.

d) Hypnotic trance: “Treasure box in ship”

The session concluded with the induction of a trance designed to activate resources. As part of this experience, participants were motivated to explore their inner spaces and to examine their needs at this point in time. The contents of the trance were partly adopted from a seminar on “Sexual exploitation of children and adolescents” by Susy Signer-Fischer (Rottweil, 2000).

Procedure

The trance was induced by a breathing technique (Bresler, 1990). Once participants felt calm and relaxed, they were invited to “leave their body to itself in this relaxed and protected state of self-regulation” (i.e. to dissociate themselves from their body sensations) and to focus their attention on their safe place. This was followed by a suggestion to engage in a “daydream”, while comfortably staying at the safe place (double dissociation). An imaginative journey into the interior of an old ship was suggested. As part of this imagery, participants were asked to explore all the rooms to satisfy their curiosity, until they eventually encountering a room where they felt a desire to enter. It was then revealed that this room contained their personal treasure box which could be opened by a specific key held only by participants. The next process involved careful scrutiny of the objects in the treasure box and finally a decision regarding which objects should be taken out or left behind.

Comment

A major consideration in this trance was participants’ perceived sense of safety which led to the decision of a “double dissociation” (firstly focus on body reactions-then a safe place-then the ship), as there was some concern that an old ship could be too mysterious and thus create anxiety. On the other hand, it can be a useful metaphor to inspire a sense of curiosity which can be associated with liveliness, energy and a sense of a future, while simultaneously creating a connection with the past (old ship). The treasure box is a commonly used technique to promote setting of boundaries which can be challenging for victims of early and prolonged abuse. Furthermore, a sense of privacy is created that cannot be touched or violated (Signer-

Fischer, personal communication, 1999). The idea to leave objects behind at a safe place supports a sense of self preservation and pays respect to one's current energy levels which is particularly relevant in trauma therapy (Van der Hart, Nijenhuis, & Steele, 2006). However, instead of avoiding the objects (or themes), people can inspect them, remind and acquaint themselves to a certain, bearable degree and yet decide to not deal with these memories at this point in time.

Session 4

- ❖ Completion of exposure hierarchies
- ❖ Rationale for hypnotherapeutic processing of traumatic memories
- ❖ Hypnotherapeutic activation of resources

Session 4 involved the completion of the exposure hierarchies and the planning of exposure practices. In addition, the rationale for a hypnotherapeutic trauma confrontation was rehearsed and a thorough explanation of the procedure was provided to participants. The session concluded with a hypnotic trance that related to the different parts of the personality that can be activated as “helpers”.

A majority of session 4 was devoted to a clarification of exposure practices and, if already commenced, a rehearsal of participants' experiences with the commenced *in-vivo* practices. A particular emphasis was placed on safe exposure goals in order to create an understanding of the necessity to persevere until the anxiety level has decreased. Furthermore, a comprehensive monitoring of cognitions, emotions and body reactions before, after, and throughout the exposure process was promoted.

a) Imaginative preparation of in-vivo exposure

As in session 3, an imaginative preparation of the planned in-vivo exposure was conducted.

b) Preparation of Hypnotherapeutic Trauma Confrontation

The experiences with *in-vivo* exposure were utilized to illustrate how traumatic memories could be confronted. As with *in-vivo* exposure, it was considered important for people to commit themselves fully to their exposure goal and that the situation was defined in terms of a clear beginning and end.

Following this, the planned imaginative procedure (screen technique, explained below in session 5) was explained to the participants. In addition, the importance of self care was stressed, whereby participants were advised to use their newly discovered or re-discovered personal and social resources.

c) Hypnotic trance “Inner team”

The “Inner Team” technique is another means to activate personal resources and has been adapted from Luise Reddemann (2004).

Procedure

Participants were asked to imagine a conference room, whereby sufficient time was allowed to visualize this room in a way people felt comfortable with. Subsequently, different “egos” could be invited, e.g. a younger ego, a future ego, and the current self. The decision on which ego to invite was left to participants, as some parts may have been easier to activate than others. After this, participants were encouraged to use this team for a discussion of important questions, with every part communicating their opinion on the matter. The conference concluded once people felt that their needs were fulfilled.

Comment

This practice uses a dissociation of personality parts to make them available to parts which cannot activate these resources, e.g. the part that is fixated on the trauma. Moreover, consolation and reassurance are provided in that there are always helpful “advisers” or resources. Another advantage is the integration of different temporal perspectives which allows for an orientation towards the present moment, the future and a past before the trauma.

II Traumatic memory processing

Session 5

- ❖ Hypnotherapeutic processing of traumatic memories
- ❖ Hypnotherapeutic “nurturing technique”

Session 5 focused on the conduction of the first hypnotherapeutic confrontation of traumatic memories. Following that, a hypnotherapeutic “nurturing technique” was applied to foster self-care strategies.

a) Hypnotherapeutic trauma confrontation: Screen technique

The “screen technique” is a projective technique, involving a projection of images, thoughts and feelings to an imaginary screen (Spiegel & Spiegel, 1990; Spiegel & Spiegel, 2004; Revenstorf & Zeyer, 2000). In the present treatment session, it was employed to enable a first controlled confrontation of traumatic memories.

Procedure:

After a short rehearsal of the procedure, the participants were asked to focus their attention on current body reactions and their breath. To ensure they felt safe and protected, people were then instructed to visualize and experience their “safe place”. Subsequently, an image of a movie theatre was suggested. Sufficient time was allowed to find a suitable, comfortable movie theatre or to make use of other possibilities (e.g. a TV screen in one’s house or mirroring oneself on the smooth surface of a lake) in case people associated negative experiences with this setting. Once participants had found their right location, they were encouraged to familiarize themselves with the imaginary environment such as the rows of seats, projector room, and the screen. Subsequently, it was suggested to look for an appropriate seat with sufficient distance from the screen. If the seats in the movie theatre were found to be too close to the screen, people could also choose to stay in the projector room (double dissociation), whereby the glass wall between the projector room and the theatre represented an additional protective shield. Caution was taken that the participants did not choose a seat in the front rows or anywhere near the screen.

From the chosen perspective, participants were now encouraged to look at the white screen and to ensure that they had chosen their appropriate position. In the case of a double dissociation, people would now watch themselves sitting in the movie theatre from the projector room. If people were still apprehensive, additional helpers could be activated such as an image of themselves as a “super-person” (e.g. a reflection of oneself as a “mature” ego in a safe situation). The “super-person” could also be projected on the screen and serve as a resource besides the traumatic experience.

Only when people felt comfortable and safe in their selected position, was their attention directed towards the screen. Control options were rehearsed such as regulating the size, colours, resolution, volume, contrasts, and speed of the „movie“. Then, the trauma victims were asked to start the movie by setting the previously agreed initial scene which was usually the moment before the traumatic event occurred. Once people felt ready, they were suggested to start the movie, while creating as much distance as necessary. On the therapist side, it was absolutely critical to ensure and re-establish the hypnotic dissociation, as there was a strong tendency to be drawn into the movie. This involved a thorough monitoring of clients’ verbal and non-verbal reactions along with a frequent assessment of the perceived SUDS levels.

After the first round, the same procedure was conducted a second time. Before leaving the imaginary theatre, it was ensured that people left the experience in a relaxed state. They were asked to store their memories at their safe place, so that they could be reactivated when needed.

Following reorientation, the experience was carefully reviewed. Differences between this experience and spontaneous recollections of the trauma were elaborated with a special attention on the perceived control. In addition, thought, emotions and interfering factors were explored. Finally, plans for a conduction of a hypnotic exposure at home were agreed, while it was made sure that adequate self care strategies were in place.

Comment

According to Spiegel and Spiegel (2004), a major gain of this technique is that traumatized individuals can modify the images on the screen according to their needs, thus establishing themselves with a great sense of control. Another advantage is the use of the abovementioned “double dissociation” which can also be expanded to a “multiple dissociation” by implementing additional protective mechanisms. The screen technique is also useful for an activation of resources and to promote reframing processes which will be elaborated below (Session 7).

b) Hypnotic trance: “Nurturing technique”

A nurturing technique was introduced to familiarize clients with more self care strategies. This technique has been adapted from Luise Reddemann (2004) and Liz Lorenz-Wallacher (cited in Reddemann, 2004).

Procedure

To induce the trance, participants were asked to rest their eyes on a chosen spot in the room which results in a tiredness of the eyelids and a concentration on inner processes (Revenstorf & Zeyer, 2000)

The participants then received a suggestion of an untouched piece of land which they could create and shape according to their personal needs and preferences. Anything that felt disturbing or not needed anymore could be disposed of on an imaginary compost, where it was converted into fertile, rich soil. Moreover, the place could be utilized as an oasis or a safe place. In addition, imagined trees and plants served as a symbolic representation of self-nourishment, e.g. by absorbing water and sunlight through the roots and leaves.

Comment

Reddemann (2004) suggests that this practice is particularly useful for an orientation towards the future. However, it appears also helpful with respect to other needs such as grounding oneself, regaining control and shaping one’s own life. In addition, there is a notion of the possibility to transform unwanted experiences which is an interesting reference to posttraumatic growth.

III Integration

Session 6

- ❖ Hypnotherapeutic processing of traumatic memories
- ❖ Hypnotherapeutic integration practice

In Session 6, the major focus was on the hypnotherapeutic processing of traumatic memories. A hypnotic trance was included to encourage empathy for all different parts of the person which could be understood as integrating grief work.

a) Hypnotherapeutic trauma confrontation: Screen technique

The trance was commenced using an induction technique from Spiegel and Spiegel (2004) which aims at the creation of a physical sense of floating. Subsequently, participants were invited to seek their safe place, followed by a visualization of the movie theatre. Once more, a comfortable establishment of a safe place was given utmost care, and was tailored to the needs of clients. Depending on how participants experienced their previous trauma confrontations, this could mean setting up an additional super-person, an observer of the person who was observing the movie screen, and a use of all control and safety options delineated in session 5.

Once people felt safely established, they were encouraged to visualize the crime experience once again, starting from the same point as in the previous trauma confrontations. Mostly, participants were now able to approach the situation with less distance, e.g. to watch the experience from a place closer to the screen or to observe it in normal speed, with a tone, sharper contrasts or a bigger picture.

After the first round, the participant was asked to start the movie from the end and go all the way backwards to the very moment before the crime. This method is derived from Gisela Perren-Klingler's recommendations on hypnotherapeutic trauma work (2001) and appears to be particularly useful for flashbacks. The whole process was repeated five times.

After the trauma confrontation, the experience was discussed with the therapist with a special attention to “hot spots”, i.e. the most intense parts of the experience.

b) Hypnotic trance: “Empathy practice”

The “empathy practice” is adapted from L. Reddemann’s treatment of trauma survivors (2004).

Procedure

The trance starts with an imagination of light and warmth around the heart area which can then spread to all other areas of the body. In this warm and comfortable atmosphere, gradually other parts of the personality are invited which can then exchange this warmth and energy with parts that need special care and attention.

Comment

This practice aims at an integration of the different, and particularly less accepted parts of the personality. Furthermore, it provides the opportunity to give something back to neglected parts (Reddemann, 2001). With respect to trauma survivors, the technique appears useful, because they often display great difficulties in accepting their reactions to the trauma and trauma-related life changes.

Session 7

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| <ul style="list-style-type: none">❖ Hypnotherapeutic processing and reframing of traumatic memories❖ Hypnotherapeutic age regression❖ Hypnotherapeutic integration practice |
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As in the preceding sessions, session 7 also focused on the conduction of the hypnotherapeutic trauma confrontation. However, the approach was modified in that the “split screen technique” was used to facilitate reframing of the experience. Moreover, age regression was used as another means of trauma confrontation. The session was terminated with a hypnotic trance focusing on an integration of various emotional qualities.

a) Hypnotherapeutic trauma confrontation: “Split Screen technique”

Process

The screen technique was applied in the same way as described previously. However, this time the “split screen technique” (Groenendiik & Van der Hart, 2001; Perren-Klingler, 2001; Revenstorf & Zeyer, 2000; Spiegel & Spiegel, 2004) was introduced. This involved a projection of a positive image or resource on one side of the screen which co-existed with the trauma images, and this was similar to the previously introduced “super-person”.

Comments

The split screen technique can be used for various purposes. First, knowledge and resources from other experiences can be transferred into the trauma situation (Spiegel, 1992). From a hypnotherapeutic perspective, traumatized people find themselves in a “problem” - or “trauma trance”, meaning they are fixated on the traumatic situation in the past, while all their efforts are directed towards survival. As a consequence, it is nearly impossible to activate actually existing useful resources. Thus, the split screen can assist in making these resources conscious to people while in a controlled and focused (trance) state. Moreover, the split screen underlines that one’s life is defined by many different facets, meaning one is not defined by the traumatic experience (Spiegel, 1992).

Besides an activation of resources, another important purpose is to restructure the experience, e.g. to realize that everything possible has been done to protect oneself during the occurrence of the crime.

Lastly, the screen technique can assist in taking a rest from the traumatic experience without having to escape (Groenendijk & Van der Hart, 2001).

b) Hypnotic trance: “Meeting with inner child”

To provide participants with a greater variety of hypnotherapeutic strategies, a hypnotherapeutic age regression, called “meeting with the inner child” was conducted. The goal was to familiarize participants with this technique, rather than using it for the processing of their traumatic memories.

Procedure

The trance induction concentrated on an imaginary growing of body parts to endorse a sense of strength, power, healthiness, self-trust and a feeling of being grounded (Bongartz & Bongartz, 2000). This process required some time, as a perception of self-confidence and empowerment was considered essential to benefit from this practice. Once this perspective was fully incorporated, people were asked to explore a situation from the past by meeting their younger part of the self. Similar to the previously described work with symbolic parts, the now knowledgeable mature adult and the less experienced child were encouraged to fulfill their mutual needs. For example, the older person could provide protection to the younger ego which may have been missing in the person's real childhood.

Comment

Age regression can be used for many different goals, e.g. a confrontation of traumatic memories and dissociative symptoms, ego strengthening, to create a sense of mastery, or to target particular somatic problems. Spiegel and Spiegel (2004) mention that it is an especially helpful tool for an identification of the onset of problems. Moreover, it can be used for a symbolic fulfillment of neglected needs, thus allowing for a re-interpretation of the experience. Also, it makes people aware of the fact that the painful time has passed. This means that they are no longer helpless children, but powerful and skilled adults.

c) Hypnotic trance: "Integration of emotions"

Procedure

The session finished with a trance aimed at acknowledging the different trauma-related emotions. Although anxiety is the most frequently cited emotion in the context of trauma, there is often little notion of the associated grief and sadness. To support an integration of these feelings, participants were asked to imagine a house with various rooms which accommodate these different emotional qualities (Reddemann, 2004). Once an appropriate setting was established for each feeling, people were encouraged to approach the single rooms according to their individual needs and readiness to face these emotions.

Comment

The purpose of this practice was to give adverse feelings such as sadness and loss an adequate shape and space, rather than avoid them. This helped clients to experience a sense of control over these feelings and to expand their “emotional repertoire” by being able to recognize the value of various emotional qualities. A use of this technique was reinforced by the results of the first two studies which revealed that VOC were very familiar with overwhelming negative emotions, but lacked the ability to distinguish between various emotional states.

Session 8

- ❖ Hypnotherapeutic processing and reframing of traumatic memories
- ❖ Hypnotherapeutic age regression/progression - integration practice

Session 8 focused on a hypnotherapeutic trauma confrontation and a further integration of the traumatic experience by a reflection on past and future events.

a) Hypnotherapeutic trauma confrontation: Split screen technique

The Split screen technique was applied as described previously.

b) Hypnotic trance: ”Book of life”

This trance has been conceptualized as a hypnotherapeutic integration practice (Kaiser-Rekkas, 1998).

Procedure

After a trance induction, participants were guided to a safe place of their choice. In a next step, a discovery was suggested which was gradually uncovered as participants’ personal “book of life”. They were then invited to explore this book with an acknowledgment of all accompanying thoughts and feelings, such as nervous anticipation or curiosity. Furthermore, it was suggested that the pages would only gradually become more readable, to reveal more and more personal memories. At the same time, people could become aware of the fact that these experiences were part of

their past which allowed for a re-evaluation of these situations, whereas some chapters could be closed forever. While people were invited to browse through the book, they were slowly led towards a reflection on the future, as symbolized by the ability to write on the still empty pages of the book. However, it was left open what the future pages held by simultaneously giving reassurance that there is a future that they could influence.

Comment

This practice was chosen for several reasons. First, it stimulates an integration of the past, present, and future which appears challenging for VOC. Moreover, acceptance of the past is promoted by the notion that the pages have already been written and are thus unchangeable. Nevertheless, past experiences can be evaluated from a new perspective which allows for an integration of the events. Also, the trance advocates directing towards the future, in this way reassuring clients that there will be a future, although the direction may not yet be well defined. This seems useful as VOC often report a foreshortened sense of a future.

Session 9

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| <ul style="list-style-type: none">❖ Clarification of future directions❖ Hypnotherapeutic age regression/progression - Review of strategies❖ Evaluation of treatment program |
|---|

The ninth and last session involved a clarification of future directions and, if required, a discussion of referral options. To promote a better embedding into social support structures, participants were encouraged to invite their partners or a close relative/friend to the first half of the session. A conducted hypnotic trance involved an imagination of a timeline to facilitate a clearer definition of goals and to review helpful strategies. In addition, participants were asked to evaluate the treatment program and make suggestions for further improvements. The treatment concluded with an integrating narrative.

a) Hypnotic trance: Travelling along a timeline

Procedure

After the trance induction, participants were invited to embark on an imaginary journey along a road or a timeline, while picturing the rises, crests, dips, falls and deeper valleys along the way. They were then prompted to initially travel to a place where they felt strong and confident (or where they felt comparatively at ease). Participants were then suggested to embrace all the sensations of this experience including their appearance, body posture and upcoming emotions. Moreover, it was suggested that they reflect on their accomplishments at this time and their sense of safety and competence. A special emphasis was placed on strategies used in that situation which also included the help received from other people.

The same aspects were emphasized at other points on the time line with special attention paid to strategies used in critical life events and phases of crisis. As the crime was usually portrayed as a life changing event, it was important to focus on differences before and after the crime and which strategies have been used to survive. As part of the timeline, the newly gained strategies resulting from the treatment were reviewed with an elaboration of the most useful components. Lastly, some suggestions were directed towards future goals.

Comment

In the present treatment program, the imaginary timeline in the CBT/Hypnotherapy group contrasted the cognitively oriented relapse prevention techniques in the CBT group. Both interventions aimed at the same goals: The participants were motivated to reflect on useful strategies in the past, while also identifying less beneficial strategies along with situations or behaviours that constituted a risk. In addition, helpful strategies learnt during treatment could be rehearsed and included in the planning of future goals.

c) Hypnotic trance: Metaphor of "the days that should not be"

The treatment was completed by a metaphor from Luise Reddemann (2004), titled "The days that should not be". This metaphor tells the story of an old man who lived by himself and became embittered by his perception that he was not needed

anymore. However, with the passing of the years he lost his bitterness and followed a call to collect the “days that should not be” which represented all the misery in the world. Finally, he disposed of these days in his garden where they were covered by the soil and the snow. However, after a long time, something miraculously happened: The most beautiful flowers and trees started to grow. Once again, the old man followed a call to carry these seeds back into the world where people started to admire the beautiful plants and trees, wishing the days would never come to an end.

Comment

The metaphor uses the archetype of an old, wise man who knows about death and the passing of life, as well as human failure and suffering. However, as he is old and knowledgeable, he can also put these most feared events into perspective (Reddemann, 2001). This metaphor was chosen, as it validates the pain and the understandable wish for the crime event not to have happened. However, it also creates hope in that the experiences can be transformed into something meaningful that has a wider purpose, in this way facilitating posttraumatic growth.

In summary, the combined CBT/Hypnotherapy program aimed at a comprehensive utilization of processes that can be particularly well approached by hypnotherapy. Moreover, hypnotherapy stimulates a range of distinct mechanisms which would not be accessible otherwise.

One of the major contributions of hypnotherapy is its focus on *experience*, rather than a critical dispute of dysfunctional cognitions or maladaptive strategies. Importantly, “experience” implies an involvement in an event that affects a person on all levels of perception, meaning that, besides cognitive processes, the situation is experienced on a somatic level, in its different sensory qualities, and within a broad spectrum of emotions. This multi-layered use of information is particularly relevant with respect to accessing and integrating dissociated parts, as dissociation can take place on a psychological and somatic level (Nijenhuis, Van der Hart, Kruger, & Steele, 2004; Van der Hart et al., 2006).

Furthermore, a brief reference should be made with respect to the relationship between hypnotherapy and transference. Spiegel and Spiegel (2004) highlight an intensification of a person's sense of relatedness with the therapist in hypnotherapy due to processes such as a higher suggestibility. Previously it was mentioned that this process can be used for an implementation of change. Nonetheless, traumatic transference also constitutes a challenge in that trauma related feelings may be projected onto the therapist (Groenendijk & Van der Hart, 2001; Spiegel & Spiegel, 2004), e.g. in form of mistrust, dependency, a lack of boundaries, and unrealistic expectations towards the therapeutic relationship. Hereby, an addition of CBT techniques can be helpful in terms of their high predictability, clarity and emphasis on self mastery. To illustrate the commonalities and differences between CBT and Hypnotherapy, Revenstorf (1991) compared the two approaches in relation to their different means for a mobilization of change which has been summarized in Table 5.2.

Table 5.2
Comparison of CBT and Hypnotherapy mechanisms

	CBT	Hypnotherapy
Rapport	Understood as an essential motivational basis to an implementation of changes	Employs a broader understanding of rapport by an inclusion of individual styles of perception, value systems etc which should promote pacing
Characteristics of the therapeutic process	Common efforts to agree on goals, monitor progress etc.	Characterized by the utilization of resources, individual assumptions about the world and resistance patterns
Focus	Problem oriented	Problem oriented, but with a stronger emphasis on the personal history of clients and the creation of the problem
Imaginative techniques	Used to achieve defined goals such as imaginal exposure	Broader use of imaginations for integration, reframing, dissociation processes
Implementation of change	Education, practicing, modelling processes	Unconscious learning
Interpretation of restrictions	Aversive emotions are a result of particular dysfunctional cognitions	Limits/restrictions are result of unconscious schemes
Medium	Logical analysis	Trance logic
Means	Rational dispute; self instruction; inductive reasoning; rejecting of hypotheses; systematic cognitive restructuring	Metaphors Time progression Time regression Reframing Disruption of existing patterns

Adapted from Revenstorf, 1991, p. 252

In conclusion, the complementary effects of Hypnotherapy and CBT have been well illustrated by several authors (Kirsch et al., 1995; Revenstorf, 2001a; Schoenberger, 2000). The developed treatment program utilized this synergistic effect by a broad application of hypnotherapeutic principles which contrasts with other work where hypnotic techniques have been applied in a more limited manner (Bryant et al., 2005). Hence, a combination of CBT and Hypnotherapy provides a promising approach to enhancing the effectiveness of treatments.

Evaluation of the Effectiveness of a Combined CBT/Hypnotherapy Treatment of Complex Trauma: A Process – and Outcome Evaluation

This chapter provides a detailed description of a treatment evaluation in victims of crime suffering from complex trauma. The first part of the chapter examines the relevance of an application of a combined CBT/Hypnotherapy treatment for victims of crime. This is followed by a description of an outcome and process evaluation along with a summary of the research questions and hypotheses. A method section details participant and crime characteristics, the procedure undertaken and the administered psychological measures, followed by a presentation of the results of the quantitative analysis. The chapter will conclude with a discussion of the quantitative findings and an identification of further research needs.

6.1 Rationale for a combined CBT/Hypnotherapy treatment

6.1.1 Efficacy and limitations of CBT based treatment programs

As stated in the Literature Review (Chapter I), a considerable body of work has focused on the efficacy of cognitive-behavioural approaches in the treatment of PTSD (Foa, Keane & Friedman, 2000). Particularly during the last decade, these studies have been subjected to considerable methodological scrutiny with most authors attempting to comply with recommended standards. These include 1) Standardized and reliable PTSD self reports as well as independent observer rated measures; (2) Independent blind evaluation by trained assessors; (3) Manualized treatment protocols; (4) Assessment of treatment adherence; (5) Supervision and training of treatment providers; (6) A detailed description of the treatment goals and (7) more general methodological requirements such as randomization, intent to treat analyses (ITT) and a determination of inter-rater reliability (Foa & Meadows, 1997; Harvey, Bryant & Tarrier, 2003; Schnurr, 2007). Despite these strict methodological

requirements, nearly all of the studies reported a reduced severity in PTSD symptoms after treatment, which in most cases was sustained at follow-up. Accordingly, it is reasonable to argue that there is sound evidence of the efficacy of cognitive-behavioural treatments for posttraumatic stress, with prolonged exposure (PE) being the best investigated facet within the CBT framework (Cook, Schnurr & Foa, 2004; Foa, Keane & Friedman, 2000).

With respect to applied research, it is important to emphasize that these positive treatment results are also reflected in recommended treatment guidelines, e.g. the Expert Consensus Guideline Series on the Treatment of PTSD (Foa, Davidson, Frances, Culpepper, Ross, & Ross, 1999), guidelines by the International Society for Traumatic Stress Studies (ISTSS; Foa, Keane & Friedman, 2000), the National Institute for Clinical Excellence in the UK (NICE, 2005), the APA (American Psychiatric Association, 2004), and the US Department of Veteran Affairs/Defence (2004). In Australia, ASD and PTSD treatment guidelines were recently released by The Australian Centre for Posttraumatic Mental Health (ACPMH). In agreement with the previously published recommendations, the ACPMH suggested trauma focused CBT as a first line of treatment for PTSD sufferers (ACPMH, 2007).

However, despite these promising developments, it is also important to recognize that these numerous well controlled studies still did not resolve all the challenges associated with the treatment of traumatized clients. Each methodological decision involves inevitable trade-offs: Highly standardized Randomized Control Trials (RCTs) are designed to control threats to internal and construct validity, but have reduced external validity in terms of generalizability and clinical utility of the results (Schnurr, 2007). In addition, most of the RCTs focus very strongly on the outcomes of the intervention, testing for treatment efficacy rather than effectiveness of a treatment. This means that the focus primarily relates to whether a treatment works, rather than what works for whom (Schnurr, 2007).

One consequence of the focus on treatment efficacy is the concept of “improvement” or “treatment success” which is often solely understood as decreased frequency and/or intensity of PTSD symptoms. Other gains such as enhanced social and professional functioning as well as personal development and posttraumatic

growth (Linley & Joseph, 2004; Tedeschi & Calhoun, 2005) are often not taken into account. It is usually the case that participants continue to report residual symptoms post-intervention, while some people are in fact still fulfilling the criteria for a PTSD diagnosis (Bradley et al., 2005). Hence, more needs to be known about how these results translate into suffering and how they impact on functioning. Furthermore, it is important to explore the role of comorbid conditions in relation to reported accounts of “successful” treatment (Robertson et al., 2004; Spinazzola et al., 2005).

Associated with the problem of treatment success is the dearth of information regarding participants who discontinue treatment (Spinazzola et al., 2005). Even though most of the authors are now trying to cater for this problem by Intention To Treat analyses and a comparison of completer and attriter characteristics, the conceptualization of “dropouts” is often not explicitly defined nor justified (Matthew et al., ...). Moreover, there is limited information on the reasons for dropout, which is inextricably linked with the difficulty of obtaining data from people who withdraw from treatment. Clearly, this is an important confounding factor, especially given the high number of treatment discontinuation in trauma treatment studies where dropout rates tend to be higher than in clinical practice settings (Burstein, 1986; Fisher, Winne & Ley, 1993; Zayfert et al., 2005).

There is also only limited evidence available concerning the efficacy of combined as opposed to single treatments (Foa, Keane & Friedman, 2000), whereas it is even less identified how single treatment elements take effect. For example, studies using a combination of exposure and cognitive restructuring techniques revealed inconsistent results (Bryant et al., 2003; Foa & Meadows, 1997; Foa & Rauch, 2004; Foa et al, 2005). This is despite the fact that there is now a growing research interest into the benefits of combined treatments for survivors of complex trauma to target attachment and interpersonal problems, as well as various manifestations of self-dysregulation (Ford et al., 2005; Pearlman & Courtois, 2005). An impressive example is the previously mentioned study by Cloitre et al. (2002) which involved a combination of interpersonal/emotional skills training and CBT for survivors of childhood abuse.

At the same time, some authors argue against the need for more complex treatments, demonstrating that the now well manifested exposure treatments can also achieve a considerable symptom reduction in survivors of multiple trauma (Foa, Davidson, Frances, Culpepper, Ross, & Ross, 1999; Resick, Nisith, Weaver, Astin, & Feuer, 2002; Resick, Nisith, & Griffith, 2003). For example, Resick (2004) was able to demonstrate benefits of a CBT treatment in nearly 80% of chronic female PTSD sufferers who had been subjected to multiple victimization. In another study, Resick et al. (2003) administered the Trauma Symptom Inventory (TSI, Briere, 1995) to a sample of rape victims with and without a history of childhood sexual abuse. The TSI measures a variety of complex trauma related symptoms such as dissociation, impaired self-reference, sexual dysfunctions and tension reduction behaviours. Interestingly, both groups of survivors improved significantly on all subscales (Resick et al., 2003).

Taken together, to date there is no agreement on additional benefits of combined treatments. However, it may be useful to elaborate which clients may benefit from an addition of treatment components rather than promoting a universally valid treatment approach.

6.1.2 Hypnotherapy treatment

The strong focus on CBT interventions may overshadow the usefulness of other approaches which are less investigated due to less clinical recognition, general misconceptions of the treatment, or less readily available assessment tools (Cardeña, 2000; Revenstorf, 2000). As stressed in the Literature Review, an application of hypnosis has a long standing tradition in trauma treatment which is well documented in multiple case studies (Cardeña, 2000; Spiegel & Spiegel, 2004). Furthermore, the complex relationship between hypnosis and trauma has conceptual implications for the theoretical framework underlying trauma therapy (Spiegel & Spiegel, 2004; Van der Hart 1989; 2005, 2006). However, a prevailing impediment to the contemporary application of hypnosis has been the lack of studies that comply with the above mentioned “gold standards” (Foa & Meadows, 1997) or other methodological conventions such as the CONSORT (Consolidated Standards on Reporting Trials) statement (Harvey, Bryant & Tarrier, 2003; Schnurr, 2007).

A hypnotherapeutic approach to trauma may be particularly relevant to the above mentioned debate concerning the use of combined treatments. Although a combination of hypnotherapy with psychodynamic therapy, systemic therapies, and Rogerian approaches is documented in several older studies (Gerl & Peter, 1982; Schmidt, 1985; Watkins, 1992), more recent research has been directed towards the usefulness of hypnosis in conjunction with CBT (Peter, Kraiker & Revenstorf, 1991). Kirsch, Montgomery and Sapirstein (1995) conducted a meta-analysis on 18 studies and concluded that treatment outcomes were enhanced by an addition of hypnosis to CBT treatment, and that this generalized to a variety of psychological disorders. According to the authors, this result was even more surprising, in that there were only a few procedural differences between the CBT and hypnosis interventions, such as simply adding the word “hypnosis” as part of the hypnotic induction (Kirsch et al., 1995). However, this optimistic outlook advanced by Kirsch et al. became subject to questions after their data was reviewed by Allison and Faith (1996). These authors found considerably smaller effect sizes than had been originally calculated. Another study by Schoenberger (2000) that examined treatment efficacy in combined CBT/Hypnosis treatments found that the evidence was inconclusive because of the lack of well designed RCTs.

Bryant, Moulds, Guthrie and Nixon (2005) conducted an encouraging study on possible additive benefits of hypnosis and CBT in acute stress disorder (ASD). Eighty-seven survivors of non-sexual assault and motor vehicle accidents with ASD were randomly allocated to either a CBT only, a combined CBT/Hypnosis, or a Supportive Counselling (SC) condition. Participants then received five weekly treatment sessions of 90 min. duration, incorporating psychoeducation, breathing control, imaginal – and in-vivo exposure, cognitive restructuring, and relapse prevention. An examination of additive benefits of hypnosis was operationalized by an audio-taped hypnotic induction prior to the conduction of imaginal exposure in the CBT/Hypnosis group. In contrast to the expectations of the authors, the results revealed no greater improvement in the combined CBT/Hypnosis condition as compared to the CBT only group, yet a superiority of both these treatments over the SC condition. However, there was some indication of a greater reduction in re-experiencing symptoms in the hypnosis group directly after treatment, suggesting a more effective imaginal exposure process in this treatment condition.

Three years later, Bryant, Moulds, Nixon, Mastrodomenico, Felmingham, and Hopwood (2005) conducted a follow-up study with 77% of the treatment completers. Again, participants in the CBT and the CBT/Hypnosis group demonstrated less re-experiencing and hyper-arousal symptoms as compared to the SC group. Once again, there was no additional benefit arising from the use of hypnosis in the follow-up assessments.

Taken together, Bryant, Moulds, Guthrie and Nixon (2005) were not able to establish additional benefits of hypnosis. Nonetheless, their study has evoked some interesting ideas which justifies further research into a combined use of hypnosis and CBT in trauma treatment. Perhaps the most interesting result of their study was an indication that additive effects could be enhanced by a broader application of hypnosis, thus allowing to focus on treatment goals beyond the processing of traumatic memories (Bryant, Moulds, Guthrie and Nixon, 2005).

In conclusion, there is ample evidence that CBT treatments have been very successful in the treatment of PTSD which is also reflected in the current Australian PTSD treatment guidelines. Many of the studies conducted have focused on survivors of physical and sexual assault, thus implying that these results apply to at least a considerable part of the VOC population. Keeping in mind the objective to provide clients with the best possible care, it is justified and good practice to include well established CBT principles in a PTSD treatment for VOC. Nonetheless, there may be additional gains by a combination of a CBT and a hypnotherapy treatment which has not yet been systematically evaluated in survivors with chronic posttraumatic stress symptoms. Thus, a thorough evaluation of a combined CBT/Hypnotherapy treatment appears as a worthwhile and well justified research goal.

6.2 Process evaluation

As outlined in Chapter II, a process evaluation focuses on the actual treatment process and the *effectiveness* of the planned intervention, whereas an outcome evaluation typically examines the *efficacy* of a treatment program, as reflected in a change in outcome measures when compared to baseline data. To determine the effectiveness of an intervention, it needs to be ensured that all treatment components

have been implemented as planned and that all the recipients of the intervention (participants) have been reached as intended. The latter includes the acceptance of a particular treatment, but also the willingness and ability to engage in terms of attendance, active participation and the completion of assigned tasks.

The present treatment evaluation study will employ both, a process – and an outcome evaluation. A rationale for the use of a process evaluation in trauma intervention studies with a particular emphasis on its relevance for the present study will be provided in the section below.

6.2.1 Usefulness of a process evaluation in the current project

A great deal of the above mentioned shortcomings in current trauma treatment evaluations warrants the use of a process evaluation in addition to a Randomized Control Trial in an intervention study on VOC.

As explained previously, most trauma treatment studies have been designed as an outcome evaluation using a Randomized Control Trial (RCT) design, where the superiority of one treatment over another, several others, or a no-treatment condition is being investigated via a group comparison (Bradley et al., 2005; Foa & Meadows, 1997; Foa et al., 2000). Although such methods have led to increasing confidence into the efficacy of trauma treatments, a potential drawback of this type of study design is the lack of information regarding the effective trauma treatment components. In other words, it is not clear which elements of the treatment (e.g. psychoeducation, imaginal exposure, in-vivo exposure, anxiety management) have led to the desired treatment outcomes. Furthermore, treatment contents are often not described in sufficient detail, even when they have used standardized treatment manuals. Achieving greater detail of specific treatment components seems worthwhile, given that CBT treatments often tend to encompass a plethora of techniques (Devilly, 2001). A further issue is the treatment goal, and the degree to which participants' notion of "treatment success" or "failure" should be taken into consideration.

In line with the discussion above, there appears to be a need to research less documented treatment approaches, as the majority of the trauma treatment studies

have focused on treatments that, at least to some degree, involve cognitive-behavioural therapy elements (Foa & Meadows, 1997; Harvey & Bryant, 2003). Despite strong theoretical and practical support for the usefulness of hypnotherapy in trauma treatment, a broad application of hypnotherapeutic techniques in the treatment of chronic trauma survivors has never been systematically evaluated (Bryant, Moulds, Guthrie and Nixon, 2005; Cardeña, 2000). Moreover, the few available results from controlled studies did not detail the contents of the hypnosis treatment beyond the definition of the treatment goals (Brom et al., 1989). Taking these considerations into account, a process evaluation appears particularly useful in revealing how certain hypnotherapeutic treatment components might be implemented and, equally important, received by participants.

With respect to the potential usefulness of a combined CBT/Hypnotherapy treatment, it needs to be clarified how the single treatment components are integrated into the overall program (Foa & Meadows, 1997). Research examining the advantageous effects of combined treatments may have yielded inconsistent results because of efforts to keep treatment variables, e.g. the number of sessions, standardized across the treatment and the control group. As a consequence, in a combined treatment comparatively more treatment components have to be incorporated which may compromise their efficiency (Foa, Keane, & Friedman, 2000; Foa & Meadows, 1997).

Another argument for an additional use of a process evaluation in the present treatment study on VOC is the sparse information relating to the actual reception and acceptance of trauma treatment. Relatively little is known about treatment responses in different types of trauma survivors (Solomon & Johnson, 2002). This is especially relevant for a victim of crime population, given the special circumstances and the shortage of research regarding certain crime types (Grant et al., 2002). Associated with treatment acceptance is treatment discontinuation which has important implications on the interpretation of the results. However, detailed information on changes in treatment intentions and how the treatment discontinuation occurs is often absent (Matthew & Ivanow, 2006).

Regarding methodological limitations of trauma treatment studies, authors usually emphasize small participant numbers and the associated lack of statistical power. In RCTs, typically large numbers of participants are required to establish a statistically reliable change, and, as a consequence, a large quantity of resources is needed. High costs arise from the need of a considerable number of staff, immense time commitments, and expenses for research material, often without any detailed a priori knowledge about the actual effectiveness of the intervention. However, large samples are also difficult to achieve in particular populations such as severely traumatized people. Thus, a major advantage of a process evaluation is that it can provide a substantial amount of valuable knowledge from a small sample of trauma survivors.

Finally, it has been a common observation that many practitioners are hesitant to use exposure based approaches to trauma treatment, though strongly advocated in current practitioner guidelines (Cook et al., 2004; Rosen et al., 2004). While some authors suggest this reluctance may be attributed to insufficient training, unjustified concerns on possibly damaging effects of exposure therapy, and an unfamiliarity with guidelines (Cook et al., 2004), it may also relate to the lack of information concerning the treatment process and the challenges involved in the treatment of specific trauma populations.

In conclusion, the present study was designed to elucidate the critical key components of a combined CBT/Hypnotherapy treatment in VOC, as compared to a CBT treatment only. In the pursuit of this goal, it was decided to employ both, an outcome and a process evaluation. In this way, changes in symptom severity could be analyzed by a comparison of symptom ratings before, during and after treatment. In addition, the process evaluation shed light on the implementation of the single treatment components, the acceptance of the treatment and challenges arising from a treatment of VOC.

Similar to the study by Bryant, Mould, Guthrie and Nixon (2005), additive benefits of hypnosis were explored by a standardization of the treatment goals and procedures across both treatment groups. As part of this design, an effort was made to keep the CBT components as equal as possible in the two groups. However, in the

present study hypnotherapy was conducted within a broad framework, including the activation of resources, imaginal – and in-vivo exposure, as well as reframing and integration of the experience. This stands in contrast to the design of Bryant, Moulds, Guthrie and Nixon (2005), where the only distinctive treatment element involved the addition of a hypnotic induction.

6.3 Research questions/hypotheses

6.3.1 Hypotheses addressed in the outcome evaluation

Primary hypothesis:

- a) At t2, participants in the combined CBT/Hypnotherapy group would demonstrate lower scores in all measures of posttraumatic stress than participants in the CBT group.

Secondary hypothesis:

- b) At t2, participants in the combined CBT/Hypnotherapy group would demonstrate lower scores in all measures of depression, anxiety, and anger than participants in the CBT group.

6.3.2 Research questions addressed in the process evaluation

The research questions addressed in the Process Evaluation closely follow Linnan and Steckler's structure of key process evaluation components which have been introduced in Chapter II (Linnan & Steckler, 2002, p.12).

1. Recruitment:

- Which recruitment strategies and recruitment sources are used to approach and attract participants?
- How successful are individual recruitment strategies?

2. Reach:

- What are the characteristics of the crime victims participating in the study (demographic characteristics, crime characteristics, health characteristics)?
- How well do they represent the victim of crime population?

3. Dose delivered:

- Are all treatment components delivered as planned?
- Which factors interfere with the delivery of the treatment components?

4. Dose received:

- What are the attendance rates?
- How are the single treatment components received by the participants?
- How do participants engage in the treatment?
- In which way does the therapeutic relationship (perceived understanding, commitment, empathy) impact on the reception of the treatment?
- In which way do content issues (relevance, number of topics addressed, conveyance) impact on the reception of the treatment?
- Are there any service-related issues that prevent participants from receiving the treatment as planned?
- To what degree do participant expectations, their perceived stress and the perceived intrusiveness of the intervention influence their reception and dropout?
- What are the characteristics of people who discontinue treatment?
- When/at what point during the course of the program do participants discontinue?
- What are the reasons for the discontinuation of treatment (given reasons vs. treatment provider perspective)?

5. Fidelity/treatment integrity

- Does the treatment provider adhere to the treatment manual?
- Are all the treatment components covered?
- Are the techniques applied in a way that reflects accepted clinical practice?
- How well does the therapist perform?

6. Context:

- Which aspects of the larger social, political, legal and economic environment influence the implementation of the intervention?

6.4 Methods

6.4.1 Participants (Sample)

Participants were recruited by advertisements in newspapers, newsletters, radio and by correspondence with various mental - and community health services (see Appendix L, p. 448).

Primary and secondary victims of crime aged between 18 and 70 years were invited to participate in the study. All types of crime were accepted, irrespective of whether they had been reported. To be able to investigate the effectiveness of the treatment in survivors with a chronic traumatic illness, a minimum time interval of three months needed to have elapsed between the crime and the commencement of treatment. Participants with comorbid mental disorders were included on condition that their restrictions would not impose any additional risks on them. However, people suffering from a current or past psychotic disorder, organic brain syndrome, current alcohol or substance dependence, current suicidal ideations with intent, current self harming behaviours, were excluded.

To be eligible for treatment, participants had to meet the DSM-IV- criteria (Diagnostic and Statistical Manual of Mental Disorder, Fourth Edition, 1994) for chronic PTSD (Re-experiencing symptoms ≥ 1 , Avoidance symptoms ≥ 3 , Hyperarousal symptoms ≥ 2) as assessed by the PCL (PTSD Checklist) and the CAPS-2 (Clinician-Administered PTSD scale). All assessed participants fulfilled the criteria for PTSD on the CAPS. One participant presented with only two (instead of three) avoidance symptoms on the PCL, but was still included as she met all the other criteria for a PTSD diagnosis.

Sixty-nine people showed an initial interest in a participation in the study. Out of these 69 people, 26 agreed to the clinical interview assessment, while two people

did not attend their scheduled interview. Three of the assessed people did not attend their first treatment session. Four of the assessed persons had to be referred to other mental health services:

- One person was suffering from a very severe depression with suicidal ideations;
- Another person demonstrated severe alcohol abuse which had to be targeted prior to trauma treatment;
- Another person indicated psychotic symptoms and did not attend an additional interview for further clarification;
- One person demonstrated a high degree of impulsivity with concomitant risk behaviours and thus had to be excluded from the study.

Eventually, 19 participants enrolled in the study with only seven participants completing all nine treatment sessions. *Figure 6.1* shows an overview of participant numbers throughout the study.

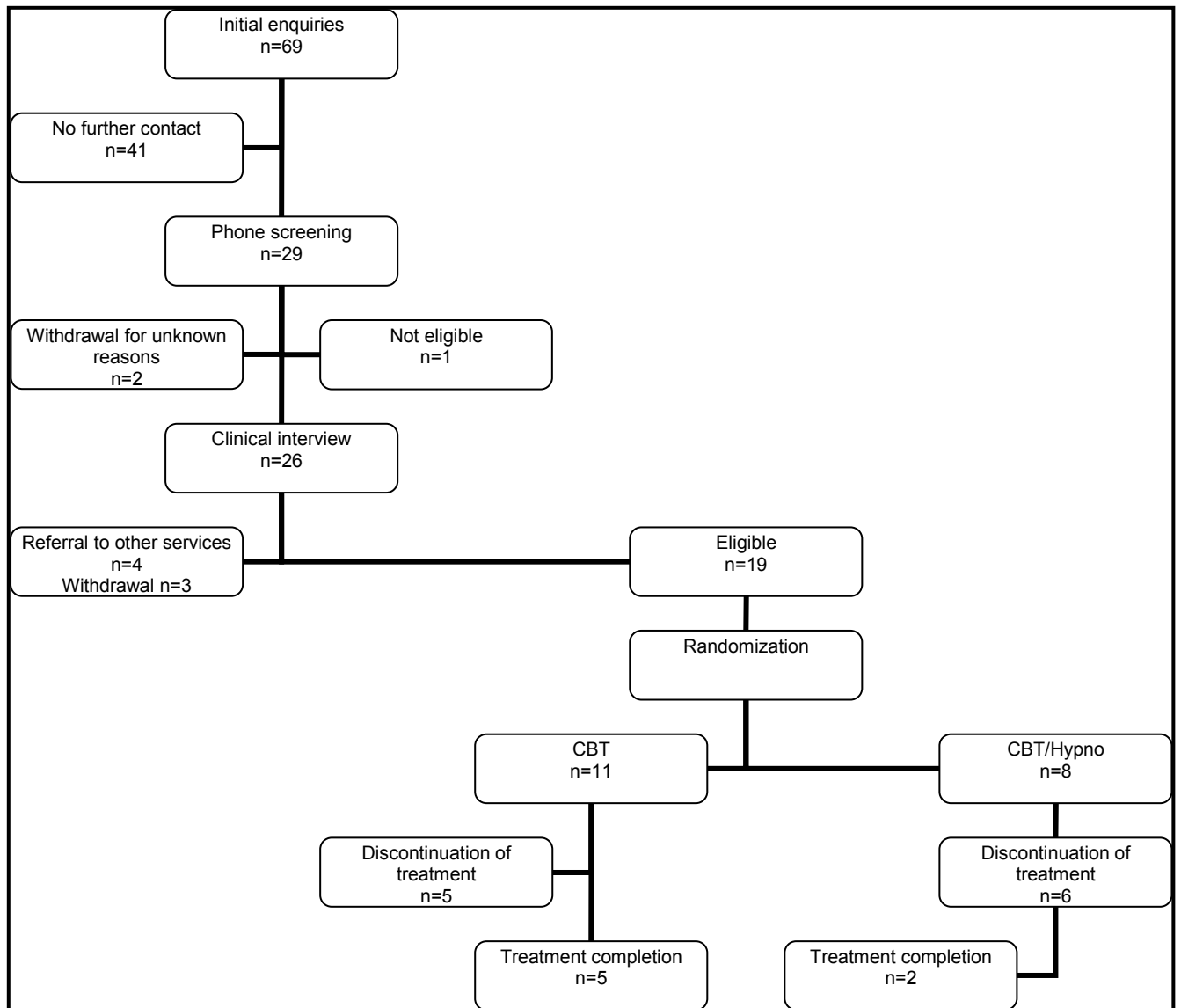


Figure 6.1. Overview over participant numbers throughout the study

Participant characteristics

Demographics

The mean age of participants enrolled was 47.21 (10.04) years, ranging from 32 to 65 years. Both genders were equally represented. Table 6.1 compares the demographic, crime – and clinical characteristics between the two treatment groups.

Table 6.1

Demographic characteristics in the combined CBT/Hypnotherapy group and the CBT group

	CBT group (n=11)		CBT/Hypnotherapy group (n=8)	
	<i>n</i>	(%)	<i>n</i>	(%)
<u>Marital Status</u>				
Single	3	27.3	2	25.0
Married	5	45.5	2	25.0
Divorced	3	50.0	3	50.0
Widowed	0	0.0	1	12.5
<u>Living</u>				
On your own	5	45.5	4	50.0
Family/partner	6	54.5	4	50.0
<u>Education</u>				
Primary	0	0.0	1	14.3
Secondary	5	45.5	3	42.9
TAFE	3	27.3	0	0.0
Tertiary	2	18.2	3	42.9
Other	1	9.1	0	0.0
<u>Employment</u>				
Unemployed	7	63.6	0	0.0
Full-time	1	9.10	3	42.9
Part-time	0	0.0	3	42.9
Student	1	9.1	0	0.0
Pensioner	2	18.2	1	14.3
<u>Income p.a.</u>				
< 20.000	6	54.5	1	16.7
20-30.000	1	9.1	2	33.3
31-40.000	1	9.1	1	16.7
41-50.000	1	9.1	1	16.7
51-60.000	0	0.0	0	0.0
>60.000	2	18.2	1	16.7

Participants in both groups had similar demographic characteristics. Five male and six female participants were part of the CBT group with a mean age of $M=47.27$, $SD=8.86$ years. The CBT/Hypnotherapy group included four male and four female participants with a mean age of $M=47.13$, $SD=12.31$ years. The table shows that a

greater proportion of the participants in the CBT/Hypnosis group has completed Tertiary Education which may also be reflected in higher incomes and a more active participation in the workforce. In the CBT group, 63.6% were not working, while all the people in the CBT/Hypnotherapy were part or full-time employed.

Table 6.2
Differences in clinical symptoms between the combined CBT/Hypnotherapy group and the CBT group at baseline

	CBT group (n=11)		CBT/Hypnotherapy group (n=8)		<i>Cohen's d</i>
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	
CAPS-II	81.16	16.88	61.50	3.53	-1.92
PCL-C	57.17	9.84	48.50	2.12	-1.44
BDI-II	24.70	11.77	24.71	14.20	0.00

CAPS-II = Clinician Administered PTSD Scale; PCL-C = Posttraumatic Checklist Civilian; BDI-II = Beck Depression Inventory

The CBT group presented with a greater PTSD symptom severity as assessed by the CAPS ($d = -1.92$) and the PCL ($d=-1.44$), but no increased severity of depression score.

Table 6.3
Differences in comorbidity between the combined CBT/Hypnotherapy group and the CBT group

Characteristic	CBT group (n=11)		CBT/Hypnotherapy group (n=8)	
	<i>n</i>	(%)	<i>n</i>	(%)
Depression*	8	72.7	5	62.5
Anxiety*	7	63.6	4	50.0
Regular drug/alcohol consumption*	3	27.3	1	12.5

* Refers to a current diagnosis as assessed by the M.I.N.I. "Anxiety" includes symptoms of panic disorder, OCD, social and general anxiety. "Alcohol/substance abuse" refers to current alcohol and THC abuse.

On face value, there is some indication that the CBT group presents with more clinical symptoms as compared to the CBT/Hypnosis group.

Crime characteristics

Table 6.4 summarizes the various types of crime participants sought treatment for (index crimes). However, it must be acknowledged that the majority of the participants had experienced repeated and multiple crimes which are not reflected in the table.

Table 6.4

Comparison of index crimes between the CBT and CBT/Hypnotherapy group

Type of crime	CBT group (n=11)		CBT/Hypnotherapy group (n=8)	
	<i>n</i>	(%)	<i>n</i>	(%)
Childhood abuse	3	27	3	37
Threat to physical integrity	3	27	0	0
Home invasion	1	9	1	12
Physical assault	1	9	2	25
Domestic violence	0	0	1	12
Homicide	1	9	0	0
Torture/Detention	0	0	1	12
Harassment	1	9	0	0
Rape	1	9	0	0

In both groups, more than 60% of the participants had experienced the crime in their adulthood and nearly two thirds had been exposed to multiple crimes. In the CBT group, participants' age at crime onset ranged from 5-51 years with a mean of $M=26.80$, $SD=17.11$. The years passed since the crime experience ranged from 0.5 to 53 years with a mean of $M=20.45$, $SD=19.30$. In the CBT/Hypnotherapy group, the age at crime onset varied between 6-49 years with a mean of $M=26.43$, $SD=16.46$, whereas the years passed since the crime event ranged from 2-36 years with $M=19.26$, $SD=13.28$. In both groups, the majority of the crimes have been reported, whereas more participants in the CBT/Hypnosis group were involved in criminal injuries compensation – and litigation processes. Table 6.5 provides an overview of the crime characteristics in both treatment groups.

Table 6.5
Crime characteristics in the combined CBT/Hypnotherapy group and the CBT group

	CBT group (n=11)		CBT/Hypnotherapy group (n=8)	
	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>
<u>Crime type</u>				
Adulthood	8	72.7	5	62.5
Childhood	3	27.3	3	37.5
<u>No of crimes</u>				
single crime	3	27.3	2	25.0
multiple	8	72.7	6	75.0
<u>Reported</u>				
Not reported	4	36.4	1	12.5
reported	7	63.6	7	87.5
<u>Compensatio</u>				
Never	9	81.8	4	57.1
Received	1	9.1	2	28.6
Ongoing	1	9.1	1	14.3
<u>Litigation</u>				
ongoing	4	36.4	3	42.9
finished	4	36.4	1	14.3
none	3	27.3	3	42.9

6.4.2 Measures

As part of the outcome evaluation, standardized self report measures and clinician administered interviews were completed. Table 6.6 shows the standardized psychological questionnaires and the calculated reliability coefficients in the present sample of enrolled participants (n=19).

Table 6.6

Standardized psychological measures

<i>Name</i>	<i>Contents of measure</i>	<i>Reference</i>	<i>Cronbach α</i>
PCL-C Posttraumatic Checklist Civilian	Self report of posttraumatic stress symptoms acc. to DSM IV criteria	Weathers, Litz, Huska & Keane 1993	.80
STPI Spielberger State-Trait Personality Inventory and	State/Trait depression, anxiety, anger, curiosity and anger expression	Spielberger et al., 1996	.81-.94, S-depression .91 S-anxiety .81 S-anger .94
STAXI State/Trait Anger Expression Inventory	Tendencies of anger expression, e.g. suppression or acting out	Spielberger, 1999	.67
CIS Creative Imagination Scale	Imaginative skills	Barber & Wilson, 1978	.93
CAPS Clinician Administered PTSD Scale	Assessment of PTSD symptom frequency and intensity by structured clinical interview acc. to DSM IV criteria	Blake et al., 1995	.84
M.I.N.I Mini International Neuropsychiatric Interview	brief structured interview for major psychiatric Axis I psychiatric disorders	Sheehan et al., 2004	no scoring
PTCI Posttraumatic Cognitions Inventory	Posttraumatic cognitions/dysfunctional beliefs	Foa, Ehlers, Clark, Tolin & Orsillo, 1999	.96
DES Dissociative Experiences Scale	Dissociative symptoms	Bernstein & Putnam, 1986 ; Carlson & Putnam, 1993	.92
BDI-II Beck Depression Inventory	Severity of depression	Beck, Steer & Brown, 1996	.93
IES-R Impact of Events Scale revised	Self report of posttraumatic symptoms	Weiss & Marmar, 1995	.90
DEVS Distress/Endorsement Validation Scale	Distress experienced from assessment/treatment; endorsement of treatment	Deville, 2004	DEVS distress .92 DEVS endorsement .81
Credibility/Expectancy Questionnaire CEQ	how convincing/logical treatment seems; how much improvement is expected	Deville & Borcovec, 2000	CEQ credibility .76 CEQ expectancy .86

The following section provides more detailed information on the psychometric properties of the measures used. Some of the questionnaires have been administered in Study I (Chapter III) and, as a consequence, will not be further detailed in this chapter.

The following measures were applied to test the Primary Hypothesis:

1. Trauma measures

Posttraumatic Checklist Civilian (PCL-C; Weathers et al., 1994)

The 17-item PCL-C was applied in the initial telephone screening to determine people's diagnostic status as well as to measure their change in symptoms over time. The PCL is a widely used self-report measure of PTSD which corresponds with DSM-IV criteria. It has been validated across various trauma populations as a screening instrument (Blanchard, Jones-Alexander, Buckley & Forneris, 1996; Grubaugh et al., 2007, Ruggiero et al., 2003; Ruggiero et al., 2006), and as a measure of symptom severity and diagnostic status (Forbes, Creamer & Biddle, 2001). PTSD symptoms are rated on a scale from 0 ("not at all") to 5 ("extreme"), indicating to what degree the person has felt affected by the symptoms over the previous four weeks. The initial α coefficient for the whole scale was found to be .97 in a military veteran sample (Weiss & Marmar? in Wilson & Keane, 1997), whereas an internal consistency of $\alpha = .80$ was obtained in the present study. To determine the diagnostic status, the PCL symptom cluster method was applied. According to this method, a symptom only counts towards the diagnosis if its severity has been rated 3 ("moderate") or more (Blanchard et al., 1996).

Clinician Administered PTSD Scale (CAPS; Blake et al., 1995)

The CAPS was introduced in 1990 and has developed into *the* standard clinician rated PTSD assessment tool to assess a current or lifetime diagnosis of PTSD according to DSM-IV criteria. Symptom severity is assessed by a Likert-type rating of the frequency and intensity of each symptom (Weiss in Wilson & Keane, 1997), ranging from 0 (symptom not present) to 4 (symptom present most of the time/extreme intensity of symptom). Various scoring rules apply to the CAPS

(Weathers et al., 1999), with the “One/Two rule” (a minimum score of 1 in frequency and a minimum score of 2 in intensity for a symptom to be present) being the original and most frequently used scoring method. In the present study, the “rule of 3” was applied which means a symptoms was considered present, only if the sum of the frequency and intensity score was 3 or more (Blanchard et al., 1995). This decision to use a more lenient approach to scoring is justified by the use of the CAPS as a screening instrument rather than to confirm a diagnosis (Weathers et al., 1999). The calculated Cronbach α coefficient for the present study was .84 which is similar to the results of validation studies which have yielded internal consistencies between .80 and .90 (Weathers et al., 2001).

Dissociative Experience Scale (DES; Bernstein & Putnam, 1986; Carlson & Putnam, 1993)

The DES is a 28-item self report instrument, used to assess dissociative symptoms and alterations in consciousness. The presence of dissociative experiences is rated on a 10-point rating scale from 0% (“never”) to 100 (“always”). The DES is known as a screening instrument rather than a diagnostic tool (Ross, cited in www....The Ross Institute, 1996-2003) and was administered prior to the treatment. Scores can range from 0 to 100, whereas a score of 30 has been suggested as a cutoff score for an indication of psychopathology (Carlson & Putnam, 1993?). Spitzer and his colleagues determined a very high internal consistency for the scale of .94 (Spitzer et al., 1998) which was supported by the calculations for the present sample with $\alpha = .92$.

Measures of comorbid symptoms, unspecific treatment variables and hypnotic suggestibility aimed at testing the Secondary Hypothesis:

2. Comorbidity

Mini International Neuropsychiatric Interview (M.I.N.I.; Sheehan et al., 2004)

The M.I.N.I. was conducted before treatment to screen participants for clinical disorders other than PTSD. The M.I.N.I. was developed as a brief structured interview to detect major Axis I psychiatric disorders as defined by DSM-IV and ICD-10. In the present study the M.I.N.I. was used to indicate potential comorbid problems and to

assess suicide and self harm risks. Sheehan et al. (1998) determined inter-rater and test-retest reliability coefficients between .75 and .90.

3. Unspecific treatment variables

Credibility/Expectancy Questionnaire (CEQ; Devilly & Borcovec, 2000)

The CEQ measures therapy credibility and client expectancy for improvement. Credibility relates to how believable, convincing and logical the treatment is, whereas expectancy refers to a belief in achievable improvements (Kazdin, 1979, cited in Devilly & Borcovec, 2000). The scale comprises three credibility items and another three expectancy items, rated on two different rating scales from 1 (“not at all”) to 9 (“very”) and 0% (“no improvement”) to 100% (“100% improvement”), respectively. Devilly and Borcovec determined a high internal consistency for the two scales with $\alpha=.79-.90$ for the expectancy factor and $.81-.86$ for the credibility factor. In the current sample, the Cronbach α coefficients were similar with $\alpha=.76$ for the credibility subscale and $\alpha=.86$ for the expectancy subscale.

Distress / Endorsement Validation Scale III (DEVS; Devilly, 2004)

The DEVS is a 10-item rating scale measuring treatment distress and participant endorsement of the therapy. Devilly obtained a Cronbach α of .92 for the distress scale and .84 for the endorsement subscale. In the present sample, the Cronbach α was .92 for the distress scale and .81 for the endorsement scale. Normally, the scale is presented retrospectively after the completion of treatment. To ensure that measures of treatment distress coincided with the treatment, in the present study the perceived distress and intrusiveness of the intervention as well as participants’ anxiety to return to the session were rated separately for each treatment session (see *Participant Evaluation Sheet* and *Homework Review* below).

Participant / Self Evaluation Sheets and Homework Review

A *Participant Evaluation Sheet* (see Appendix O, p.452), a *Therapist Self Evaluation Sheet* (Appendix Q, p. 456) and a *Homework Review* (Appendix P, p. 454) were developed to gain information on the treatment process.

The *Participant Evaluation Sheet* was administered after every treatment session and assessed

- perceived treatment goals
- the major focus of the session
- whether the treatment goals were reached
- which treatment components may have been missing

from a participant perspective. Also, participants were asked to rate the relevance of the session, the quality of the conveyance of the treatment contents, and the perceived level of commitment and empathy by the therapist on a five-point rating scale from 1 (“strongly disagree”) to 5 (“strongly agree”). Participants were also asked to indicate any interfering factors such as interactional difficulties or problems with the applied measures/technical devices. In addition, they rated the perceived intrusiveness of the intervention and their level of distress during the treatment session on a 9-point rating scale from 1 (“none at all”) to 9 (“very distressed/intrusive”).

The *Therapist Self Evaluation Sheet* (see Appendix Q) was completed by the therapist after every therapy session and assessed

- the conveyed treatment components
- the planned and required time frame for the implementation of these components
- the treatment goals from a therapist perspective

Also, a self-assessment of the relevance of the session for the participant, the quality of the conveyance of the treatment contents, and the perceived level of commitment and empathy was conducted using the same rating scale as in the *Participant Evaluation Sheet*.

The *Homework Review* (see Appendix P) was administered before the start of each session. Participants were asked to rate their level of perceived distress after the last treatment session as well as the level of anxiety about returning to the present session on a 9-point rating scale from 1 (“not at all”) to 9 (“very distressed/anxious”).

In addition, participants described their completed homework tasks. They also indicated how often they had engaged in these tasks on a five point rating scale ranging from 0 (“not at all”) to 5 (“more than ten times”) and how helpful those tasks were with 0 (“not at all”) to 5 (“extremely”) helpful.


4. Hypnotic suggestibility

Creative Imagination Scale (CIS; Wilson & Barber, 1978)

The CIS was administered to assess imaginative skills of participants with the purpose to identify a possible association between imaginative skills and symptom reduction. The CIS is presented in an audiotape or CD format with ten standardized suggestions. Participants are asked to listen to the suggestions and subsequently rate the percentage of agreement between the imagined experience and reality on a scale from 0 to 90+%. Wilson and Barber (1978) described a test-retest reliability of $r=.82$ and a split-half reliability of .89. The internal consistency in the present sample was high with a Cronbach α of .93.

Table 6.7

Administration of standardized measures

		
t1: 2 weeks before commencement of treatment	t2: After session 4	t3: After session 9
<p><i>PRE-TREATMENT MEASURES</i></p> <p><u>Telephone screening</u> Eligibility protocol</p> <p><u>Clinical interview</u> Clinician administered PTSD Scale (CAPS) Mini International Neuropsychiatric Interview (M.I.N.I.)</p> <p><u>State measures</u> State/Trait Personality Inventory (STPI-State) Beck Depression Inventory (BDI-II) Impact of Events Scale Revised (IES-R) Posttraumatic Checklist Civilian (PCL-C)</p> <p><u>Trait measures</u> State/Trait Personality Inventory (STPI-Trait) State/Trait Anger Expression Inventory (STAXI-II) Dissociative Experiences Scale (DES) Posttraumatic Cognitions Inventory (PTCI) Creative Imagination Scale (CIS)</p>	<p><i>INTERMEDIATE MEASURES</i></p> <p><u>State measures</u> Beck Depression Inventory (BDI-II) Impact of Event Scale Rev. (IES-R) Distress/Endorsement Validation S. (DEVS-III) Credibility/Expectancy Questionnaire (CEQ)</p>	<p><i>POST-TREATMENT MEASURES</i></p> <p><u>Clinical interview</u> Clinician administered PTSD scale (CAPS)</p> <p><u>State measures</u> State/Trait Personality Inventory State (STPI) Beck Depression Inventory (BDI-II) Impact of Event Scale Rev. (IES-R) Posttraumatic Checklist Civilian (PCL-C)</p>

6.4.3 Procedure

Participants were recruited by advertisements in newspapers, newsletters, radio and by correspondence with various mental - and community health services. The recruitment process started in August 2006 and took place over a period of ten months. Following recruitment, interested VOC were sent a Participant Information Sheet to provide information on the goals and contents of the treatment, as well as the procedure involved. In a next step, potential participants received a phone call by independent assessors to gain a preliminary impression of their eligibility for the treatment study. The eligibility assessment comprised information on their contact details, characteristics of the crime they had experienced, and a first indication of their physical and mental health problems. Furthermore, the severity of their posttraumatic stress symptoms was assessed by the PCL-C.

Following the phone interview, participants were invited to attend a clinical interview by an independent assessor at the Centre for Treatment of Anxiety and Depression. During the interview, their posttraumatic stress symptoms were assessed using the CAPS, while the M.I.N.I. was used to receive information on comorbid conditions. The M.I.N.I. screening also involved a risk assessment in terms of current and past suicidal ideations, past and current deliberate self harm, and suicide intent. In addition, a comprehensive risk protocol with a clear outline of the risk assessment and the subsequent code of conduct had been developed (please see Appendix M, p. 449). If there was any remaining doubt on people's eligibility, they were invited for a pre-treatment interview with the treating psychologist to gather more detailed information. To reduce participant burden, participants received a "Take Home Questionnaire Booklet" encompassing all trait measures and an audiotape for the conduction of the CIS which was to be returned to the treating practitioner in the first treatment session. Once the screening process was completed, participants were randomly allocated to one of the two treatment groups, the combined CBT/Hypnotherapy condition or the CBT group only. As part of this process, a fixed randomization method was applied which involved participants selecting an opaque envelope containing a letter which denoted an assignment to either the CBT or the CBT/Hypnotherapy group.

Participants then received nine weekly treatment sessions of one and a half hours duration at the Centre for Treatment of Anxiety and Depression. State measures were administered in the first treatment session, while the Beck Depression Inventory (BDI-II) and IES-R (Impact of Event Scale-Revised) were re-administered after session four. Unspecific treatment variables were assessed before/after every session. The Credibility/Expectancy Questionnaire (CEQ) was administered in session 2 once participants had been provided with a rationale for the treatment program.

All treatment sessions were audio taped. In addition, an effort was made that the treatment of each participant was at least partly documented on video. After the completion of treatment, participants were again asked to fill out the state measures and the Distress/Endorsement Validation Scale (DEVS-III). The Clinician administered PTSD Scale (CAPS-II) was re-administered post-treatment by a blinded independent assessor.

The independent assessors were Second Year Clinical Masters Students who conducted the assessment as part of their final clinical placement at the Centre for Treatment of Anxiety and Depression. All assessors received two extensive CAPS training sessions and a training video to ensure their familiarity with this assessment tool. The M.I.N.I. is routinely used as a screening instrument at the Centre and was therefore a well known instrument to the students. The students were at an advanced stage of their Clinical Masters Training and thus well acquainted with clinical interview techniques, risk assessment and general principles of psychotherapy. All of them were closely supervised by senior psychologists.

Treatment was conducted by the doctoral candidate herself which means the treatment and the research were conducted by the same person. The doctoral candidate is a clinical psychologist with practical experience in anxiety – and depression treatment. In addition, she had attended postgraduate CBT training and completed comprehensive Hypnotherapy training. Regular clinical supervision was provided by two independent senior psychologists specialized in the field of trauma treatment.

The treatment contents were defined in two treatment manuals. A detailed description of the treatment program has been provided in Chapter V.

All participating victims of crime provided written informed consent before enrolling in the treatment program. Ethical Approval for the study was obtained from the Human Research Ethics Committee at the University of Adelaide.

Finally, it should be mentioned that the treatment was free of costs, while no further reimbursements were provided.

6.5 Results outcome evaluation

Due to the small size of treatment completers, descriptive statistics were used to analyse the data.

6.5.1 Changes in psychological measures

Means and standard deviations of the psychological measures were calculated for all enrolled participants. Due to the unavailability of data from people who discontinued treatment, it was not possible to conduct an Intention to Treat (ITT) - analysis. Table 6.8 summarizes the means and SD of the psychological measures at baseline and, if available, post-treatment. To detect possible differences in baseline measures between all enrolled participants, those who were allocated to a particular treatment group (ITT samples), and treatment completers, the results are described separately for each of these categories.

Table 6.8

Means and SD of trauma measures pre/post treatment

	<i>All enrolled participants at t1 (n=19)</i>		<i>ITT* sample Hypno/CBT at t1 (n=8)</i>		<i>ITT* sample CBT at t1 (n=11)</i>		<i>Treatment completers at t1 (n=7)</i>		<i>Treatment Completers at t3 (n=7)</i>	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Posttraumatic Checklist Civilian (PCL-C)	56.72	10.79	55.88	12.10	57.40	10.24	53.86	9.38	34.85	14.11
PCL-Re-experiencing symptoms	15.94	3.59	16.13	2.64	15.80	4.34	17.14	3.67	10.86	4.74
PCL-Avoidance symptoms	22.89	5.25	22.38	6.45	23.30	4.37	20.71	4.31	13.86	6.04
PCL-Hyperarousal symptoms	17.89	4.96	17.38	5.63	18.30	4.62	16.00	4.00	10.14	4.22
Clinician Administered PTSD Scale (CAPS-II)	72.15	15.56	64.62	13.87	77.63	14.93	75.57	18.21	40.0	27.43
CAPS Intensity Score	34.36	8.28	30.12	7.88	37.45	7.43	36.71	9.21	18.42	12.77
CAPS Frequency Score	37.79	8.68	34.50	7.92	40.18	8.77	38.86	10.32	21.57	14.83
CAPS Re-experiencing symptoms	42.15	15.40	36.25	13.70	40.00	17.04	44.00	15.14	12.42	7.52
CAPS Avoidance symptoms	29.50	7.31	26.25	6.86	30.45	4.67	28.00	7.46	12.00	12.09
CAPS Hyperarousal symptoms	24.73	5.95	20.25	5.09	27.18	4.89	25.57	6.92	15.57	10.67
Impact of Event Scale-Revised (IES-R)	43.18	14.90	50.00	13.12	37.88	14.65	36.66	16.09	21.0	20.58

*ITT=Intent to Treat Sample: Sample after randomization, independent of completion. In the current study, ITT samples were only determined at t1 (before treatment)
t1=before treatment; t3=post-treatment

Table 6.8 (continued)

	<i>All enrolled participants at t1 (n=19)</i>		<i>ITT* sample Hypno/CBT at t1 (n=8)</i>		<i>ITT* sample CBT at t1 (n=11)</i>		<i>Treatment completers at t1 (n=7)</i>		<i>Treatment Completers at t3 (n=7)</i>	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Posttraumatic Cognitions Inventory (PTCI)	143.00	48.65	138.14	62.55	146.40	39.60	140.94	47.99		
PTCI cognitions about self	79.47	30.35	78.85	36.14	79.90	27.68	77.50	30.61		
PTCI cognitions about the world	37.64	10.90	34.42	15.55	39.90	6.02	37.61	10.57		
PTCI self blame	14.05	7.50	14.71	8.22	13.60	7.38	14.33	7.37		
Dissociative Experiences Scale (DES)	15.35	10.90	9.94	4.67	19.14	12.57	14.47	10.61		
Creative Imagination Scale (CIS)	16.12	10.33	18.28	13.22	14.60	8.18	15.33	10.56		

*ITT=Intent to Treat Sample: Sample after randomization, independent of completion. In the current study, ITT samples were only determined at t1 (before treatment)
t1=before treatment; t3=post-treatment

Table 6.9

Means and SD of depression, anxiety and anger measures pre/post treatment

	<i>All enrolled participants at t1 (n=19)</i>		<i>ITT* sample Hypno/CBT at t1 (n=8)</i>		<i>ITT* sample CBT at t1 (n=11)</i>		<i>Treatment completers at t1 (n=7)</i>		<i>Treatment Completers at t3 (n=7)</i>	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Beck Depression Inventory (BDI-II)	24.71	2.40	24.71	14.20	24.70	11.77	22.86	14.06	11.71	12.13
State depression (State/Trait Personality Inventory)	21.94	5.70	22.28	6.21	21.70	5.65	20.14	3.71	18.28	7.27
State Anxiety (State/Trait Personality Inventory)	24.41	6.63	25.14	6.14	23.90	7.23	23.0	2.88	19	5.68
State Anger (State/Trait Personality Inventory)	13.94	5.96	15.85	8.66	12.60	2.87	11.42	1.90	13.14	1.46
Trait depression (State/Trait Personality Inventory)	28.29	7.14	28.85	6.69	27.90	7.78	27.83	7.20		
Trait anxiety (State/Trait Personality Inventory)	27.23	6.85	26.71	7.36	27.60	6.85	26.83	6.86		
Trait anger (State/Trait Personality Inventory)	23.00	8.71	22.00	11.83	23.70	6.36	23.44	8.66		
Tendency to hold anger in (STAXI)	19.05	4.40	18.85	4.74	19.20	4.41	19.44	4.57		
Direction of anger towards outside (STAXI)	15.52	4.65	14.57	5.50	16.20	4.13	15.38	4.55		
Control of inward anger expression (STAXI)	19.58	5.38	19.71	4.38	19.50	6.22	19.77	5.28		
Control of outward anger expression (STAXI)	22.52	5.84	23.00	7.23	22.20	5.05	22.55	5.66		

*ITT=Intent to Treat Sample: Sample after randomization, independent of completion. In the current study, ITT samples were only determined at t1 (before treatment)
t1=before treatment; t3=post-treatment

The table shows no major differences in the baseline trauma measures between all enrolled participants and treatment completers. However, some differences emerged between the combined CBT/Hypnotherapy group and the CBT only group. The CBT group demonstrated a higher CAPS severity score ($M=77.63$, $SD=14.93$) than the CBT/Hypnotherapy group ($M=64.62$, $SD=13.87$) with an effect size of $d=.90$. Furthermore, the effect size rose to $d=-1.38$ when the Hyperarousal subscale was considered separately. Interestingly, the IES-R revealed the opposite finding, with a higher baseline score in the CBT/Hypnotherapy group ($M=50.0$, $SD=13.12$), as compared to $M=37.88$, $SD=14.65$ in the CBT group, $d=.87$. Also, the mean DES score was lower in the CBT/Hypnotherapy group with $M=9.94$, $SD=4.67$ and $M=19.14$, $SD=12.57$ in the CBT group. The calculated effect size was $d=-.97$.

Treatment completers improved nearly 50% on all CAPS measures, with a 72% reduction in re-experiencing symptoms (pre-treatment= 44; post-treatment=12.42) and a 57% decrease in avoidance symptoms (pre-treatment=28; post-treatment=12). Improvement rates on the self rated PCL and IES-R were 35% and 43%, respectively. Furthermore, treatment completers also showed a 51% reduction in depression symptoms as measured by the BDI-II. In contrast, only small improvements in state depression and state anxiety could be determined on the STPI.

6.5.2 Individual changes in psychological measures before/after treatment

Figure 6.2 and *Figure 6.3* illustrate the CAPS - and PCL scores in individual treatment completers before and after treatment.

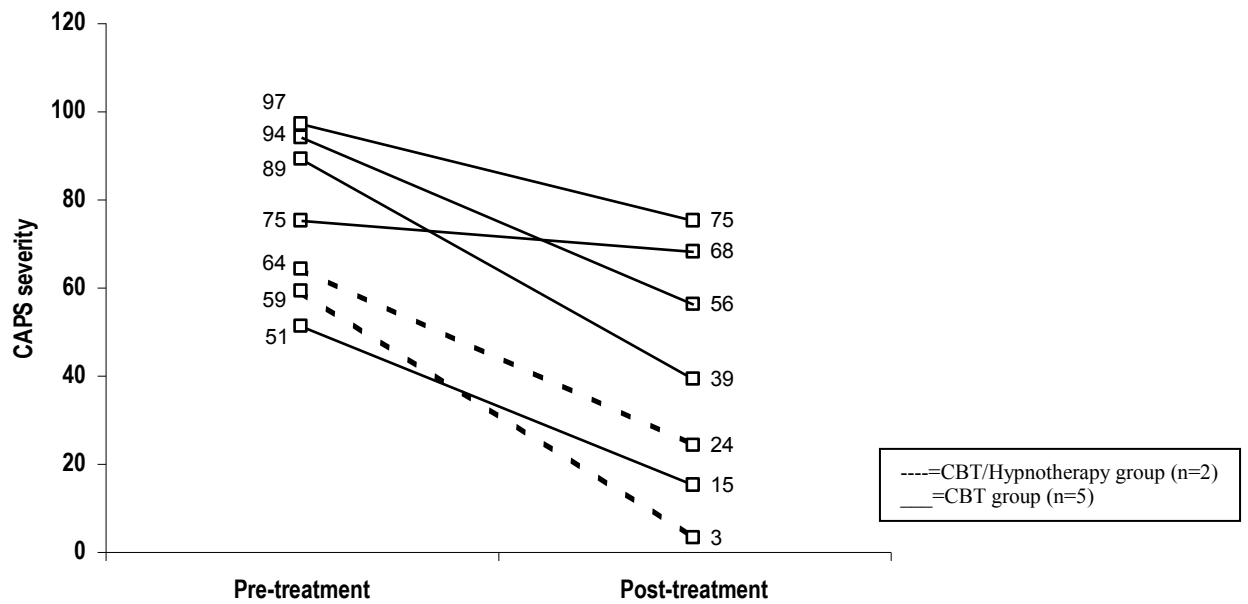
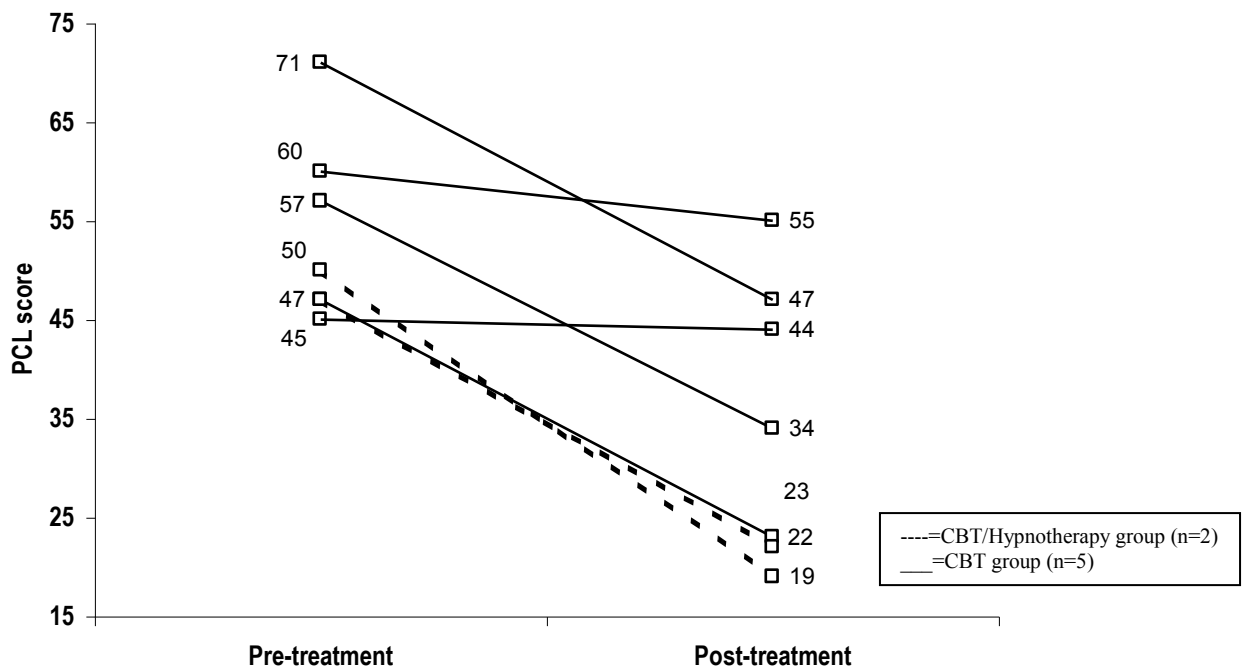


Figure 6.2. CAPS severity scores in treatment completers before and after treatment
 The maximal scoring range = 136 (68 for intensity scale + 68 for frequency scale)

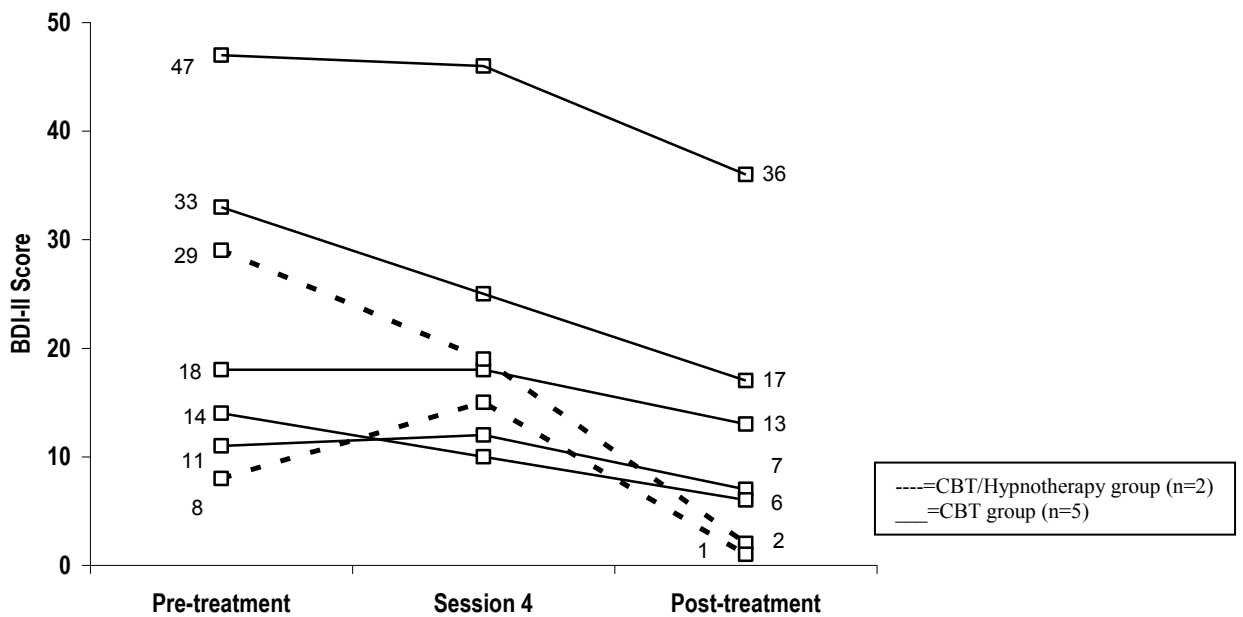


Maximum CAPS score = 85

Figure 6.3. PCL scores in treatment completers before and after treatment

All treatment completers showed a decrease in self-reported PTSD symptoms (PCL) as well as a decline in the clinician rated severity of PTSD (CAPS). Furthermore, three out of the seven treatment completers no longer met the criteria for chronic PTSD on the CAPS. Two treatment completers still presented with residual re-experiencing and hyper-arousal symptoms, but were able to achieve a notable reduction in avoidance symptoms. A further two participants still fulfilled all the criteria for a PTSD diagnosis.

Figure 6.4 shows the decline in BDI scores before, during and after treatment for each treatment completer. As depicted in the graph, a decrease in BDI-II scores could be observed for all treatment completers, though to varying degrees. Two participants showed an initial increase in depression symptoms (Participant 6 and 2). The major reduction in depression symptoms was observable between session 4 (t2) and session 9 (t3).



Maximum BDI-II score = 63

Figure 6.4. BDI-II scores in completers before, during and after treatment

Reliable Change Indices (RCIs)

Despite a considerable percentage of improvement across the group of treatment completers and an ostensible symptom reduction in every participant, it still needs to be established that the change in symptoms is a result of the treatment rather than a measurement error (Evans, Margison & Barkham, 1998). The small sample of treatment completers does not allow for a conventional independent sample t-test to determine the statistical significance of the results. As a consequence, Reliable Change Indices (RCI) were calculated for each participant using the following formula (Evans et al., 1998):

$$Z_c \cdot SD1 \cdot \sqrt{2} \cdot \sqrt{(1-r)}$$

Z_c =Standard Z value for a 95% CI (1.96); $SD1$ =Standard deviation of the measure at t_1 ; r =reliability coefficient of the scale at t_1 (Cronbach α)

The table below illustrates the reliable change indices on the PCL-C, CAPS, and BDI-II for each participant, respectively. For example, participant 1 was allocated to the CBT group and displayed a PCL score of 47 before treatment which was reduced to 23 after treatment. The observed difference of 24 points was greater than the required difference of 11.40, calculated by the above mentioned formula:

$$Z_c=1.96$$

$$SD \text{ (PCL-C) at } t_1=9.38$$

$$\text{Cronbach } \alpha \text{ for PCL-C}=.80$$

$$1.96 \cdot 9.38 \cdot \sqrt{2} \cdot \sqrt{(1-0.80)} = 11.40$$

As a consequence, a reliable change on the PCL could be determined for this participant.

Table 6.10
Reliable Change Indices for PCL-C, CAPS and BDI-II

<i>PCL-C</i>						
Code	Treatment group	T1	T2	Observed difference	Difference required	Reliable change yes/no
3	CBT/Hypno	47	22	25	11.40	Y
6	CBT/Hypno	50	19	31	11.40	Y
1	CBT	47	23	24	11.40	Y
2	CBT	57	34	23	11.40	Y
4	CBT	45	44	1	11.40	N
5	CBT	60	55	5	11.40	N
7	CBT	71	47	24	11.40	Y
<i>CAPS</i>						
Code		T1	T2	Observed difference	Difference required	Reliable change yes/no
3	CBT/Hypno	64	24	40	20.14	Y
6	CBT/Hypno	59	3	56	20.14	Y
1	CBT	51	15	36	20.14	Y
2	CBT	89	39	50	20.14	Y
4	CBT	75	68	7	20.14	N
5	CBT	94	56	38	20.14	Y
7	CBT	97	75	22	20.14	Y
<i>BDI-II</i>						
Code		T1	T2	Observed difference	Difference required	Reliable change yes/no
3	CBT/Hypno	29	2	27	10.10	Y
6	CBT/Hypno	8	1	7	10.10	N
1	CBT	18	13	5	10.10	N
2	CBT	11	7	4	10.10	N
4	CBT	14	6	8	10.10	N
5	CBT	47	36	11	10.10	Y
7	CBT	33	17	16	10.10	Y

In accordance with the trends depicted in the Figures, reliable improvements could be established for all but two participants on the PCL and all but one person on the CAPS. Participant 4 displayed very minor changes as assessed by both PTSD

assessment instruments, while participant 5 was considered as improved by the clinician, but not according to his self report. It is also noteworthy that both participants in the CBT/Hypnotherapy group showed reliable changes in both PTSD measures.

Though not illustrated here, it should be mentioned that RCIs for the IES-R were less convincing with only three statistically reliable improvements (please see Appendix U). Also, only 50% of the treatment completers showed a reliable change on the BDI-II, despite a significant percentage of improvement across the whole group of treatment completers. In accordance with the mean results, few reliable changes could be determined for the STPI state subscales apart from the state anxiety scale. Furthermore, state anger seemed to increase rather than decrease in six out of seven treatment completers.

Clinical significance

In addition to the statistical reliability, it is critical to determine the clinical significance of the results, that is, the extent to which change after treatment is clinically meaningful (Evans et al., 1998).

Jacobson et al. (1988, 1991) proposed that treatment results are clinically significant, if a person no longer belongs to a dysfunctional, but a functional population. This means that after treatment the participant is more likely to be in the normal, but in the clinical distribution (Evans et al., 1998). However, the challenge involved in this approach is the definition of an appropriate cutoff point that discriminates between a normal and clinical distribution. Evans et al. suggest the following formula to calculate the cutoff:

$$(\text{Mean}_{\text{clinical}} \times \text{SD}_{\text{norm}}) + (\text{Mean}_{\text{norm}} \times \text{SD}_{\text{clinical}}) / \text{SD}_{\text{norm}} + \text{SD}_{\text{clinical}}$$

Clinically significant improvements on the CAPS

Regarding the CAPS, a determination of a cutoff point is complicated by the fact that the CAPS results differ considerably depending on the trauma population. Moreover, the CAPS is usually applied in a population with an expected high rate of

PTSD. Looking at CAPS severity assessments in recent PTSD studies, Difede et al. (2007) found a pre-treatment CAPS mean of 50.50 (13.30) in an ITT sample of World Trade Centre disaster workers. Using Difede et al.s study as a reference sample, a cutoff of 60.47 would be determined for the present study: $(72.15 \times 13.30) + (15.50 \times 15.56) / 13.30 + 15.56 = 60.47$. In contrast, a reference sample of MVA survivors (Kupchik, Strous, Erez, Weizman, & Spivak, 2007) would yield a much lower cutoff of 33.54: $(72.15 \times 17.7) + (27.8 \times 15.56) / 17.7 + 15.56 = 33.54$. Weathers et al. (2001) considered a CAPS severity score of 40-59 as representative of moderate/threshold PTSD (Weathers et al., 2001, p.135). Given the heterogeneity of CAPS severity measures derived from different studies, a cutoff of 40 seemed appropriate for the determination of the clinical significance of the CAPS results in the present study.

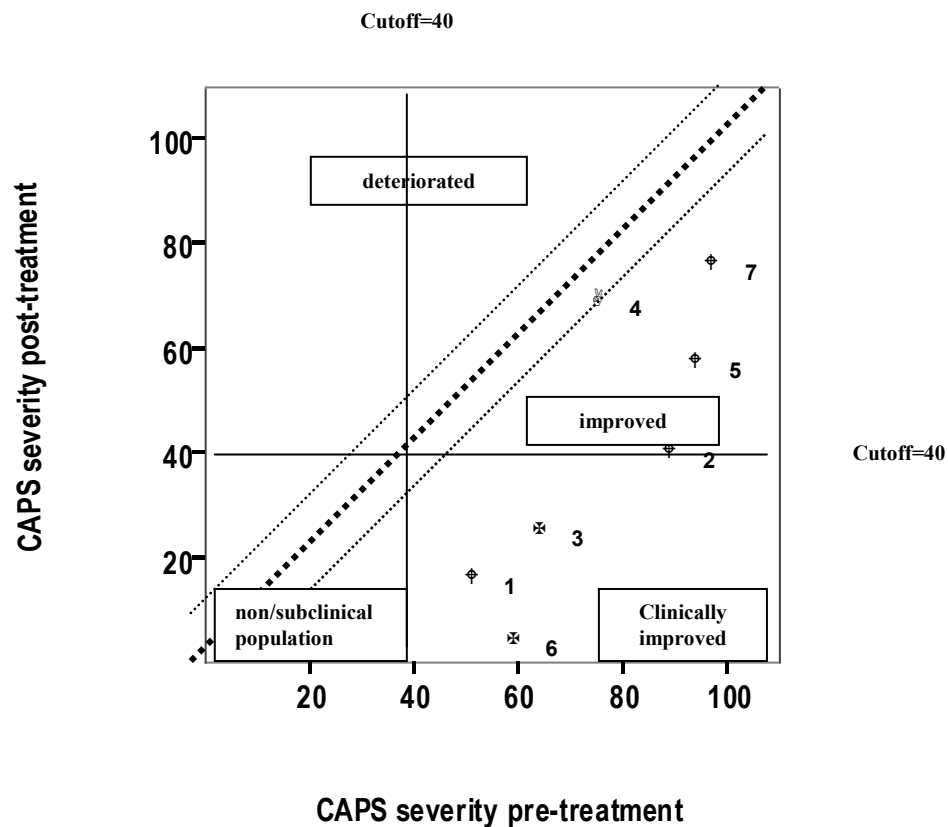


Figure 6.5. Clinical significance of the CAPS results in treatment completers
 Maximum CAPS score = 136. Each symbol represents a participant. Circles describe participants in the CBT group, triangles participants in the CBT/Hypnotherapy group. Solid shapes represent participants with a reliable change. The x axis is the baseline score and the y-axis is the post-treatment score. The horizontal and vertical lines define the cutoff points.

Points lying on the diagonals show no change which corresponds with the previous results found for participant 4. Points lying below the cutoff point post-treatment show a clinically significant change (Participants 1,3,6,2). Participants 5 and 7 show improvement, but not beyond the determined cutoff. This means that, despite their symptom reduction, they still belong to the clinical population, demonstrating post-treatment CAPS scores of 56 and 75, respectively.

Clinically significant improvement on the PCL

Analogous to the difficulty to define an appropriate cut off for the CAPS, various cut off scores have been suggested for the PCL, dependent on the population and the prevalence of the disorder. A cut off score of 50 has been frequently proposed, but is based on validation studies with war veterans (Forbes, Creamer, & Biddle, 2001), whereas a mean score of 55 was determined in sexual assault victims (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). A more recent investigation into the diagnostic utility of the PCL revealed an optimal cut off score of 54 in adults with severe mental illness (Grubaugh, Elhai, Jean, Wells, & Frueh, 2007). Based on these results, a cut off score of 55 seemed most appropriate for the present sample.

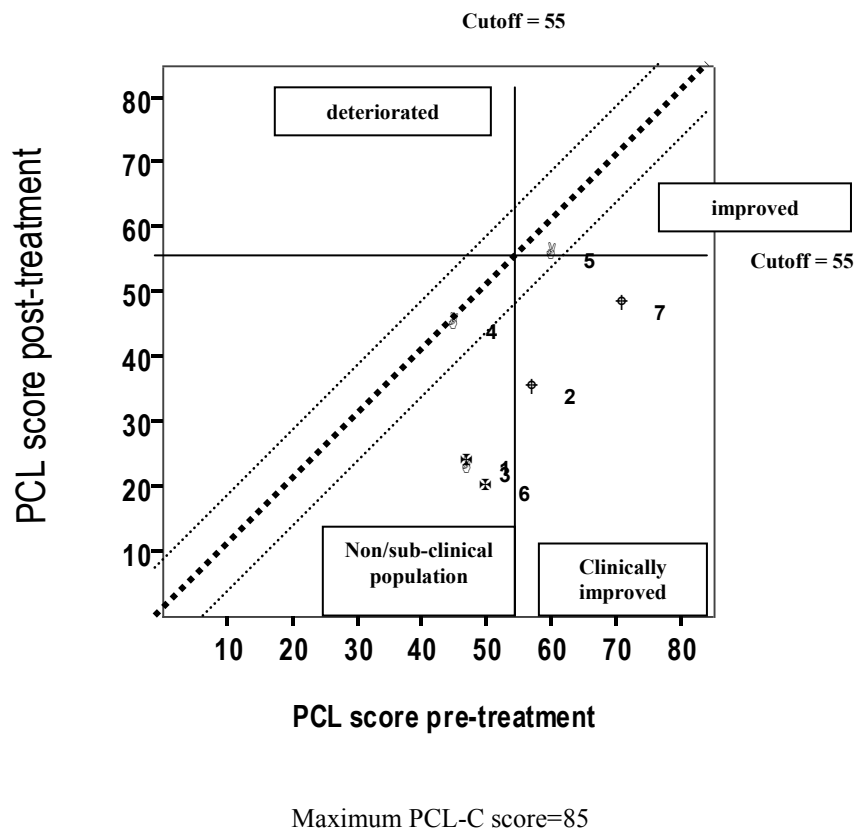


Figure 6.6. Clinical significance of PCL results in treatment completers

Two participants (2,7) improved on a clinically significant level. Participants 4 and 5 did not change which was also indicated by a lack of a reliable change. Participants 3, 6 and 1 did display a reliable change into the right direction, but their scores were lying beyond the cutoff for a clinical population before treatment. None of the participants deteriorated.

6.5.3 Differences between the CBT and the CBT/Hypnotherapy group

Due to the high number of dropouts, it was not possible to establish any statistically significant changes in outcomes between the two treatment groups. However, the two treatment completers in the combined CBT/Hypnotherapy condition benefited considerably from the treatment with respect to re-experiencing, -avoidance and hyper-arousal symptoms. Figure 6.7 shows the symptom reduction in every PTSD symptom cluster for the two participants in the CBT/Hypnotherapy condition.

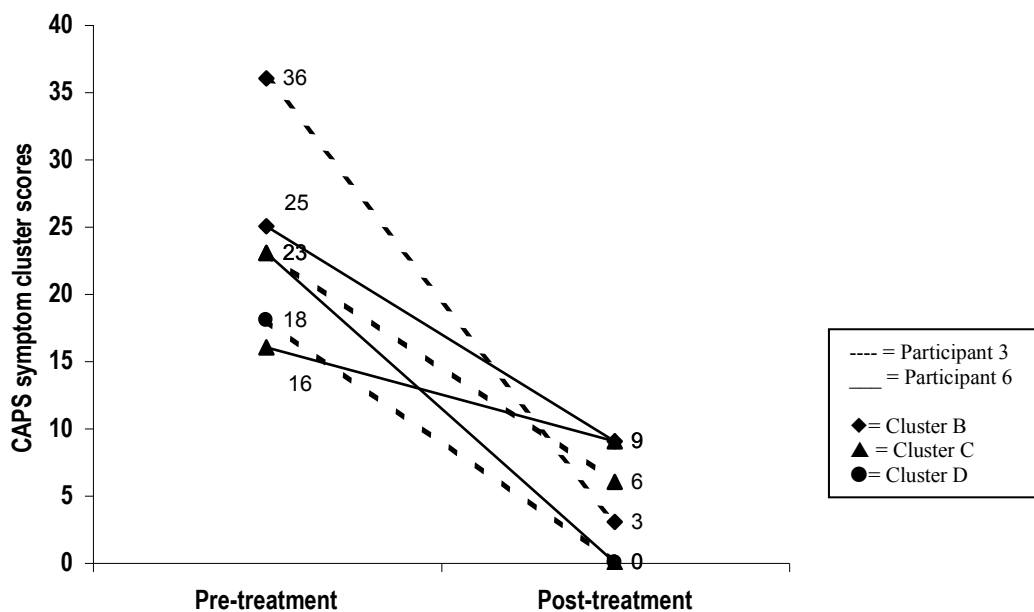


Figure 6.7 CAPS Re-experiencing, - Avoidance and Hyper-arousal symptoms for participant 3

6.5.4 Discontinuation of treatment

Twelve participants (63%) who had commenced treatment discontinued the treatment prematurely. Six people in the CBT/Hypnotherapy group and six people in the CBT group terminated their participation between session 1 and 6. Figure 6.8 shows the number of people discontinuing treatment after each treatment session. In both groups, most participants discontinued treatment before the implementation of the imaginal/hypnotherapeutic exposure in session 5 with n=4 in the CBT and n=5 in the CBT/Hypnotherapy group.

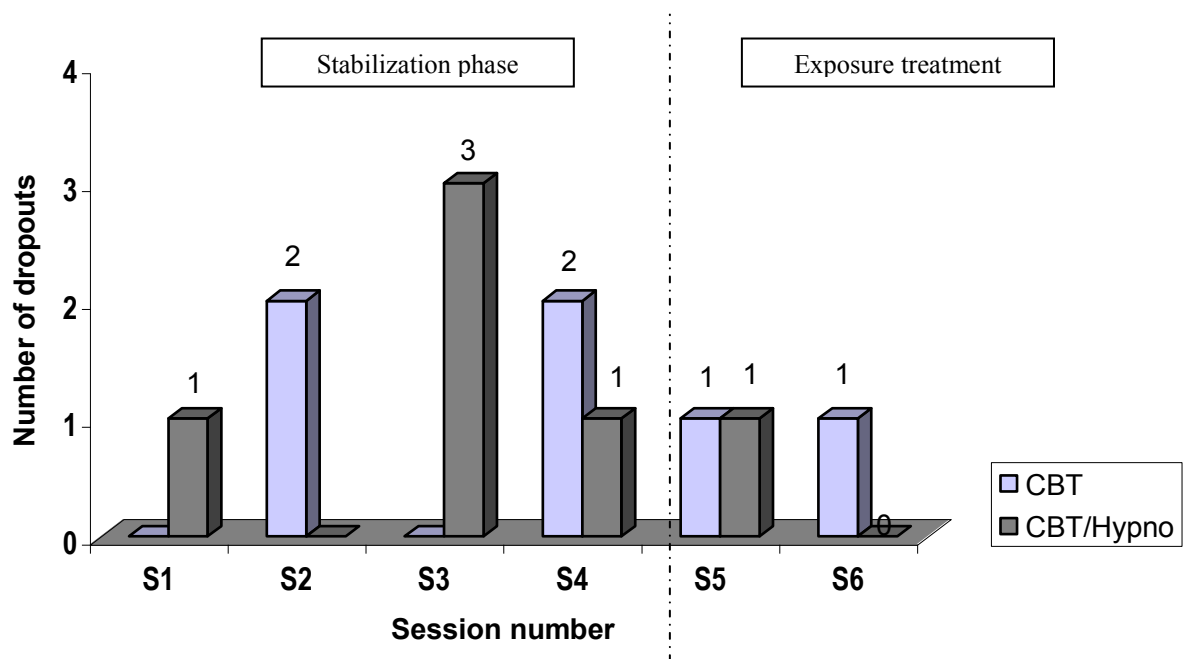


Figure 6.8. Number of dropouts in CBT and CBT/Hypnotherapy group

Table 6.11
Comparison of demographic/crime characteristics between treatment completers/non-completers

	Treatment completers (n=7)		Non-completers (n=12)	
	<i>n</i>	(%)	<i>n</i>	(%)
<u>Marital Status</u>				
Single	1	14.3	4	33.3
Married	3	42.9	4	33.3
Divorced	3	42.9	3	25.0
Widowed	0	0.0	1	8.3
<u>Living</u>				
on your own	3	42.9	6	50.0
family/partner	4	57.1	6	50.0
<u>Education</u>				
Primary	0	0.0	1	9.1
Secondary	3	42.9	5	45.5
TAFE	2	28.6	1	9.1
Tertiary	2	28.6	3	27.3
Other	0	0	1	9.1
<u>Employment</u>				
unemployed	3	42.9	4	36.4
full-time	3	42.9	1	9.1
part-time	0	0.0	3	27.3
student	1	14.3	0	0.0
pensioner	0	0.0	3	27.3
<u>Income p.a.</u>				
< 20.000	2	28.6	5	50
20-30.000	0	0.0	3	30
31-40.000	1	14.3	1	10
41-50.000	1	14.3	1	10
51-60.000	0	0.0	0	0.0
>60.000	3	42.9	0	0.0

No major differences in demographic characteristics could be found between completers and non-completers. Three male and four female participants completed treatment with a mean age of $M=48.71$, $SD=12.27$. Similarly, six males and six females discontinued treatment with a mean age of $M=46.33$, $SD=8.97$. The table

shows that non-completers were less full-time employed (9% versus 43% in completers), while 27% received a pension. These people also tended to have lower incomes.

Table 6.12
Crime characteristics in the combined CBT/Hypnotherapy group and the CBT group

Characteristic	Treatment completers (n=7)		Non-completers (n=12)	
	<i>n</i>	(%)	<i>n</i>	%
<u>Crime type</u>				
Adulthood	5	71.4	8	66.7
Childhood	2	28.6	4	33.3
<u>No of crimes</u>				
single crime	4	57.1	1	8.3
multiple	3	42.9	11	91.7
<u>Reported</u>				
Not reported	0	0.0	5	41.7
reported	7	100.0	7	58.3
<u>Compensation</u>				
Never	6	85.7	7	63.6
Received	1	14.3	2	18.2
Ongoing	0	0.0	2	18.2
<u>Litigation</u>				
ongoing	3	42.9	4	36.4
finished	3	42.9	2	18.2
none	1	14.3	5	45.5

With respect to crime characteristics, a higher percentage (91%) of treatment non-completers than completers had been exposed to multiple crime experiences. Furthermore, little more than half of the crimes have been reported by non-completers, while 18% were still involved in a current compensation claim. However, 42% of the treatment completers indicated to be also involved in ongoing litigation cases. In both groups, most of the crimes happened many years ago, although there

was a considerable variation amongst individual participants. A similarly broad range applied to the age at crime onset in both, treatment completers and non-completers. More specifically, the years passed since the crime happened ranged between 0.5 and 53 years in completers with a mean of $M=25.5$, $SD=19.44$. The age at crime onset in this group varied between 5-47 years with a mean of $M=23.86$, $SD=15.75$. In non-completers, the range of years passed since the crime occurrence comprised 2-36 years with a mean of $M=16.10$, $SD=14.09$, while the age at crime onset ranged between 6 and 51 years with a mean of $M=28.61$, $SD=17.25$.

Table 6.13
Differences in clinical symptoms between completers and non-completers at baseline

	CBT group (n=11)		CBT/Hypnotherapy group (n=8)		<i>Cohen's d</i>
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	
CAPS-II	75.57	18.22	70.16	14.27	.33
PCL-C	53.86	9.38	58.55	11.64	.44
BDI-II	22.86	14.06	26.00	11.70	.24
PTCI	145.85	42.90	141.00	54.49	.09
DES	17.29	12.88	14.00	9.78	.29

CAPS-II = Clinician Administered PTSD Scale; PCL-C = Posttraumatic Checklist Civilian; BDI-II = Beck Depression Inventory; PTCI = Posttraumatic Cognitions Inventory; DES = Dissociative Experiences Scale.

Table 6.14
Differences in comorbidity between completers and non-completers at baseline

Characteristic	Completers (n=7)		Non-completers (n=12)	
	<i>n</i>	(%)	<i>n</i>	(%)
Depression*	4	57.1	9	75.0
Anxiety*	2	28.6	6	50.0
Regular drug/alcohol consumption*	0	0.0	3	25.0

* Refers to a current diagnosis as assessed by the M.I.N.I. “Anxiety” includes symptoms of panic disorder, OCD, social and general anxiety. “Alcohol/substance abuse” refers to current alcohol and THC abuse.

Table 6.13 shows no major differences in PTSD, depression and dissociation symptoms between completers and non-completers in the standardized measures, which is also reflected in the calculated effect sizes. However, the M.I.N.I (Mini International Neuropsychiatric Interview) assessment showed a trend towards a greater frequency of current depression, anxiety and regular alcohol as well as THC consumption in people who did not complete treatment (Table 6.14).

6.5.5 Differences in perceived stress, expectancies and treatment credibility

In relation to sessions 1-4, the perceived stress levels (as assessed by the *Homework Review*) were rated as moderate in both groups and did not vary considerably between completers and non-completers. Nevertheless, two different trends are observable for completers and non-completers: People who completed treatment appeared to perceive the sessions increasingly less stressful, whereas dropouts indicated rising levels of distress.

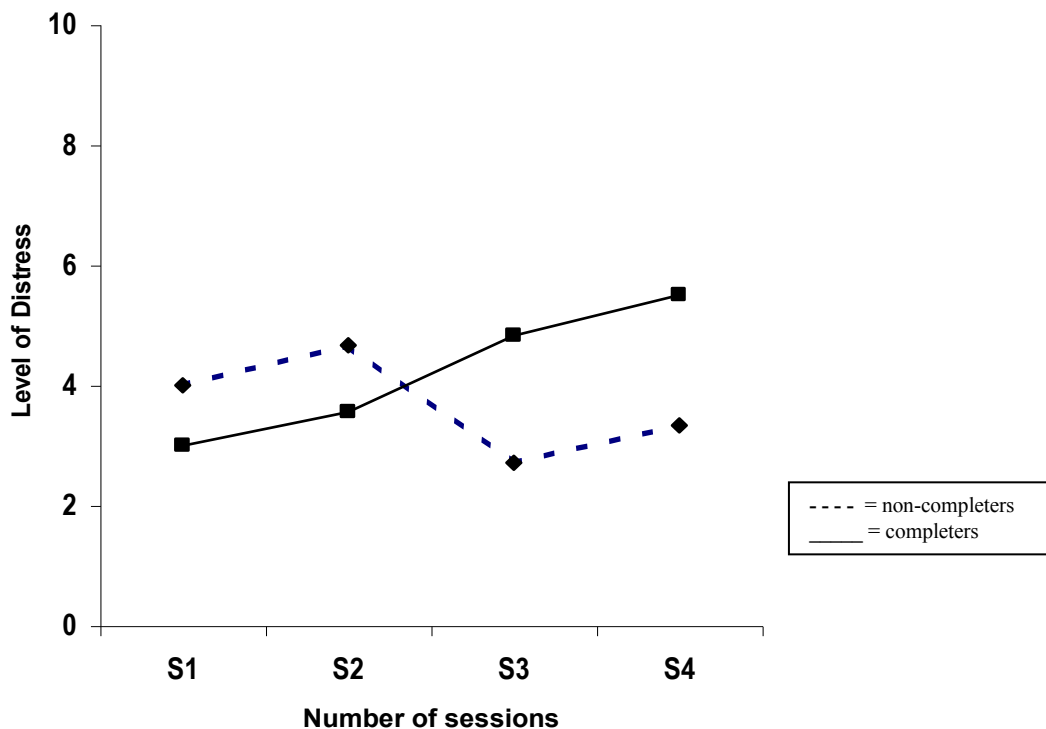


Figure 6.9. Comparison of indicated stress levels in completers and non-completers
 Treatment completers n=7 for each session
 Non-completers n=11 (session 1); n=9 (session 2); n=6 (session 3); n=4 (session 4)

Credibility / Expectancy Questionnaire (CEQ, Devilly & Borcovec, 2000)

No major differences between completers and non-completers were detected in relation to the beliefs and feelings of participants that the treatment would improve their level of functioning. Both completers and non-completers rated their expected improved functioning between 6-8 on a 9-point-rating scale, where 9 indicated the highest level of confidence. Treatment completers rated the program as somewhat more logical than non-completers with a mean of 8.57 (0.53) versus 7.00 (1.12) respectively, $t(13)=3.19, p<.01$.

In comparison of the CBT and CBT/Hypnotherapy group, the CBT/Hypnotherapy group was found to be significantly more confident that they would recommend the treatment to a friend, $t(13) = 2.87, p<.05$. They were also more convinced that the treatment would result in improved functioning, $t(13) = 2.57, p<.05$. This tendency

was also reflected on an emotional level, in that they *felt* more confident about improvement, $t(13) = 3.35, p < .01$.

The CEQ credibility subscale correlated negatively with all PTSD measures apart from the IES, meaning that a perception of the treatment as believable, logical and convincing was associated with fewer PTSD symptoms. One significant relationship could be determined with the PCL baseline score, $r(15) = -.64, p < .05$. The credibility and expectancy subscale correlated significantly with $r(15) = .71, p < .01$.

Distress/Endorsement Validation Scale (DEVS, Devilly, 2004)

Results for the DEVS are only available for treatment completers, because this scale was presented only at the end of the treatment. In line with the indications obtained from the single sessions, the stress, - anxiety, - and intrusion levels reported in relation to the assessment and treatment sessions were rated in the middle range (4-5) which can be interpreted as „somewhat“ stressful, anxiety-provoking, and intrusive. The intervention itself was strongly endorsed with ratings between 8 and 9 on a scale from 0-9, signifying that the clients would seek the same treatment again, that they would recommend this treatment to someone else, and that they believed they had received good value for their time and money.

Participant/Self Evaluation Sheets and Homework Review

Only 50.47% of the distributed participant evaluation sheets were returned to the School of Psychology with variable response rates per session. With respect to the first four sessions, mean ratings for the relevance of the program varied between 3.9 and 4.4 on a 5-point rating scale from 1 (“strongly disagree“) to 5 (“strongly agree“). Similarly, all participants agreed that the treatment was presented in an understandable way and conveyed in an adequate pace. Furthermore, participants disagreed when asked whether too many or not enough topics had been introduced. The level of comfort was indicated by means between 3.5 and 4.28 for the first four sessions, with similar values for therapist variables such as “feeling listened to”, “feeling understood”, empathy, and credibility. The highest ratings were given for the perceived therapist commitment with mean values between 4.5 and 4.7.

In comparison, the therapist self-evaluation revealed similar values between 3 and 4 for content – and therapist variables, while strongly disagreeing with the suggestion that there may not have been enough topics.

6.5.6 Treatment Fidelity

Treatment fidelity was assessed by two independent experienced clinicians. One of the assessors is employed at a clinic specializing in the treatment of anxiety and trauma. The other assessor is a specialist in the field of clinical hypnosis. Seven DVDs and all audiotapes recorded during the combined CBT/Hypnosis treatment were sent to the Hypnotherapy expert, while 13 DVDs and all audiotapes of the CBT treatment were forwarded to the CBT expert. The goal was to evaluate at least 20% of the conducted treatment with various clients, chosen at random. Both assessors did not have any information on the outcomes of the treatment which means that dropouts were assessed in the same way as treatment completers. Treatment fidelity was assessed by specifically developed Treatment Fidelity Assessment Protocols which were adapted from a protocol developed by Grant Devilly (please see Appendix R, S, pp. 458). The assessors received the treatment manual and rated whether every component was delivered as planned, as well as the presence or absence of essential and unique therapeutic techniques. Also, they gave an overall rating of the treatment integrity on a scale from 0 (“unacceptable acceptability”) to 6 (“high acceptability”). In addition, it was ensured that no hypnotherapeutic elements were applied in the CBT treatment.

The results showed a mean rating of 5.71 (0.48) in the CBT/Hypnotherapy treatment and a mean of 5.00 (0.57) in the CBT condition which can be interpreted as high treatment integrity.

6.6 Discussion

This study set out to evaluate the effectiveness of a CBT/Hypnotherapy treatment for VOC by comparing a CBT treatment to a combined CBT/Hypnotherapy program.

6.6.1 Improvement in psychological measures

Due to the small sample size and the high rate of treatment discontinuation, it was not possible to establish quantitative differences in treatment outcomes between the two groups. However, treatment completers in both groups demonstrated a marked reduction in self-reported and clinician-rated posttraumatic stress symptoms. Across the whole group of treatment completers, there was a 35% rate of improvement on the PCL, while participants demonstrated a 47% improvement on the CAPS. These results are well within the range of improvements found in other active trauma treatments. In their meta-analysis, Bradley et al. (2005) illustrate an improvement rate of 47.4% (17.06) in treatment completers after a CBT treatment with a slightly higher rate of 52.6% (14.29) for exposure treatments. In terms of reduced CAPS scores, in the present study the overall CAPS rate improved by 35 points in treatment completers. This is comparable to a recent study with female CSA survivors, McDonough et al. (2005) who showed a similar improvement by 36 points on the CAPS in the CBT treatment condition. Some authors have proposed that a change of 10-15 points on the CAPS is clinically meaningful (Schnurr, Friedman, Lavori & Hsieh, 2001). Similarly, Wheaters et al. (2001) have suggested that a 15% symptom change indicates a clinically significant result. As a consequence, the results of the present study can be interpreted as a satisfying treatment outcome for treatment completers.

Consistent with results from other studies (Basoglu, Salcioglu, Livanou, Kalender, & Acar, 2005; Ehlers et al., 2005; Kubany et al., 2004; McDonough et al., 2005; Rothbaum et al., 2005), there was also a considerable decrease in depression symptoms as assessed by the BDI-II, yet the treatment was less successful with respect to more general measures of emotional intensity (STPI). This is somewhat disappointing, as one would expect a reduction in state anxiety which has often been reported as a secondary effect in trauma treatment studies (McDonagh et al., 2005; Rothbaum, Astin, & Marsteller, 2005). On the other hand, a selected reduction in posttraumatic stress symptoms, but not all other measures, could be interpreted as a result of a targeted intervention to alleviate posttraumatic stress. It may be a shortcoming of this study that not all of the single measures have been re-administered post-treatment. For example, it would have been interesting to measure participants' change in dysfunctional thoughts and dissociative symptoms. However,

it was assumed that an administration of more measures would have been unduly burdening participants, given that they were already subjected to a very time consuming assessment process.

Despite a promising symptom reduction in treatment completers, one must ask how a decrease in CAPS scores translates into reduced suffering or improved overall functioning. Moreover, one needs to determine what the results mean for individual clients. The Reliable Changes Indices established a reliable change for all but one treatment completer on the CAPS. Nonetheless, the conclusion changes somewhat when it comes to the clinical significance of the results. Although none of the treatment completers has deteriorated and all of the participants in this group improved to some degree, only three out of seven people who finished treatment can be considered as *clinically improved*, meaning that after treatment they no longer belonged to a clinical population. This result is also concordant with the determination of their diagnostic status; three out of seven treatment completers did no longer meet the criteria for chronic PTSD. However, two treatment completers still presented with residual symptoms and a further two still fulfilled the criteria for a diagnosis. Clearly, it appears worthwhile to explore what these results mean for the individual person in terms of their sense of vulnerability and their ability to actively engage in life.

6.6.2 Improvement in the combined CBT/Hypnotherapy condition

It has to be acknowledged that only two of the seven treatment completers were part of the CBT/Hypnotherapy condition. Both these treatment completers showed a very significant symptom reduction in PTSD symptoms: Participant 6 had a pre-treatment CAPS score of 59 which dropped to a score of 3 post-treatment, while the initial score of 64 in participant 3 was reduced to 24 after treatment. With respect to the BDI-II, participant 3 showed a substantial decline in depression symptoms from an initial score of 29 to only 2 post-treatment, while participant 6 had a very low depression score at baseline with no real scope for improvement.

Some authors have suggested that impacts of hypnotherapy may not be reflected in immediate treatment outcomes, but rather at follow-up (Lynn, Kirsch, Barabasz, Cardeña, & Patterson., 2000). However, these results are questionable, as for example Bryant et al. (2005) were not able to find greater effects three years after

treatment. Other authors have stressed that hypnotherapy may be particularly beneficial for re-experiencing symptoms (Brom, 1989; Bryant, Moulds, Guthrie, & Nixon, 2005) which may be a result of a possible breach in dissociative obstacles (Bryant, Moulds, Guthrie, & Nixon, 2005). In the present study, the two participants in the CBT/Hypnotherapy group did show a strong decline in Cluster B and D - PTSD symptoms, but they also displayed a marked reduction in avoidance. This outcome may be explained by the much broader application of hypnotherapy which allowed to focus equally on re-experiencing - and avoidance symptoms which stands in contrast to the study by Bryant, Moulds, Guthrie, and Nixon (2005).

At a first glance, it appears that more people in the CBT/Hypnotherapy condition discontinued treatment in comparison to the CBT condition which would have important implications on the interpretation of the results. However, no such effects are known from the literature which has instead demonstrated a good acceptance of hypnosis in traumatized patients, because it enabled them to experience their symptoms in a controlled way (Spiegel 1992; Spiegel & Spiegel, 2004). Moreover, Bryant, Moulds, Guthrie and Nixon (2005) suggested that in their hypnosis group there may have been an increased willingness to adhere to treatment instructions, along with decreased anxiety as a result of the relaxation in a hypnotic state. Moreover, there is an indication that less treatment sessions are needed when applying hypnosis in comparison to other treatment conditions, which suggests a high compliance with treatment (Cardeña, 2000; Brom et al., 1989).

The pre-treatment comparison of clinical characteristics showed that participants in the CBT/Hypnosis group displayed slightly lower scores on the PTSD measures. However, it is unlikely that this would justify a treatment discontinuation, as they still displayed severe posttraumatic stress symptomatology.

Also, there is a slight possibility that people's expectations towards hypnotherapy may not have been fulfilled and in this way contributed to the decision to end treatment. Particularly with respect to the effects of hypnotherapy, people may have unrealistic or overvalued expectations (Kirsch, 1994 in Schoenberger, 2000; Schoenberger, 2000) which could have influenced results in both directions. For example, Kirsch et al. (1995) emphasized that the mere use of the word "hypnosis"

led to more beneficial treatment outcomes which could be interpreted as a “Hawthorne” effect. A trend towards more positive expectations is also recognizable in the present study: The participants allocated to the CBT/Hypnotherapy group showed higher expectations towards improvement and more endorsement for the treatment on the CEQ.

There was no indication that participants in the CBT/Hypnotherapy group experienced higher stress levels or perceived the treatment as more intrusive than participants in the CBT group. Similarly, there was no evidence of an increased dropout in relation to the hypnotherapeutic trauma exposure. When one considers the timing of dropout, all six participants in the combined condition discontinued treatment before commencement of the hypnotherapeutic processing of traumatic memories, while the same pattern was evident in the CBT condition with respect to imaginal exposure. Also, the treatment groups did not differ markedly in terms of demographic or crime characteristics apart from more involvements in compensation processes in the CBT/Hypnotherapy group. To what degree this may have influenced participant attrition may become clearer through the qualitative analysis of the data.

6.6.3 Dropouts

In the present study, dropouts or treatment non-completers are defined as participants who discontinued treatment before the completion of all nine treatment sessions, irrespective of the time of dropout. This is an important note, as throughout the PTSD literature definitions of dropout vary widely (Matthieu & Ivanoff, 2006).

Twelve participants (63%) with an intention to engage in treatment decided to refrain from treatment at some point during the course of this program. Without doubt, this is a very high dropout rate that warrants further investigation into the reasons for participants’ inability to adhere to treatment.

Some authors refer to people who fail to attend or refuse to return to their allocated treatment sessions, while others allude to participants with a poor treatment compliance and/or failed treatment goals (Matthieu & Ivanoff, 2006). With respect to reported dropout rates, numbers vary between zero and 43% (Power, McGoldrick, Brown, Buchanan, Sharp, & Swanson, 2002) for CBT in PTSD populations.

McDonagh et al. (2005) determined a dropout rate of 41% in their CBT treatment of CSA survivors which was considerably greater than in the CPT – and waitlist group. On the other hand, Clark et al. (2005) found a very low attrition rate in their cognitive treatment with only 3% of the participants leaving treatment earlier. However, all these rates refer to RCTs rather than clinical practice settings where dropout rates are expected a lot higher or even double (Zayfert et al., 2005). Zayfert and her colleagues found a completion rate of 28% (and hence a dropout rate of more than 70%) in their PTSD study at an Anxiety Disorder Service. However, it must be acknowledged that completion here was defined by the achievement of treatment goals rather than a mere attendance of a certain number of sessions (Zayfert et al., 2005).

Commonly, a dropout rate of 20% is viewed as acceptable in clinical studies (Matthieu & Ivanoff, 2006). However, one has to be aware of the fact that dropout rates are inextricably linked with inclusion – and exclusion criteria and the importance given to the generalizability and clinical utility of the results. A goal of the present study was to allow for maximal generalizability by not excluding people with complicating factors such as comorbidity, childhood – and/or multiple trauma experiences, or current litigation - and compensation processes. This decision is reflected by the fact that more than 70% of the participants in the current study presented with multiple trauma histories.

Interestingly, the proportion of multiple trauma exposure was comparatively higher in treatment non-completers with 91% having suffered multiple traumatic incidents, whereas 33% had been exposed to the trauma during childhood. In contrast to completers, more than 40% of the non-completers had never reported their crime and 36% were still involved in litigation cases. Furthermore, nearly 30% of the non-completers received some form of disability pension and only few were full-time employed, which was also associated with lower incomes. Hence, it appears that the sample in this study represented a more complex history of trauma, more simultaneous involvements in other stressful processes, a higher degree of chronicity and possibly a lower level of functioning than participants commonly involved in RCTs. All these factors may contribute to higher dropout rates. For example, a linear relationship between chronicity and dropout has been emphasized by Burstein (1986)

who found an 82% dropout in participants who had experienced their trauma at least 41 weeks before treatment.

In the present study, non-completers did not demonstrate more severe baseline PTSD and depression symptoms which contrasts with some findings in the literature (Bryant et al., 2003; Taylor, Feodoroff, & Koch, 1999). Nonetheless, it should be emphasized that participants in this study displayed comparatively high levels of overall PTSD symptom severity (Weathers et al., 2001) which seems to correspond with other studies including survivors of repeated interpersonal violence. Thus, the severity of PTSD symptoms in the present study was comparable to McDonagh et al.'s study (2005) on CSA survivors, where pre-treatment mean CAPS scores were 69.9 (16.8) in the ITT sample, while similar CAPS scores between 74.4 (19.9) and 78.0 (20.5) were reached in Kubany et al.'s (2004) study on partner abuse related PTSD. On the contrary, a recent study by Difede et al. (2007) revealed scores of only 51.73 (17.04) in World Trade Centre Disaster workers. Furthermore, BDI scores in the current study were higher than in McDonagh et al. study and also higher than in Rothbaum et al.'s (2005) study on rape survivors.

Treatment non-completers in this study presented with more comorbid problems than treatment completers which is supported by other empirical findings (Bryant, Moulds, Guthrie, Dang, & Nixon, 2003; Fischer et al., 1993; Taylor et al., 1999). Zayfert et al. (2005) established that the intensity and frequency of PTSD symptoms along with depression, impaired social functioning and Borderline Personality Disorder impacted on treatment completion in PTSD sufferers. In particular, an additional Axis-II diagnosis has been associated with higher dropout in clinical studies. Steel, Jones, Adcock, Clancy, Bridgeford-West, and Austin (2000) found that BPD predicted dropout in a CBT treatment for bulimia nervosa. Furthermore, personality disorders were related to dropout in cognitive therapies for depression and generalized anxiety disorder. On the other hand, Weertman, Arntz, Schouten, and Dreessen (2005) examined dropout rates in outpatients with anxiety disorders and could not determine an increased attrition in his participants with personality disorders, although they displayed more severe symptoms in outcome measures. Also, Van Minnen et al (2006) did not find an association between PTSD

symptom severity and dropout, nor was attrition influenced by symptoms of depression, general anxiety, anger, guilt, shame or non-specific treatment variables.

Some authors have expressed concerns about a potential relatedness of exposure based treatments and dropouts (Van Minnen & Foa, 2006). However, Foa et al. (2002) demonstrated that imaginal exposure was not related to dropout, despite a temporary symptom exacerbation in a minority of the clients. Another study conducted by Hembree et al. (2003) revealed no differences in dropout rates between exposure therapy, cognitive therapy, EMDR and SIT. Likewise, in the present study there was no indication that dropout was related to exposure treatment. Instead, it was observed that participants discontinued treatment prior to starting exposure treatment. In fact, delayed commencement of exposure treatment could be an indication of dropout per se. Zayfert et al. (2005) found that 76% of their participants dropped out before engaging in exposure treatment, while 58% of those who did start exposure treatment completed treatment successfully. Thus, being able to attend to the treatment up to the implementation of exposure practices may be an indicator of a positive response to the intervention.

In clinical studies, many different reasons have been advanced to explain participant loss. Scott et al. (2004) and Scott, Foss, and Dennis (2005) highlighted factors such as increased mobility, cyclic patterns of instability, insufficient contact details, employment and childcare obligations, institutionalization, illness, lack of trust, and social withdrawal in a sample of drug and alcohol dependent participants. However, there may be additional critical factors in a sample of crime survivors, as it can be expected that PTSD symptoms such as hyperarousal and reexperiencing may raise participants' stress levels and contribute to dropout. Avoidance, interpersonal problems and functional impairment may constitute further problems. Moreover, safety concerns and a concomitant increased mobility may hinder adherence in VOC.

Nevertheless, it should not be ignored that high dropout rates can be an indication of flaws within the treatment process such as poor treatment delivery, missing treatment components, or insufficient treatment acceptance which renders a thorough scrutiny of these processes essential.

6.6.4 General methodological limitations

This study has several methodological limitations which need to be taken into account when interpreting the results.

First, no ITT analysis was conducted post-treatment due to the missing data from non-completers. Despite numerous efforts to contact people who had discontinued treatment, it was not possible to obtain data from them. For example, participants could not be tracked down due to a change in their contact details or disconnected phone lines, or they did not succeed in completing the questionnaires. Given the high rate of treatment discontinuation in this study, it must be expected that the results are somewhat inflated as they refer to treatment completers only.

Furthermore, no follow-up was conducted due to time – and other resource restrictions. Hence, no conclusions can be drawn regarding longer-term effects of the treatment.

Despite efforts to obtain a clinically representative sample, there may still be a considerable selection bias which restricts the generalizability of the results. First, the mean age of participants in this study was 47.2 years which does not represent the majority of VOC as, according to current statistics, most people are victimized during their late teenage years or in their mid twenties (Grant et al., 2002). In addition, a great proportion of the participants in this study experienced their crimes a long time ago which may be another specific feature of the current sample. Also, it is difficult to determine how well VOC were represented with respect to different crime types, given the small sample size and the obscurity surrounding the prevalence of crimes. A selection bias may also result from a self-categorization as a “Victim of Crime” which may attract individuals with a particularly strong sense of victimization.

Further bias may be created by the simple mention of “hypnosis”, as this may catch the attention of people with particular expectations towards treatment. Lastly, one should be aware of the fact that in South Australia access to public psychological facilities is limited for people with complex clinical disorders. Hence, there is a great likelihood to attract people with severe mental health problems, as these clients are not well accommodated within the public mental health system.

Notwithstanding efforts to abide by the recommended methodological guidelines, limited resources led to some methodological flaws which should be acknowledged.

Some problems may have occurred as part of suboptimal assessment arrangements. Although it was an important goal to ensure an independent assessment, there may have been some confounding as a result of the fact that the assessment took place at the same place as the treatment. Furthermore, it was not possible to maintain the same assessors throughout the course of the treatment, because the Clinical Masters students were only available for the time of their clinical placement at the Centre for Treatment of Anxiety and Depression. Due to their frequent rotation, it was also not feasible to establish interrater-reliability between the different assessors.

Another possible shortcoming was that the assessment was conducted on a postgraduate student - rather than a more experienced clinician level. Nonetheless, it should be noted that all of the involved Masters students were close to finishing their Masters degree, while it was ensured that all assessing students received assessor training and regular supervision. The training comprised working through an instruction manual and a training DVD on the CAPS from the Australian Centre for Posttraumatic Mental Health, supervised administration of the CAPS for training purposes, and the provision of a theoretical rationale for the study.

A further potential weakness was that both treatments were conducted by the same therapist. Although, on the one hand, this can rule out therapist effects, on the other hand some undesired effects may arise by tendencies to favour one treatment over the other and/or differences in particular treatment skills. Also, there may have been some difficulties to keep the treatment conditions distinct from each other, despite efforts to adhere to the manualized treatment protocol. Moreover, a conflict of interest may have been created by the fact that the therapist was also the researcher. For example, research requires an independence of assessment and treatment which means that little information should be available to the therapist before the intervention. This however opposes ideas on good clinical practice, where the assessment process already is part of the intervention.

Finally, the level of therapist experience may have influenced the results. The therapist has received comprehensive CBT – and Hypnotherapy training, but no specialized training in trauma therapy. Nevertheless, the therapist received regular supervision by experienced trauma experts who were not involved in the research project. Furthermore, treatment integrity was assessed by two experienced, independent colleagues. However, there may have been some limitations with respect to the treatment fidelity assessment. The two independent evaluators were not blind to the treatment condition, as they were specialized in CBT trauma treatment or hypnotherapy, respectively. Furthermore, due to the limited number of assessors no interrater-reliability was determined.

6.6.4 Concluding remarks

Considering the research questions and the answers received so far, one should ask whether this study has achieved what it set out to do. At a first glance, one could say that the original hypotheses have not been confirmed or rather not been answered at all. Thus, at this stage it is not possible to determine statistically reliable differences between a cognitive-behavioural treatment and a combined cognitive-behavioural/Hypnotherapy treatment by quantitative methods of analysis alone. However, despite limited results with respect to the outcome evaluation, many important insights have been gained from the analysis:

1. A sample of victims of crime can be very heterogeneous, associated with a presentation of very complex problems which constitute multiple challenges for a treatment evaluation.
2. VOC with a severe psychopathology and multiple experiences of traumatization can benefit from a CBT as well as a combined CBT/Hypnotherapy treatment, given that they can attend a satisfying number of treatment sessions.
3. Hypnotherapy appears to be a useful component, but may also create unrealistic expectations and promote dropout, if these expectations are not met.

4. There is a first indication that an engagement in exposure treatment seems beneficial and associated with the ability to complete treatment.

5. A great proportion of people with an intention to engage in treatment cannot persist. Nevertheless, the very fact that severely traumatized people do respond to such a research project underlines their need for assistance. However, more needs to be known about their inability to pursue this goal and how they can be better accommodated in such a treatment program.

Evidently, many of the depicted trends await further elaboration and clarification by the planned qualitative analysis. Many questions remain concerning the actual delivery of the single treatment components and the reception of treatment by individual participants. This includes individual participant expectations towards treatment, individual impacts of the crimes and participants' impairment in functioning. A qualitative Framework Analysis of the treatment sessions will be presented in the following chapter.

Framework Analysis: Differences between Completers and Non-Completers

This chapter will describe a Thematic Framework Analysis to complement the quantitative findings from the treatment evaluation. In a first step, the reader will be acquainted with the pre-determined and emerging themes which constitute the conceptual framework for the data analysis. The core part of this chapter comprises a description and elaboration of the focal themes derived from the analysis of the treatment sessions, with a special emphasis on differences between treatment completers and non-completers. The results will be discussed in light of the research questions, particularly those which have not been satisfactorily answered by the quantitative analysis process. Moreover, patterns of association within the data will be identified along with a discussion of explanatory accounts, taking into consideration current theories and its wider application in treatment evaluation.

7.1 Framework Analysis of the treatment process

A major goal of the Framework Analysis (FA) in the present study was to gain a deeper understanding of the treatment process.

The quantitative analysis in the previous chapter (Chapter VI) demonstrated a satisfying reduction in PTSD and depression severity in the majority of people who were able to complete treatment. Moreover, information on the recruitment process, participant characteristics, stress and intrusion levels, and attendance rates was gained, besides a quantitative establishment of treatment integrity. At the same time, the evaluation process has alluded to some critical aspects which should be targeted in the qualitative analysis. One of the most striking results was that twelve out of nineteen participants did not complete all nine treatment sessions, questioning the utility of the current treatment program for victims of crime. In addition, this

predicament resulted in the impossibility to test the original hypotheses of an additive benefit of hypnotherapy with quantitative methods of analysis.

Also, many of the research questions relating to the treatment process itself have not yet been answered. In particular, it should be elaborated how the single treatment components were delivered and which factors may have interfered with the delivery of the treatment as planned. Equally important is the response of the participants to the interventions which can not be captured in a mere documentation of attendance or dropout rates. Rather, the degree of engagement, participants' feedback on the treatment, their expectations towards the therapist and their understanding of treatment success should be explicated. To further an understanding of the complexity of traumatic sequelae, more information should be provided in relation to the individual context and circumstances of participants.

The various steps involved in a Framework Analysis were detailed in Chapter IV and will only be briefly delineated here. Data were collected from audio – and video tapes of the treatment sessions, as well as from treatment records documented in participant files. After a familiarization with the data, a thematic framework with pre-determined and emergent themes was identified. With respect to this intervention program, most of the themes were pre-determined in that they were shaped by the requirements of the treatment. However, many critical aspects and challenges became only apparent during the actual treatment process which led to a substantial number of additional themes. Table 7.1 provides an overview of the initial conceptual framework:

Table 7.1

Initial conceptual framework including pre-determined and emergent themes

1. PARTICIPANT CHARACTERISTICS/LEVEL OF FUNCTIONING (PC)

(Demographics)

Personal life history including available information about family history

Support/**Who knows about crime**

Mental Health

Physical health

Degree of functioning (professional, social)

Reported relationship patterns

2. HISTORY OF CRIME EXPERIENCES (CH)

Crime characteristics (when happened, which crime(s), at which age, multiple/single crime)

Way of telling about crimes (coherence, logic, consistency)

Complicating factors within crime experience (e.g. special vulnerability)

3. INVOLVEMENT IN CRIMINAL JUSTICE PROCESS (CJ)

Perception of justice

Involvement in litigation/compensation process

Offender known

Offender charged/not charged

4. DESCRIBED IMPACTS OF CRIME (IC)

Way of description of symptoms, particularly avoidance patterns

Stated impacts on other events/factors

Stated impacts on life choices, unfulfilled dreams

5. HAMPERING FACTORS REGARDING THE DELIVERY OF THE PLANNED TREATMENT(HF)

Risk issues

Complexity of other problems

Degree of Disorganization/difficulties to adhere to structure

Acceptance of exposure treatment

Level of perceived stress/intrusiveness

6. PARTICIPANT EXPECTATIONS TOWARDS TREATMENT (PE)

Expectation to experience a reduction of symptoms

Expectation to improve functioning

Expectations towards therapist

Ways of referring to other/previous health professionals

Expectations regarding assigned treatment group, particularly Hypnosis

Impressions after (first) session

Locus of Control / self efficacy

Views on treatment success

View of self

Pre-determined themes = in Times New Roman Font

Emerging themes = in Arial bold Font

Indexed themes

The next step of the Framework Analysis involved the development of an index for each major theme which was then applied to all textual data. Table 7.2 provides an overview of the themes and the applied indices.

Table 7.2
Indexed themes

Index	Initial themes	Changed themes
1. PC	Participant characteristics	
2. CH	Crime characteristics	
3. CJ	Criminal Justice process	not treated as independent theme
4. IC	Described impacts of crime	
5. HF	Hampering factors regarding the delivery of the planned treatment	
6. PE	Participant expectations	Participant expectations and reception of treatment a) Participant expectations towards treatment b) Control expectations

7.2 Major themes of the Framework Analysis

As a consequence of the high dropout rate, the themes were analyzed in light of possible differences between treatment completers and participants who discontinued treatment (non-completers). Due to the experienced difficulties to determine additive benefits of hypnotherapy by a sole analysis of two treatment completers, another important goal was to find out which factors may have complicated the delivery and reception of treatment and whether there were any identifiable group differences.

As part of the analysis process, some of the initially suggested six major themes were merged and divided, respectively. The category “Criminal Justice Process” was not treated as an independent theme, but rather in the context of its influences on control expectancies and interference with the delivery of treatment. Also, for a more accurate account, the category “Participant Expectations” was divided into two subcategories: “Participant Expectations towards Treatment” and “Control Expectations”.

The following section provides descriptive accounts of the key themes derived from the Framework Analysis. Each theme is introduced and described in its various facets, supported by participant quotations from the treatment sessions. Quoted names and any details that would make a client identifiable have been omitted for confidentiality reasons. Similarly, the source of the quotes will only be identified in terms of the group membership, i.e. whether the person has completed (C) or discontinued treatment (NC). To further protect participants, only as much information necessary to support the arguments is revealed which sometimes required extracting parts from the original quotations.

1) Participant characteristics

An overview of participants’ demographic characteristics has been presented in Chapter VI as part of the quantitative analysis. The Framework Analysis elaborates on this information regarding participants’ level of occupational and social functioning, social support as well as their mental - and physical health.

1.1. Occupational functioning

Three non-completers were holding a full-time position, while the majority (six people) was currently not employed and supported by some form of government allowance such as a disability pension (3), carer’s pension (1) or Centrelink unemployment benefits (2). However, in all three cases the disability pension was granted on the grounds of a (mostly work-related) physical disability rather than participants’ mental health condition. Nevertheless, the physical injury and subsequent incapacity to work, as well as related compensation claims, may have

contributed to an increased sense of victimization and powerlessness, and this may have influenced coping with the crime experience:

I've got a trade, but when I ended up leaving my previous job I couldn't get work anywhere because of work cover – they don't realize that it destroys your working life once you've been on work cover and suffered an injury and ends up to be an incapacity (...). I couldn't go back to my profession (NC)

In treatment completers, proportionally more people (n=3) worked full-time at the time of enrolment. The remaining four participants did not work and were supported by their partners or unemployment benefits. Looking into reasons for the work incapability, one participant was suffering from a chronic pain condition due to years of physical abuse, while the three other participants did not feel able to manage job requirements because of their high stress levels, depression, a lack of concentration and extensive withdrawal behaviours.

Over the course of the treatment process, it became evident that occupational functioning in VOC should not be understood as a status quo, but rather as a fluctuating phenomenon. One of the non-completers reported on significant restrictions in occupational functioning as a consequence of the crime, though she had intermittently joined the workforce and could engage in tasks such as housekeeping and child care: (...) *it's basically when I'm really low, no energy (...) and can't cope with household and cooking (NC).*

Fluctuations in occupational functioning were also evident in treatment completers: (...) *some days I can concentrate on my job and some days not (...) (C).*

1.2 Social and interpersonal functioning

Seven out of the twelve non-completers lived currently by themselves and had done so for a long time. A similar pattern was evident in treatment completers with three people living with a partner or family and four participants in no or casual relationships. However, over the course of the treatment, problems with current or past intimate relationships were more frequently mentioned by non-completers rather than completers. Reported difficulties included an involvement in dysfunctional or

abusive relationships, little experience with relationships and / or avoidance of close relationships, and maladaptive strategies to maintain relationships. Also, most of the non-completers did not have a stable support network. In treatment completers, there was a clear indication of social withdrawal as a consequence of the crime, but completers seemed generally better socially embedded as compared to people who discontinued treatment.

Dysfunctional relationships

(...) immediately I start worrying they gonna leave me alone, so I guess I stayed with relationships and people who misuse me and things like that so I'm not alone (NC)

Another client mentioned a history of unstable and frequently changing relationships in which he felt betrayed and victimized: *I was in a tumultuous relationship in 2004 that sort of dragged on into 2005, but the relationship has changed several times (...)* (NC)

Little experience with relationships

One of the clients had never been in a long term relationship: *I haven't had that much exposure when it came to relationships and social interactions and so forth (...)* (NC)

Social withdrawal

Five of the non-completers were married or lived with a long term partner and four of them had children. Nevertheless, most non-completers mentioned extensive social withdrawal behaviours: *(...) I'm pushing everyone away (...) I find a reason not to let them in (...)* (NC)

I can't handle a proper family life (...) because there's something that keeps me away - something that I don't feel that I can fit in into a normal relationship. I don't make friends at all. I don't know why, I don't know (...) I just can't be bothered (...) I just go off and I just do things that I know are gonna hurt people just so basically you get out (...) You end up by yourself, it's easier (NC).

In completers, one person expressed her avoidance of intimate relationships after years of domestic violence: (...) *yeah, I avoid relationships with men or relationships with anybody, ahmm, I have friends (...) because I'm determined that no one's ever going to have that sort of control over me again - no one's ever going to have that again (...)* (C)

One treatment completer demonstrated intense social withdrawal behaviours and offered a variety of reasons as an explanation for his lacking engagement in social contacts: (...) *you come across a lot of women who just can't think - so I need someone that can keep up with me (...)* *But being in the top five percent of the population in intelligence, there's a lot of people you just don't gonna get along with (...)* (C).

Maladaptive strategies to maintain relationships

One client reported on extreme defense measures to protect her boyfriend which causes frequent conflicts with other people and authorities:

If someone treats someone I care about badly, I tend to flare up to protect them without thought of the consequences (...) I feel if they'd hurt someone so close to me, they deserve to be hurt. No one treats him badly anymore (NC).

Current support structure

Many non-completers did not have a well established support structure which also affected their ability to confide their crime experience in another person. Reasons for the lack of social support appeared to be social withdrawal, lack of trust, lack of interpersonal skills, and difficulties to control anger.

I cut people off, lost a lot of friends - just become scared (...) If I get myself into a state it takes me a while to get over it (...). The same person reported on the termination of her four year - relationship as a consequence of the crime. (...) *I just got niggly, I would just bite his head off, was just being a bitch*. She also referred to her aggression towards another male friend (...) *but this poor guy (...) I threw him across the room because he was in my face* (NC).

(...) no, I don't discuss this with my boyfriend. He's not into other people's problems, he has enough problems on his own (...) I don't talk to a lot of other people about it. I don't put myself into that situation again, I didn't talk to anybody for years (NC).

Though seemingly better socially supported, treatment completers also reported on their difficulties to confide their trauma related problems even in closely related people.

(...) usually when I get really distressed I just call my husband and he'd get out of work and pick me up (...) usually he just needs to look after me for a day and I'm good again (...) (C). However, the same person also mentioned: (...) I tried to explain that to my husband - he doesn't understand (...) (C).

Nonetheless, not every treatment completer had a well established social support network: *(...) yeah, I don't have any [social contacts] (...) there's just no one you can talk to about this stuff (...) My foster sister just tells me „you just need to get over it“- my brother doesn't want to talk about it and they are basically the only two people I have to talk to (C).*

1.3. Health characteristics

Physical health

Eleven out of twelve non-completers indicated current physical health problems such as chronic pain syndromes and headaches, arthrosis, recurring infections, myocardial infarction, and Irritable Bowel Syndrome. Correspondingly, a strong emphasis on physical symptoms was observable during the treatment sessions:

(...) this gurgle in my brain, like a hot-flash in my brain, like a shield – what is wrong with my brain, like a fizzy drink in my head (...) I feel a bit ill now (...) (NC)

(...) because sometimes I'm feeling unwell from the part of the heart, cause I had a major heart attack eight months ago (...) He [the cardiologist] thinks that may be mental, I need help to dominate the problem of my heart (NC)

In contrast, only one treatment completer suffered from a crime-related chronic pain condition as a consequence of childhood physical abuse.

Mental health

In terms of pre-crime mental health conditions, at least one non-completer and two treatment completers reported on a history of depression before the crime. However, most clients and particularly those with multiple and long passed crime experiences found it hard to establish the onset of their depression and other co-morbid conditions, thus making it difficult to determine whether their depression was a result of the crime experience or a pre-existing condition. The same problem applied to a past history of alcohol and/or drug abuse in three non-completers and two completers. There was an indication of past anger and aggressive behaviours in one treatment completer, while two completers and four non-completers reported on a history of self-harm and severe suicidal ideations.

All of the non-completers, but only two completers, indicated a current depressive episode. With respect to Axis-II disorders, it appears not justified to arrive at such a diagnosis, given the restricted information on participants' histories. One of the non-completers had received a diagnosis of Borderline Personality Disorder, while another three non-completers showed a Cluster B personality accentuation with a high degree of impulsivity and some indication of histrionic features. Conversely, no current impulsive behaviours could be observed in treatment completers. In both groups, narcissistic tendencies could be observed in one participant, respectively. In addition, two of the non-completers showed a strong indication of obsessive-compulsive symptoms.

2. Crime characteristics

It would be beyond the scope of this evaluation to do justice to the whole complexity of clients' individual crime histories. Hence, the following accounts are an attempt to describe some of the critical factors emerging during the analysis process, but can by no means be considered as comprehensive.

As mentioned before, most previously conducted work has focused on impacts of different crime types, the age at crime onset, and the number of crimes (single vs. multiple crimes). However, it seems also important to look at individual circumstances which may have complicated the crime experience(s) and thus compromised subsequent coping. Particularly in non-completers, ongoing crime-related threats or perceived threat seemed to interfere with coping and an engagement with treatment. Impacts on family members occurred as a further barrier to coping. In addition, more isolated previous trauma experiences were reported by non-completers which appeared to influence the perception and handling of the index crime¹.

2.1. Types / number of crimes

The crimes reported by non-completers included childhood abuse; harassment and threats to one's life and physical integrity; physical, emotional and sexual assault; and torture and detention. Apart from one person, all non-completers had either suffered from multiple crime experiences as part of the same type of crime or from multiple single incidents. In some cases, the experienced interpersonal violence lasted over a long period of time, often in form of ongoing threats and harassment.

Four of the treatment completers had experienced defined single crime incidents such as a siege, a home invasion where the person was threatened with a weapon, and a homicide. In terms of repeated and longer lasting crimes, two participants were victims of childhood abuse, while one participant had been exposed to many years of domestic violence.

¹ Index crime=crime for which treatment was sought

2.2. Ongoing perceived threats

The following examples illustrate participants' perception of threat. At least three non-completers still felt actively persecuted.

He was involved with some bikie mob, he was like a what they call a "loose canon" (...) I started to get phone calls, messages that people were told to pass on to me (...) "He's in [name of location], he's in [name of location]" - I'm the first on his list he's gonna finish off (NC).

"G. is after [name of client] "(...) "what have you done to G. to be out here (...) ah, you're the one" (NC).

(...) it was the fear of reprisals that unsettled me the most – I didn't know who, where when (...) I was gonna get one in the neck (NC).

In treatment completers, most participants did not show signs of an ongoing sense of threat. One person indicated a heightened sense of threat, as she feared that her home invaders may have been scrutinizing the property before the crime and returned:

(...) and then the police came and they said that (...) it looks like the person's been in the house before, because they knew where everything was - and - ahmm (...) and they said they could have been watching for a number of weeks (...) (C).

2.3 Impacts on family members

Secondary victimization

One non-completer frequently mentioned his helplessness in interactions with his daughter who had witnessed his physical assault:

You don't know what to say to - like calm her down - sometimes she goes - you might get over each other and she's there and she thinks you are fighting (...) and she gets very emotional (...) and she gets very clingy too (...) it's really affected her since- she never used to be like it (NC).

Lack of personal resources to fulfill social demands

Another non-completer mentioned major impacts on the relationship with his daughter:

(...) that's a real problem because she held that feeling that I wasn't there for her when she needed me (...) when things got really bad with work and a couple of other things that had happened with me back in [indication of year] she felt that I'd literally walked away and left her to fend for herself (NC).

Treatment completers also reported on difficulties to fulfill social requirements. Thus, one of the completers felt guilty towards his disabled child, as, due to his suffering from the mental health consequences of the crime, he was not capable to care for it at home. Another completer with severe PTSD symptoms was a carer for her mother who was suffering from cancer which was at times overwhelming for her. Furthermore, impacts on the relationship were mentioned by imposing one's own need for increased security strategies on significant others: *(...) and I probably impose that on my husband...I demand some security measures that are probably over the top for him (...)* (C)

2.4 Previous trauma

Especially in non-completers, multiple experiences of pain and loss complicated the index crime clients were seeking treatment for. The following paragraph tries to provide some insight into the degree of victimization participants have suffered.

- One participant was a victim of multiple abuse experiences within his family of origin. Having been sexually assaulted by one of his brothers during his childhood, he was recently informed on the rape of his daughter and sister by another brother: *Everyone – everyone - any little faith I had in anyone was just like gone (...)* (NC).
- Another person who was seeking treatment after a long period of threats by her mentally ill prospective son-in-law had faced two other encounters with mentally ill people which obstructed her coping with the index crime.

(...) being involved in the murder trial and then the incident with [name] and being thrown into a situation with another schizophrenic person (...) basically on the murder trial you know that it's possible for mentally ill people to do really bad things like a murder (...) (NC).

- One of the participants who had experienced a physical assault and ongoing threats had previously been exposed to a shooting attempt and another physical assault. In addition, he lost his employment due to a workplace injury and divorced from his wife with a subsequent separation from his children.
- Another participant has experienced multiple physical assaults by his father who was eventually imprisoned for a murder and then killed in prison. In addition, he was assaulted by a school teacher. One of his traumatized brothers had committed suicide: *(...) I was getting beaten by my father virtually every day from around the age of six or seven (...) (NC)*
- One participant had suffered various physical assaults at different locations. In addition, he suffered a workplace injury resulting in a remaining chronic pain condition. His efforts to make sense of his multiple crime experiences compromised his processing and integration of the traumata: *I see it as part of an almost promethean obsession - trying to understand everything that's happened – it's like an obsessive component to my disorder (...) (NC)*
- One participant had been tortured in his home country and then detained upon his arrival in Australia. While not being able to return to his home country, he lost his wife back there to cancer.
- One participant had experienced a home invasion in her teenage years before she was date raped. Her mother had been a victim of sexual abuse.

In completers, multiple trauma experiences were less common. However, one completer had witnessed and experienced several crimes such as a family suicide, armed hold-ups and threats with weapons: *(...) he wasn't there(...) but just having to*

organize that (...) after that I crashed completely, just couldn't function. I was just lying in bed crying and didn't wanna go to work (C).

Nevertheless, there was an indication of additional overwhelming aspects within the crime situation itself. One participant was exposed to the crime together with her already ill and fragile father who died eighteen months after the incident. As a consequence, the client suffered from feelings of guilt and maladaptive self-blame regarding her handling of the situation: (...) *there's that feeling that if I'd actually got out of that straight away when I heard him shouting (...) I could have prevented some of the physical abuse that he was a victim of (...) (C).*

3. Described Impacts of crime

It appears important to describe the impacts of the crime from a participant perspective rather than by a mere classification of symptoms. The following illustrations are a selective account of impacts, thought to be critical to the deliverance and reception of treatment. Although not an unknown feature, the difficulty for multiply traumatized participants to isolate single incidents was striking and evident for both, non-completers and completers. Another interesting observation was that some of the non-completers regarded their PTSD symptoms as deliberately evoked, i.e. instigated by malevolent other people, which may have compromised their sense of control over their symptoms. In both groups, the fluctuating nature of symptoms became evident with implications for both, assessment and treatment. Besides the major symptom clusters, other consequences of trauma such as a heightened sense of vulnerability, a need to find meaning in the event(s) and the problem of “being stuck” in the past are considered as critical factors.

3.1 Relatedness of events

The following quote illustrates the perceived relatedness of the traumatic events, but also a widespread sense of victimization in one of the non-completers. Furthermore, the person perceived the symptoms as deliberate acts against him:

(...) it happens so quickly - I just switch from a normal train of thought to [missing word] could be any of the traumatic experiences - could be work-

related with the character assassination, professional assassination by my employers. That sort of joins up with the attack on my home and once I start that process then I start analyzing all of the other threats (NC).

(...) well, I was threatened which put me on hyper-alert and between [year] and [year] there seems to have been a concerted sort of campaign on my psyche -things that triggered up my startle responses (...) (NC).

Also in treatment completers, it was very difficult for survivors of repeated crimes to single out particular events and to distinguish between different emotional qualities:

(...) she [mother] went and got my sister – thank god [deep breath, refers to SUDS level] - it's slower because my sister is safe (...) sixty (...) but that was bad because my sister's [therapist is trying to interrupt] (...) then I went back on the train with no ticket and no money (...) it was the same thing happening (...) she [mother] broke my heart because she wanted my sister and not me - I was just thrown out (...) (C)

It became also evident that memories, dreams and rational efforts to make sense of the experience were considerably confounded. One completer referred to amnesic features: *(...) nightmares - somebody is chasing me down the corridors and I have no idea why. I have some memories, but I also have dreams of that little boy killed (...) there's something missing between (...) There's just huge junks missing...it's hard to describe – (...) the one where you're actually supposed to know what's happened – has bloody great holes in it (...) (C).*

3.2 Sense of vulnerability

A very high sense of vulnerability was demonstrated by non-completers which was related to their high degree of perceived threat.

(...) before I was one of the party boys in town, invulnerable - six foot tall and bullet proof - but after I got battered senseless (...) (NC)

I still feel, that, you know, that something is gonna happen one day, someone is gonna want to know, make good their threat (NC).

However, also completers displayed an immense sense of vulnerability:

(...) I feel my life has been a pretend game ever since (...) nothing seems to matter, nothing seems to be real – I just feel like the personality that I'm projecting to everyone is not the real me...the real me is very fragile, very anxious, and needs a lot of protection... and it seems to never have enough protection...(C)

3.3. Search for meaning of the crime

The need to search for the meaning of the crime(s) was more explicitly expressed in non-completers which in some cases constituted a major source of interference with the treatment process.

*(...) obviously I'd like to know one way or another whether people colluded and conspired to trip out my PTSD as a way of disproving my [symptoms](...)
(NC)*

(...) that's probably my main hang-up - if I could understand it, that would make sense of it (...)(NC)

3.4 Anxiety about future/regrets about past

Many comments of people who discontinued treatment referred to regrets about the way things had occurred as well as a more general sense of betrayal. In this way, the crime experience(s) were perceived as an interruption to the life trajectory and accompanied by an inability to move on and envision a future.

(...) the anxiety is about my future, I guess about who I'll be - cause I've lived in depression for such a long time without treatment or anything. I'm now 40 years of age and I'm thinking to myself I should be 24 - it was such a long period of my life that I've wasted away cause of my drinking and my anxiety

attacks and all that sort of thing and my depression - and that didn't leave me much of a future to think of (NC).

(...) [the crime experiences] prevented my abilities from seeing where I was gonna be in ten years from now - my future was virtually clouded (...)(NC)

(...) it's ruined my life - would still have my job, I wouldn't be like this (...)
(NC)

Anxiety about the future and regrets about the past was also expressed by completers. However, in contrast to non-completers, they possessed more adaptive strategies to adjust to the new circumstances: *(...) I've had to rebalance my entire life...because I've had to take a job that was a lot less strenuous (...)* (C)

3.5 Fluctuations in functioning

Particularly in non-completers, the above mentioned fluctuations in functioning were also reflected on a symptom level:

(...) sometimes I'm functional, sometimes I'm not (...) (NC).

(...) I can go from being reasonably calm to reasonably stressed very very quickly (...) (NC)

4. Hampering factors in the delivery of treatment (HF)

A number of factors impeded the provision of the treatment as planned. In non-completers, one major hindrance were risk issues that had to be clarified and accommodated over the course of the treatment. Moreover, the complexity of problems other than the crime(s) hampered focussing on the planned session topics. It became obvious that not only previous traumatic experiences, but also surrounding life circumstances and current stressful life events, were inextricably linked with the way the crime was perceived and dealt with. Moreover, difficult life circumstances in non-completers seemed frequently accompanied by a high level of disorganization

and related difficulties to adhere to a structure. Furthermore, in non-completers the disorganization seemed aggravated by a tendency to engage in extreme behaviours rather than measured actions which may contribute to increased stress levels. Some of the people who discontinued treatment showed increased stress levels by a dysfunctional interpretation of interactions with the therapist.

4.1 Risk issues

Some non-completers indicated thoughts and behaviours that could potentially impose a risk on themselves or others which necessitated further clarification and handling, often consuming a considerable amount of the session time.

One client with a history of suicidal ideations started a session as follows:

I've had a weird idea that I might go up to [name of location] and drive a hundred miles an hour through the tunnel up there (...) an adrenalin rush to kick the endorphins in my system back into gear, again into alignment (...) it just makes you feel alive (NC).

Another client referred to his ideas of retribution against his offenders:

I also realize that there is a - almost an aesthetic of violence. It comes down to a philosophical notion of the social contract (...) if you consider that the social contract is an unwritten document that protects your right as a citizen and all of those things are revoked, then you're entitled to step out of it (...) (NC).

One of the clients who would normally engage in extreme avoidance behaviours and not leave the house after darkness reported:

I actually did something very silly - I went for a walk at midnight - I didn't care - was it dangerous? It was stupid, I walked down to the park at midnight (...) I was so depressed and upset(...) [this occurred after an upsetting interpersonal conflict] (NC)

In contrast, there were no immediate risk issues in treatment completers, despite a history of suicidal ideations and past intentions of self harm in two participants. However, one participant tended to compromise her safety by exposing herself to potentially risky situations:

(...) I went for a walk last night, at eleven o'clock, in the dark - in the same area, but nowhere near where it [the crime scene] was – that started off all right (...) I had a plan of where I thought I was walking to and I ended up being a little bit further than what I thought (...) I went (...) along a public walkway along the water (...) I went for a walk down there (...) I was stupid because I'm masking for trouble by walking around at night (C).

4.2 Life events/difficult circumstances besides the crime experience

During the course of the treatment, some of the non-completers experienced stressful incidents that made it very difficult for them to concentrate on the planned session goals. Furthermore, they expressed a great need to discuss these problems in the therapy sessions.

One of the non-completers experienced a break-up from her partner and a suicide attempt of her daughter over the course of only four treatment sessions. She was then facing the dilemma of wanting to accommodate her daughter and at the same time compromising her sense of safety, because she felt her house was her only safe place. This dilemma was reinforced by her dichotomous thinking pattern, an extensive sense of victimization and her lacking trust in positive outcomes:

(...) I'm torn – am I a bad mother because I won't have my daughter live with me, but am I being foolish and naive by bringing my daughter into my inner sanctum? (...) I'm a bit in a dilemma now because I've got my own needs against hers - I understand I can't have anything in life because if I reach out for something for me something gets in my way (NC).

Very challenging daily life circumstances impeded clients' ability to attend treatment sessions and to engage in homework. For example, one participant acted as carer of

his intellectually challenged and also traumatized brother who, at times, became very agitated, thus triggering the client's traumatic memories. At the same time, there may have been some secondary functional gain for the client: (...) *but I hardly leave the house – I spend eighty percent of the time home, I don't feel too comfortable going out (...)* (NC)

Another participant was expecting a criminal injuries compensation settlement which reinforced his need to find a “common thread” behind all the crime incidents experienced. This example illustrates how a criminal justice process can interfere with treatment and with one's ability to engage in exposure practices, as the latter requires an acceptance of the crime as a past event:

(...) obviously I'd like to know whether people colluded and conspired to trip out my PTSD, to disprove my -issues - I'm almost forced to relive, to re-experience, because I know that closure is only a matter of weeks away. The thing is the legal case is looming large, and as it draws closer I have to revisit the file, dig out stuff to prepare my lawyer - and my fear is amounting, after having been to an incredibly vulnerable place (NC).

Not only non-completers, but also people who finished treatment faced challenging life circumstances by care demands which were very time and energy consuming. As in non-completers, these conditions were inextricably linked with the crime experiences, in that they triggered the traumatic memories and maintained dysfunctional cognitions and related feelings of guilt. For example, for one of the treatment completers the inability to fully care for his disabled child himself was a painful reminder of not having been able to protect his murdered child:

(...) my guilt over putting him into accommodation (...) everytime I think about it he's gonna lose his leg because (...) I feel so guilty and bad about it (...) I've let my son down - he's gonna lose his leg because I've let my son down. Sometimes I don't get depressed about [name of victim] so much but I get depressed about [name of other son] and it's been going on for so long (...) (C).

As mentioned previously, one of the participants was a carer for her mother who was suffering from cancer. When the crime happened, she had been staying at her then terminally ill father's place who died shortly after the home invasion. Thus, her crime experience was re-triggered on a daily basis, while she tried to come to terms with unresolved feelings of guilt in relation to her behaviour during the crime incident and her inability to "protect" her dying father. In the following quote she blames herself for not having realized that the invaders entered their house:

(...) I let that happen (/...) I should have heard it (...) because we had a machine from the hospital [which was noisy] (...) but if I was fully rested, I would - cause this was my dad's first day home from hospital - I knew that - I needed to be listening after him - and I couldn't hear that (...) (C)

In contrast to non-completers, the stressful life circumstances in completers did not seem to evoke the same degree of overall stress.

4.3 Disorganization

Apart from the above mentioned demanding life circumstances, there was an indication that, for some non-completers, the sheer execution of daily requirements resulted in a considerable level of disorganization. As a consequence, they exhibited difficulties to stay focused and to abide by a structured treatment program involving weekly commitments, the completion of multiple assessments, and homework.

...I'm sidetracked... my mind is sidetracked by probably more important matters...- it takes up all my fuels at the moment... I can't look beyond the matters at hand at the moment... (NC).

...I'm always late... I'm perpetually late...something will get between me and that door... (NC)

I'm not handling paperwork very well... oh, I can't take decisions...and that upsets me... I used to be very good in decision making and stuff... it's just as I get older I'm losing everything...(NC)

(...) This week I have been under exceptional stress because of the plumbing problem... it has turned into an absolute major catastrophe (...)(NC)

In contrast to non-completers, treatment completers gave less accounts of overwhelming daily life events. Nonetheless, one of the treatment completers displayed a tendency to interchangeably use various phone and e-mail contacts, to arrive late for the sessions and to lose her questionnaires: *(...) is there anything else I'm missing...no, it was red...is there anything that I have...(C)*

4.4 Tendency to seek extremes

In non-completers, a tendency to seek extremes could be observed in contrast to measured actions: *(...) I would go and freak out, beating myself up about it, and then crawl back into my hole (...)* (NC)

The tendency to seek extremes was also reflected in participants' inclination to expose themselves to overwhelming and potentially risky situations, thus not abiding by the agreements met during the therapy session: *(...) I did some in-vivo exposure on the way home - it wasn't the session that distressed me.* (NC)

One participant mentioned that she went to a "pretty feral place" as part of her exposure practice: *(...) which was huge to me - I was freaking out. We stayed for a couple of hours - I still freaked out, I stuck it out, killed me though. I was like full on stress (...)* (NC)

(...) what I did on Wednesday, I thought I gonna put myself to a test. My brother had me going to town to do something (...) (NC)

Fewer tendencies to seek extremes were apparent in completers. One of the treatment completers displayed a tendency to expose herself to overwhelming situations, motivated by her impatience with her current condition as well as difficulties to accept her restrictions and need for self care. However, in contrast to completers, this situation was not dangerous from an objective point of view.

(...) last night I did something really stupid – and I had a friend come and stay there with me – and still feel it now – it's just been a very stupid thing to do (...) I stayed at the house [crime scene] last night (...) cause I just needed some time out (...) and I hardly slept (...) my breathing, my heart rate, everything was just (...) (C)

4.5 Stress as a result of interactions with therapist

Though not confirmed in the quantitative analysis, non-completers appeared to be considerably more stressed by their way of interpreting situations during the treatment sessions. The following quotations also demonstrate participants' struggle and self-inflicted pressure to stay in the treatment program which they often portrayed as their "last straw".

One client mentioned her elevated stress level after the previous treatment session when her ability to engage in this treatment was discussed: *(...) it was the fact that you thought maybe I'm not right for the case study - I was very distressed, eight [on a imaginary scale] - and I was disappointed. I can't do this, I just felt I was being - rejected (...)* people leave their therapist before their therapist can leave them (...) (NC)

(...) I was a little bit apprehensive when you said that if I don't feel safe I can't do this sort of stuff, because you know I was thinking "oh god, now I'm gonna have to not participate in the study any longer and I'll be just chucked at the walls again" (NC)

In the group of completers, one participant took offense to the fact that the therapist did not respond to his wish to test his intelligence. The test was to serve as a prerequisite to join a particular group which he considered as his only opportunity to be socially active: *(...) to put it bluntly and don't take offense – ahmm, I suppose I'd ask the question what's more important – the person or the research. If you were sitting here and I was sitting there, I'd do it differently (C).*

5. Participant expectations and reception of treatment

Participants' expectations of the therapist, the overall therapy process and therapy outcomes as well as their perceived capability to influence change emerged as critical themes throughout the course of the treatment and seem particularly important with respect to the acceptance and reception of the treatment. Hence, differing expectations between treatment completers and dropouts may yield valuable information for a better understanding of the reasons for treatment discontinuation.

A. Participant expectations towards the treatment process and outcomes

A number of factors seemed to shape expectations and attitudes towards treatment. The way participants referred to their individual treatment histories and their support by other health professionals gave some indication on their expectations towards the therapist and the current treatment. Furthermore, specific preconceived ideas towards a particular type of treatment, especially hypnotherapy, seemed to impact on participants' confidence to benefit from the treatment. Also, it appeared worthy to analyze participants' impressions after the first treatment session, as compared to their perceived progress at a later stage. In addition, participants' definitions of "treatment goals" were explored.

5.1. Treatment history and current support

Reports on previous treatment experiences gave a good indication of participants' expectations toward the present treatment. A high sense of vulnerability became evident in non-completers. Moreover, non-completers with, according to their view, "unsuccessful" treatment experiences related their difficulties to their felt disempowerment, a culture of abuse, a perceived unwillingness to listen or a lack of understanding on the therapist's side, as well as high levels of distress during treatment. Moreover, there was some suggestion of a lack of engagement in previous treatments. However, not all non-completers regarded their previous treatments as "unsuccessful".

*(...) the reactions of the nursing staff was knee jerk, abuse of power, bullying
(...) I have become phobic of mental health and the ramifications - and my fear
of becoming monitored at any level because I know I have been surveilled (...)*

- *there is no option to ever going back into the public health system ever (...)*

(NC)

The same person also emphasized the stress he was experiencing during previous treatments: *(...) there were times that I found it distressing and cried. As I explained my situation and my fear of the reach of organized crime and terrorists - which she saw as irrational (...)*

(NC)

(...) my counsellor said he didn't think that I was totally ready to carry on talking to him - he just said basically "go away for a bit and come back when you think" (...) (NC)

(...) all the therapy and support I've had has helped me because it's got me to a point (...) because when I was twenty I really thought I would not make it to twenty-one (...)

(NC)

Three of the treatment completers referred to previous psychotherapy experiences which they considered as helpful in terms of general support, but not with respect to their PTSD symptoms. None of these treatments had included exposure therapy.

(...) when I went to therapy before, it helped... but it didn't hdp (...)

(C)

All other completers had never received counselling before.

5.2 Definitions of treatment goals

Most non-completers did not define concrete therapy goals, and implied that they were prepared to try anything to find symptom relief and to regain their old sense of self.

I'm wanting to try anything (...) (NC)

(...) all I'm hoping to get out of it is may be - I don't know - get somehow my old self back. If I can get back some of my past - the way I was - I'll be real happy. Hopefully it's gonna help me. (NC)

Ten years of a fear-free life - I would like to be able to go and stay at my house on my own and not be jumping at every noise that (...) and be able to put myself into a bed and go to sleep, I wanted to do this my entire life - but I never had the guts. I want to be normal and not abnormal, how I feel (...) (NC)

As compared to non-completers, completers were able to express more specific treatment goals. One client mentioned that she was particularly interested in targeting her posttraumatic stress reactions: *when I went to therapy before it was sort of tackling the whole - everything at once, without doing anything in particular (...) (C)* Another client emphasized an identification of triggers for his emotional reactions as his primary treatment goal: *(...) sometimes I think – you know – what did that upset me (...) - I can usually find out, work out what it is, that trigger that set me off - ahmm - but it's not always obvious (...) (C)*

5.3 Expectations towards CBT/Hypnotherapy treatment

Hypnotherapy

Various ideas of how Hypnotherapy could be beneficial were articulated, despite the information given in the participant information sheets. In this way, it became evident that especially non-completers ascribed a lot of power to hypnosis. Consistent with common misperceptions, they considered hypnosis as a state that would be inflicted upon them rather than a process they control. Both, completers and non-completers expected that hypnotherapy may facilitate retrieving traumatic memories and reduce their associated emotional pain.

(...) I watched a program about it the other day using a relaxed state to form new thoughts or views (...) (NC)

I think it does work, I mean there's been many cases where people have tried hypnotherapy with trauma and so forth and it's actually brought up the emotions. It's actually to look at those emotions in a different light rather than being feared by those emotions (NC).

The same client mentioned that he had heard about hypnosis in the context of UFOs:

there was a hypnotherapist that actually placed them on a hypnosis because they were having bad dreams and all that on end - he hypnotized them separately and he gradually coaxed the information out from the deep recesses of their brains from their memories and it turns out they had dramatically similar stories (NC)

Some non-completers seemed disappointed by the fact that they were not allocated to the hypnotherapy group: (...) *actually I'm not even sure that the cognitive behaviour thing - I don't know enough about it, but I don't think it's gonna- that's why I was more interested in hypnotherapy (...)* (NC)

(...) is this as effective as hypnotherapy? Every time I have to think about that it really hurts me - as you can tell. I don't want that anymore. I'm just worried that I'm not gonna get it. Do you know what I mean, the freedom of being hypnotized - it's possible that I can deal with it, I can just shut off (...) (NC)

(...) not the one I hoped for - oh well, story of my life. I just hoped maybe through hypnotherapy I could go back and figure out why I can't let it go. I'm old enough now, I should be able to let it go (...) (NC)

CBT treatment

With respect to CBT, scepticism was expressed:

(...) it's just all about rational thinking. I've been trying to do that since. We'll see what happens (...) (NC)

I think it's in relation to not thinking outside the box sort of thing, thinking conforming to normality, I guess, is that what it is about? (NC)

Lastly, there was an expectancy in non-completers that this therapy program would deliver something very extraordinary:

(...) it's quite clear - they thought a lot about how they do this. What they're doing they combine the cognitive knowledge with hypnosis and they are trying out the things that we are trying to avoid which are those emotions you suffer from - the hypnotherapy with the cognitive therapy process is the way of unravelling all that what troubles me. I think that's a very intelligent approach (NC)

(...) the therapy that you are providing for us - is it going outside of the boundaries of what normal therapy - are you exploring new territory here? (NC)

In completers, the allocation to the CBT/Hypnotherapy group was welcomed by participants, but also associated with ideas to access memories in a less painful way:

(...) I just think it's quite exciting. Obviously I wanna resolve my issues and so far therapy hasn't seemed to (...) it might have helped a little bit, but it hasn't solved the problems - so I'm thinking hypnosis that could be a good way of approaching it because I know I can't [missing word] ... back a lot even in therapy I couldn't - na, things that I just couldn't discuss - I thought maybe with the hypnosis it might actually unlock some doors (...) (C)

5.4 Impressions after the first session

Both, completers and non-completers gave positive feedback on their first treatment session. Non-completers concurringly emphasized their relief felt by the opportunity to ventilate.

(...) I'm looking forward to it. I think it's something I should have approached a long time ago, as far as finding the strategies and dealing with the whole snowballing before it gets to that stage, - felt relaxed, safe (...) (NC)

(...) It's my pleasure. I'm feeling a bit lighter, you know. Everything is effective, makes sense (...) (NC)

(...) it's easier to talk to someone (...) (NC)

(...) I'm learning something from it and you've given me a good insight of what to look forward to and hopefully I will improve (...) (NC)

(...) it actually... I guess it feels like I've lifted a bit of weight - that is something I haven't done for a long time (...) (NC)

In treatment completers, one participant considered the standardized and structured approach as particularly helpful:

(...) It's very reassuring, I like writing on the board - it just really clarifies it (...)
(...) it makes sense (...)
I think the fact that you target that specific event is very helpful - you just go in depth and you just really deal with it (...)
It's very safe, very good (...). (C)

5.5 Impressions after several treatment sessions

Given the positive accounts after the first session, it seemed important to look at critical situations occurring at a later stage of treatment which may give some indication of possible reasons for treatment discontinuation. Some non-completers pointed to their impatience with the process, while others expressed their disappointment in the therapist's reactions:

(...) I'm starting to look at myself in a different way than I used to do before. I'm trying to - maybe I'm trying too hard - that's when you get frustrated. I don't know how to slow down. I think I'm trying too hard to do it too quick (...)
(NC, session 4)

One non-completer reacted very sensitively to a situation in the 5th therapy session when a discussion arose in relation to his ability to engage in exposure therapy. He related this conversation to previous experiences with mental health professionals:

(...) the invalidation of my reactions I find victimizing, because you presume that because it's a conspiracy theory that that must somehow fit into an area of psychiatry, psychosis, paranoia, delusions (...) and when the conspiracy is real - what f... delusion is it? That's the point - see - and for people continue to invalidate my experience, my very rationale response, ahmm, thereby discrediting everything that I'm going through becomes like a secondary victimization (...) (NC)

Another client expressed her difficulties to accept exposure practices:

I don't understand that (...) I should sleep with the doors and windows open like my girlfriend's mother does, cause then she doesn't want them [potential home invaders] to be able to not get out (...). I mean being safety and security conscious is avoidance? (NC)

The same client articulated her disappointment when the therapist suggested that she may need to decide on her treatment goals:

(...) because you are doing a case study you don't have time to baby-sit somebody with other problems (...) I mean you don't have time to delve into somebody else's other problems or to have their problems interfere with what you are doing...it's typical. I actually thought I was going to get the chance to do something for me for a change (...) (NC)

Treatment completers provided positive feedback on the treatment program, with most progress perceived in dealing with traumatic memories. However, some participants displayed difficulties to acknowledge their own progress: *I think what you're redoing, the way you're doing it was really well (...) I think the failure part was me not doing what I needed to do (...)* (C)

The following quotes stem from participants in the CBT/Hypnotherapy condition and provide some insight into the gains from the hypnosis component:

(...) it was definitely helpful to think about the whole event rather than always - if it starts coming in my memory I would have always sort of pushed it away (...) It sort of took away the emotion and allowed to think about it without getting worked up - and discussing it and putting it into perspective (...) a lot of progress in the guilt that I felt (...) I feel a lot more relaxed, physically as well as mentally (...) it's like putting a puzzle together and all the pieces and it was all messy and now it's kind of nearly a complete picture. (C)

Another participant in the same group reported:

(...) I'm not quite sure why all this is happened, it just happened - it has definitely had a calming down effect - and I find myself thinking when situations come up that upset me I have a tendency now to think sort of calming down thoughts: "well that's in the past, you don't have to be a part of it anymore" - maybe stand back from it, I'm not hooked in the way I was. So I think that's partly CBT and I think the trance sessions have been essential in learning to stand back because that idea kind of is absorbed subconsciously somehow. It feels to me as if it's been an unconscious transition - although I'm aware of what we've done the transition is happened on some sort of deep level (...) (C)

B. Control expectancies

A major theme emerging in the Framework analysis was the lack of an internal locus of control² in non-completers. Insight into participants' control expectancies was gained by their way of referring to the therapist's role, how participants perceived the role of significant others, and by their perceived lack of the capability to take control. In addition, many non-completers indicated a very negative self-image with a low

² Locus of control = Locus of control (Rotter, 1966). Refers to the perceived source of control over one's behaviour. It is measured along a dimension from high internal (people who take responsibility for their own actions and believe they have control over their own destinies) to high externals (control is perceived as residing elsewhere and success/failure are attributed to outside forces (Reber, 1995)

self-esteem and a low self-efficacy expectancy³, accompanied by difficulties to acknowledge progress. At the same time, their self-image was not congruent with their experienced vulnerability and concomitant need for assistance.

5.6 Perceived role of the therapist

Consistent with the above mentioned expectations towards therapy, most non-completers seemed to take a rather passive role within the treatment process and to assign a lot of power and control to the therapist.

I was wondering about the trance we are doing today - you gonna put me under completely, are you? Is it gonna be just a light session on how to get it started or were you gonna throw me into the figure a bit?(NC)

(...) you gonna make me relive what I experienced a long time ago (...) (NC)

I think what you want to do is to have me confront these emotions and somehow unwind it? (NC)

(...) I don't care - it's your session, you are the teacher, you got to tell me what to do (NC)

(...) I will leave it with you – what do you think?(NC)

No comments on the role of the therapist were explicitly expressed by treatment completers.

5.7 Role of significant others

A similar pattern was found in reported interactions with close relatives or friends. One participant frequently referred to his brother who would impose tasks on him to overcome his negative feelings:

³ Self-efficacy expectancy: Bandura's term for an individual's sense of their abilities, of their capacities to deal with the particular sets of conditions that life puts before them (Reber, 1995)

(...) my brother has been keeping me as busy as possible, he "shad me running around way too much and it starts to take its toll on me. He expects me to fill up every minute of the day (...) (NC)

The same person mentioned various friends who would advise him or act on his behalf, in this way taking a lot of responsibility for his psychological well-being.

(...) [refers to a friend] "leave it with me, I make a few phone calls, I don't think you should have any more trouble with him [suspected offender]".

(...) this time I've taken the advice of my mate (...) they are all prepared to sort of like sit down and go over the whole heap of issues that are bothering me and try to sort through some of them (...) (NC)

In three cases the first therapy contact was established by a third person, either a spouse or a mental health professional, and not by the participant him/herself which may point to a lack of intrinsic motivation for treatment. One participant stated:

(...) my wife's been telling me this - friends and that, friends telling me for years "you got to get help"(...). (NC)

Another participant had been referred by her case worker as part of a personal support program: *(...) she controls my life for the next two years - everything's been an obligation (...)* (NC)

Treatment completers seemed less inclined to assign the responsibility for their own well-being to significant others, and they seemed to initiate treatment themselves.

5.8 Self image related aspects

Many of the comments made during the treatment sessions highlighted a very negative self image in non-completers, often associated with a tendency to self-blame and self-destructive behaviours. Related to this negative self image were difficulties to accept one's increased sense of vulnerability. In addition and corresponding with the above mentioned propensities, non-completers displayed little confidence regarding their ability to control situations.

5.9 Difficulties to accept vulnerability/need for treatment

A reluctance to accept one's own vulnerability and, as a consequence, the need for treatment, may have impacted on the preparedness to receive treatment in non-completers. The following quote shows the participant's struggle to accept his vulnerability, while at the same time directing a lot of effort towards maintaining a positive self-image:

(...) I'm a free thinker and – well behaved, peaceful and also very active and positive (...) the hard time I was positive and strong, I never lost faith, strong enough to accept the negative (...) and a powerful person to change the problem (...) you are talking about the, for example the cognition of (...), this is not in my way, this is not in my base (...) basically I'm suffering from other thing, I'm suffering from the reality of the life, I'm not a weak person (...)
(NC)

Another non-completer had great difficulties to accept her mental health problems and her vulnerability as a consequence of what had happened to her: *(...) is my situation valid enough for you? Because it's not like what other people have been through - it's not as bad as what other people have been through* (NC). In addition, the client displayed a strong tendency to blame herself for her psychological reactions:

How pathetic am I that I crack over somebody just threatening me - I'm normally a person who is the first to walk into a pub - the whole concept of that I lost my strength is what probably dragged me further down. I knew that I was depressed and I was just beating myself up about it. I'm so f..., so bad and wrong, it's a waste of space. (NC)

Another client related his perceived vulnerability to a sense of losing control: *(...) it's not very easy to exceed to the notion that I have become vulnerable - the sense of vulnerability, it seems to be like an acceptance that things aren't in my control* (NC).

In addition, there was also a fear of stigmatization:

(...) but when you mention therapy, people think you are a bit loopy in the head - and you "reasking yourself every day – "why is it happening?" And you mention depression out in society like I did at work "oh, you need help, you're a nut case" - it doesn't help you "oh, that's a disease, stay away from me (...)(NC)

One client mentioned her fear of labelling and anticipated thoughts of colleagues and friends: *(...) are you all right now or are you still f... up? (NC)*

Although an increased sense of vulnerability was also expressed by completers, they appeared to take a more active approach to adjust to this new situation, thus accepting their new fragility: [client refers to her changing her job when she felt too overwhelmed] *(...) that was a good thing - because it just stripped me of all my defense systems and I was just so vulnerable - I had to ask for help – and I did get help, so that was a good thing – I haven't tried to project that same image ever again that I did before (...)* (C)

5.10 Perceived inability to take control

A lack of confidence in taking control was frequently expressed by non-completers.

(...) I feel like my whole life is beyond my control... (NC)

(...) what's the point of continuing? I never gonna make any one else happy (...)(NC)

(...) but then I feel that it's actually got me locked - behind the fence sort of thing, that I'm only allowed to go so far and I feel that I can't become, you know, a free sort of person that I should be - that I feel all these restrictions around me (...) (NC)

I start to cry and get upset or lock myself in the bedroom and wash my face in the bathroom, look into the mirror and say why did I (...) I can't control it - that's why I'm getting upset about it. I don't understand it and I can't control it (...) (NC)

(...) it's not in my hand that [refers to crime] (...) I can't do anything, it's out of my power (...) (NC).

The fear of (again) losing control was also evident in treatment completers. However, in contrast to non-completers, this fear appeared to be more restricted to particular situations and specific symptoms.

[Name of wife] sometimes says I'm a bit of a control freak and I say: "no it's not that I want to be in control – I just don't want to be out of control" - so that sort of really sets me off, if I'm feeling that I'm not in control of the situation. I guess that's like a lack of control of my emotions [mentions certain crime situations on TV] (...) I just can't stop myself from crying (...) being irritable and I can't [missing word] - the feeling of lack of control (...). (C)

The following example shows how crime-related fears of losing control interfere with other life events. One of the clients mentioned her postnatal depression and her difficulties during her pregnancy: *(...) the lack of control - just felt that I wasn't in control of my body, of my life, it just felt as if it had all been taken away - and I just couldn't look into the future and see and out, I just felt I was trapped (...)* (C)

7.3 Summary and discussion

The thematic framework analysis of the current treatment process has yielded five focal themes which were presented within a range of different facets and sub-themes. Due to the high percentage of treatment attrition in the present study, a major emphasis was placed on differences in the deliverance and reception of treatment between treatment completers and people who discontinued treatment. In addition, benefits and specific challenges of hypnotherapy were explored. In particular, the framework analysis allowed for an investigation of the complex individual histories of traumatization and its wide-ranging impacts from a participant – and therapist perspective.

7.3.1 Focal themes

The first major theme “**Participant Characteristics**” shed light on differences in functioning. Non-completers were less likely to be full-time employed than completers, while half of them received a pension. Interestingly, this pension was not granted on the grounds of their post-traumatic illness, which may be a result of a deteriorated physical health status in VOC. At the same time, it could also point to an accident-proneness and/or long-lasting dysfunctional patterns that may not be directly explainable, but related to their crime experience(s). In terms of social functioning, non-completers engaged in more dysfunctional relationships and maladaptive interactional patterns. They also demonstrated extensive social withdrawal and described little social support overall. Looking at health parameters, non-completers presented with multiple physical complaints which may be associated with their elevated stress levels and lifestyle factors (Schnurr & Green, 2004), or alternatively may represent a somatic manifestation of underlying psychological problems. With respect to comorbid mental health problems, more non-completers exhibited impulsive – and risk behaviours, current depression, and obsessive-compulsive patterns. Moreover, the analysis revealed that it is critical to understand functioning in VOC as a fluctuating, rather than a stable variable which has important implications on assessment and treatment.

The second theme, “**Crime characteristics**”, highlighted the significance of multiple victimization with an alarming frequency of extremely violent incidents in non-completers. Related to the multiplicity, but also the perilous and indeterminate nature of the incidents, was a wide ranging sense of threat in non-completers (Ehlers et al., 2005). Also, most non-completers felt the need to engage in a variety of protection – and security measures, involving both, the mobilization of physical resources and cognitive efforts such as finding an underlying scheme or meaning in what has happened to them.

The third theme “**Described Impacts of Crime**” provided insight into the experienced impacts from a participant perspective. One of the most striking observations was the high sense of vulnerability in non-completers. Furthermore, non-completers demonstrated an extensive search for meaning which may relate to the above mentioned wish to detect the “red thread” among multiple shattering

experiences. In addition, it became evident that it was extremely difficult for all participants to isolate single events in their memory and to distinguish between various event-related emotional qualities. Some of the non-completers regarded their symptoms as deliberately inflicted upon them, thus increasing their sense of victimization. Also, non-completers displayed great difficulty to leave the past behind and to envision a future.

The fourth theme “**Hampering factors in the delivery of the treatment**”, drew attention to an all pervasive pattern of instability and imbalance, which was particularly prominent in non-completers. This instability was reflected in a high degree of impulsivity and associated risk taking behaviours, a reduced sense of safety, rapid increases in stress levels, disorganization with respect to daily requirements, and a tendency to shift between extremes such as extensive withdrawal versus an over-engagement in overwhelming situations. At the same time, dysfunctional cognitive patterns such as catastrophizing, dichotomizing, and negative interpretations of interactions with the therapist contributed to elevated stress levels which likely reinforced the already existent state of instability and disorganization.

The fifth theme “**Participant Expectations**” revealed some of the most critical differences between completers and non-completers with regards to expectations towards treatment and the ability to influence the treatment process. The above mentioned intense sense of victimization became yet again apparent in reports on previous treatment experiences. Moreover, there was a great reluctance to take control of the treatment process. Related to treatment expectations were partly unrealistic and overvalued ideas towards the present treatment, an inability to determine concrete treatment goals, and a tendency to react in a maladaptive way to critical situations during the therapy process. Thereby, the expressed ideas about hypnotherapy were of interest with a strong anticipation of “being hypnotized”, which may have served the propensity to give responsibility away. Also noteworthy was the extremely positive feedback after the first treatment session which may have been a reflection of a sense of relief, but also of initially high (and perhaps unrealistic) expectations towards the treatment. It appears that, at a more advanced stage of treatment, it was realized that some of these expectations would not be fulfilled, possibly resulting in disappointment and feelings of frustration.

While the above mentioned expectations towards treatment already suggest a lack of an internal locus of control, this became even more evident in expectations towards the therapist and significant others, with little responsibility taken for one's own well-being. At the same time, a perceived lack of the ability to own and influence situations and a negative self-image seemed associated with the difficulty to acknowledge and accommodate one's vulnerability.

7.3.2 Differences between completers and non-completers

While trying to demonstrate critical differences between treatment completers and non-completers, one of the most valuable insights gained from the analysis was the realization that the differences are not as clear cut, which may account for the inconsistent findings on treatment discontinuation in the literature (Matthieu & Ivanow, 2006; Zayfert et al., 2005). Hence, due to the multiplicity and interdependence of factors, sometimes the ability to complete treatment may be determined by a fine line. However, completion per se may not be the critical factor, as it is important to acknowledge that completion is not equivalent to treatment success, nor is treatment discontinuation necessarily a reflection of failure (Zayfert et al., 2005). Hence, it is more significant to find out who can benefit from the treatment and why a considerable proportion of treatment seeking victims cannot fully engage.

In the present study, treatment completers also demonstrated complex and multiple trauma histories that were complicated by numerous other factors. In addition, they displayed high chronicity along with a broad spectrum of symptoms and adverse reactions. The analysis revealed a profound sense of victimization and a wide range of concomitant impacts in both, completers and non-completers. Hence, it would not be justified to attribute treatment completers' ability to abide by and benefit from the treatment merely to a somewhat lesser degree of adverse symptoms and restrictions.

So what are the critical differences between treatment completers and non-completers?

One critical difference seemed the greater ability of treatment completers to mobilize psychological and social resources in a flexible way, which is a prerequisite to adapt to environmental conditions. This, however, does not only apply to the availability and accessibility of resources, but also to a better integration and synthesis of experiences and skills. Hence, though treatment completers also felt considerably victimized, their sense of victimization did not seem to pervade every life situation, while they may have had more suitable strategies to accommodate their vulnerability.

Several empirical findings support the significance of social and psychological resources for a utilization of treatment. Norris, Kaniasty, and Scheer (1992) examined the use of mental health services among victims of crime and found that a high level of social support as well as an internal LOC facilitated the utilization of professional help. Although a sole indication of having sought professional support cannot necessarily be compared with adherence to a structured and demanding psychological treatment program, Norris et al.'s (1992) findings deserve merit for highlighting the importance of interactions between social support and control expectations. More specifically, their study revealed that victims with better social support were more likely to use mental health services which, at a first glance, could be interpreted as an indication of a higher level of overall social functioning, thus facilitating both informal and formal support. Nonetheless, it could also indicate that social resources are needed to seek appropriate professional help, particularly in people with a low internal LOC (Norris et al., 1992). This is an important observation, because it illustrates a major dilemma in VOC; if it is true that people with low control expectancies need social support to encourage their involvement with professional services, the likelihood to do so is low due to the common lack of social support. These ideas are supported by the findings from the present study; especially non-completers reported little informal social resources and rather negative or sparse experiences with past professional assistance, in addition to a low control expectancy. Furthermore, non-completers displayed a lot of insecurity regarding their decision to engage in treatment and relied heavily on advice from friends and spouses.

In a more recent study, Johansen, Wahl, Eilertsen, and Weisaeth (2007) also underlined the significance of control expectancies, namely self-efficacy, in a longitudinal study on physically injured victims of violence. They reported that low

self-efficacy influenced *perceived* social support, concluding that self-efficacy may serve as both, a mediator and establisher of social support (Johansen et al., 2007).

Similarly, the relationship between self-efficacy and social support has been described by Benight and Bandura (2004) who highlighted the modelling and motivational functions of social support for an establishment of self-efficacy. This, however, constitutes another conundrum for traumatized individuals; while self-efficacy is needed to establish social support, social support serves as an important source for the development of perceived control. Benight and Bandura (2004) also reviewed the mediating role of self-efficacy in posttraumatic recovery overall, suggesting that self-efficacy impacts on the appraisal of threats and concomitant stress reactions, intrusive thoughts, and behavioural management of threats.

Finally, Yap and Devilly's (2004) highlight the importance of social support with respect to repeated victimization, postulating that perceived social support can serve as both a buffer or a mediator of posttraumatic stress, depending on the history of victimization. For example, a history of extensive and repeated interpersonal violence has a potential to erode perceived social support which adds to an often already low social support structure and thus contributes to more adverse impacts in the event of further victimization. Clearly, this is a relevant point with respect to the findings from the FA, with extensive histories of victimization and low social support found in non-completers.

Taken together, there is mounting evidence for the significance of control expectancies during various stages of the posttraumatic recovery process which relates well to the observed tendencies in the FA. However, it seems critical to take into account interactions between control expectancies and other variables such as social support. Research has suggested reciprocal effects between control expectancies and (perceived) social support, while there are still some inconsistencies regarding the actual nature of the relationship. Also, one should be aware of the distinction between *received* and *perceived* social support, as this may have further implications on the association between the two variables. Nonetheless, both control expectancies and social support are regarded as substantial contributors to the

development and maintenance of posttraumatic stress reactions and thus critical to a successful treatment.

Nevertheless, the above mentioned findings offer only a limited explanation of why VOC have such little confidence to exhibit control, nor do they explicate why they are (or feel) so insufficiently socially supported. Thus, a major problem in these conceptualizations seems the presumption of an elaborated cognitive and mental capacity, required to take conscious decisions, correct misguided information, and to subject this information to reality testing. Moreover, these expectations ignore well established findings on decreased memory functioning and other information processing obstacles, as well as neurobiological deficits in posttraumatic illness (Brewin & Holmes, 2003; Friedman & McEwen, 2004; Van der Kolk, 1987). The same problem occurs with regards to the suggested motivational processes which necessitate appropriate energy levels and a degree of organization that, according to the FA results, may be sincerely compromised in survivors of multiple and violent trauma.

Accordingly, these considerations call for models that can provide a more comprehensive explanation of the underlying mechanisms to the observed trauma reactions. Moreover, implications for the treatment of complex trauma should be elaborated in light of these theoretical constructs.

7.3.3 Theory of Structural Dissociation: A model for complex traumatization

As outlined in the Literature Review, several authors have highlighted the need for a more complex understanding of trauma beyond PTSD, particularly in relation to the pervasive negative impacts of chronic, cumulative childhood abuse (Herman, 1992; Van der Kolk & Courtois, 2005). As a consequence, the category “Disorders of Extreme Stress, not otherwise specified” (DESNOS) was suggested, acknowledging alterations across various domains of functioning. Hence, it has been suggested that complex trauma survivors suffer from difficulties to modulate emotions, maintain a coherent sense of self, and stable relationships with others.

Furthermore, alterations in consciousness, memory, and physical states were observed along with changing systems of meaning (Van der Kolk & Courtois, 2005). There is, however, a lot of controversy on which problem is central, that is whether these alterations comprise conditions comorbid with PTSD or justify a separate theoretical construct (Kilpatrick, 2005).

Van der Hart, Nijenhuis and Steele (2006) have recently introduced their Theory of Structural Dissociation (TSD) which strongly incorporates Janet's ideas of overcoming trauma (Van der Hart et al., 2006). The TSD provides a valuable and elaborated theoretical framework to explain the wide-ranging symptoms, comorbidity, and complex mechanisms in chronic traumatization. In particular, the theory addresses many of the observations made in the current study and in this way helps to integrate the present findings. Furthermore, the theory translates into a detailed phase-oriented treatment program which creates interesting perspectives for future interventions and treatment evaluation in survivors of complex trauma. In the following, a brief outline of the major TSD concepts will be provided. For a more comprehensive description, the reader is directed to the work of the original authors (*The haunted self: structural dissociation and the treatment of chronic traumatization*, Van der Hart, Nijenhuis, & Steele, 2006).

The main theoretical underpinning of Van der Hart et al.'s (2006) approach is an understanding of trauma as a structural dissociation of the personality, whereby the concept of "dissociation" refers to a particular organization of different psychological subsystems of the personality, each displaying enduring patterns of perceptions, interactions, and interpretations of the environment (Nijenhuis, Van der Hart, & Steele, 2004). Hence, in contrast to healthy individuals, in traumatized people these subsystems are at least partly closed to each other, thus not functioning in a well coordinated, coherent and flexible way.

According to Van der Hart et al. (2006), a major dilemma arising from trauma is having to function in daily life and, on the other hand, not possessing sufficient integrative and mental skills to realize and deal with the impact of the traumatic experience(s). The part of the personality that is responsible for daily functioning is called "Apparently Normal Personality" (ANP), directed towards pleasure seeking

activities such as exploration, care taking and attachment building. The other part, called Emotional Personality (EP), represents a basic evolutionary survival response which is focused on the avoidance of danger and threat, in this way mirroring what is happening during a life-threatening traumatic experience. Hereby it is interesting to note that a similar classification has been suggested before: In his work with WWI soldiers, Charles Myers (1940, cited in Van der Hart et al., 2006) described a separation between an “apparently normal” and an “emotional personality”, the latter denoting a state in which the soldiers were stuck in their memories of the past, whereas the “apparently normal” part heavily engaged in mechanisms to avoid traumatic memories. In this context, it is critical to understand that the two dissociative parts maintain each other by a negative reinforcement spiral. For example, to function in daily life, ANP has to avoid intrusive traumatic memories. This, however, leads to an increased reactivation and re-enactment of the traumatic memories as an expression of EP. Thus, the more frequent and painful those memories are, the more avoidance strategies will be employed by ANP, leading to chronicity and a maintenance of a structural dissociation (Van der Hart et al., 2006).

Van der Hart et al. (2006) propose that structural dissociation can range from a simple dissociation between ANP and EP to an immensely complex structural dissociation of the personality, with multiple and increasingly emancipated ANPs and EPs. Furthermore, the authors hypothesize that a structural dissociation of the personality constitutes a common psychobiological substrate for a whole spectrum of trauma symptoms, often referred to as comorbidity. Table 7.3 summarizes the differences between the different levels of structural dissociation:

NOTE:

This table is included on page 364 of the print copy of the thesis held in the University of Adelaide Library.

Another central part of the TSD is the notion of “action tendencies” (Ellenberger, 1970; Janet, 1926, cited in Van der Hart et al., 2006). Action tendencies comprise a wide range of hierarchical mental and behavioural actions, needed to adapt to the environment. Motivated by ANP(s) and EP(s), they can encompass all stages of actions from the earliest planning and preparatory stages to their completion. In line with Janet, Van der Hart et al. (2006) distinguish between low, intermediate and high order actions tendencies. Low order action tendencies are automatic, comparatively rigid, reflexive actions, required e.g. in the fulfillment of daily tasks such as getting dressed. Higher level action tendencies, on the other hand, involve reflection, flexibility and creativity which are necessary when, for example, investing in a long term goal (Van der Hart et al., 2006). A major problem of trauma survivors is that they are not flexible in their choice of actions systems, leading to behaviours that are maladaptive to a particular situation. Moreover, trauma survivors often have difficulties to start or complete actions. The processing and integration of traumatic

memories, however, requires an employment of high level action tendencies (Van der Hart et al., 2006), and constitutes one of the prerequisites for a successful therapy.

Associated with the employment of action tendencies is a concept called “mental level”, involving both mental energy and mental efficiency. Mental energy refers to the mental and physical energy level which can be compromised by physical illness, but also by a repeated unsuccessful application of inappropriate action tendencies. Mental efficiency denotes the ability to efficiently focus and use the available mental energy within a given moment (Van der Hart et al., 2006).

In summary, trauma survivors frequently engage in maladaptive behaviours or “substitute actions” such as self-harm behaviours, affect dysregulation, compulsions, denial, projection and splitting due to their inflexibility and limited choice of action tendencies as well as insufficient mental energy and/or efficiency (Van der Hart et al., 2006). Moreover, a successful integration of the traumatic experience requires both a high mental level and higher order action tendencies, thus comprising a huge challenge to trauma survivors. To be able to integrate the traumatic event, trauma survivors need to synthesize the experience, that is, they have to generate meaningful combinations of physical sensations, affects, and motor behaviours within a given moment, but also across time (Nijenhuis, Van der Hart, & Steele, 2004). In addition, they have to realize what has happened to them which requires a sense of ownership of a personal experience, as well as a sense of continuity (Nijenhuis, Van der Hart, Steele, 2004). This, however, is difficult to achieve, as ANP denies the existence of the trauma and EP is fixated in the past.

7.3.4 Application of the Theory of Structural Dissociation to the current findings

Fluctuations in functioning

What comes first to mind when applying Van der Hart et al.’s (2006) theory to the findings from the FA, is the observed pervasive pattern of instability or fluctuations in functioning, which emerged as a marked feature in non-completers. According to the TSD, this pattern could be explained by alternating, not well

integrated parts of the personality. In the current study, a tendency to seek extremes, e.g. a frantic search for exposure opportunities versus a total avoidance of anxiety provoking situations, was observed. Moreover, rapid changes in stress levels and emotional states were reported. Van der Hart et al.'s (2006) ANP – and EP concept can well accommodate these observations, as they postulate that a person either engages in efforts to function in daily life, or in defense measures to avoid pain.

A biphasic pattern in posttraumatic illness has also been described by various other authors (e.g. Herman, 1992) and in fact is considered as a “hallmark of PTSD” (APA, cited in Van der Hart et al., 2006). Interestingly, this biphasic pattern can be noticed across a wide range of trauma reactions, e.g. in alternations between re-experiencing - and avoidance symptoms, expressions of hyperarousal/impulsivity versus emotional detachment/hypoarousal/withdrawal behaviours, or the tendency to remember too much (intrusive memories) versus too little (amnesia). In addition, this described imbalance can also be observed on a neurobiological level (Friedman, 2004).

Dissociative symptoms

Applying Van der Hart et al.'s (2006) model to the symptoms and reactions observed in the FA, it appears that at least a proportion of the observed responses could be attributed to an underlying structural dissociation of the personality. However, a structural dissociation of the personality cannot be concluded with certainty, due to a different focus and a concomitant lacking assessment of dissociation.

As part of the TSD, the authors describe a great variety of dissociation symptoms which cannot be detailed here (Van der Hart et al., 2006). However, the most important notion is that many commonly known sequelae of trauma such as recurrent substance abuse and self-harm behaviours, affect dysregulation, and unstable relationship patterns could well be an expression of a structural dissociation. In relation to the FA findings, responses such as the observed difficulties to control one's behaviour, to stay in the presence, or to plan and envision a future could represent a dissociative symptomatology. Moreover, difficulties to focus on concrete treatment goals, to take treatment decisions, and to wish and fantasize could be a

result of a (temporary) loss of critical function, as well as of more general mental skills. In addition, fantasy proneness (which was observed in one participant), intrusions and pain could be a reflection of positive dissociative symptoms, illustrating that dissociation does not necessarily reflect a loss of functions. Nonetheless, Van der Hart et al. (2006) highlight that evidence for an underlying dissociation can only be derived from the observation that memories or experiences from one part of the personality cannot be shared by another.

Inappropriate/missing action tendencies and imbalance in mental level

As mentioned above, ANP – and EP motivated action tendencies constitute an essential part of the TSD framework and could provide another explanation for the observed reactions. Particularly non-completers displayed a considerable level of disorganization with respect to the fulfilment of daily requirements. Moreover, they demonstrated difficulties to complete questionnaires and to adhere to a fixed schedule within a highly standardized program. Also, there was evidence of a range of maladaptive mental and behavioural actions such as risk taking behaviours, vehement emotional reactions, compulsions, and physical agitation which may have served as a substitute for the inability to employ more efficient action tendencies.

With respect to an integration of the crime experience, non-completers exhibited great difficulties to differentiate between single experiences and to stay in the present which could be interpreted as a lack of the ability to synthesize, i.e. to bind and differentiate internal and external experiences within a particular moment and across time. Moreover, the realization of the experience may have been compromised, as at least some of the non-completers felt that the crime experience and their reactions were deliberately inflicted upon them. Furthermore, it was challenging to realize that the experience was part of the past, as there was a still a great sense of threat in non-completers, while being caught in efforts to find an underlying scheme to the multiple crime experiences.

Maintenance of Structural dissociation

The TSD also sheds light on various phobias which maintain structural dissociation as a result of conditioning processes (Van der Hart et al., 2006). In the present study, all participants displayed a chronic symptomatology, associated with a

long history of traumatization. Besides the phobia of traumatic memory, non-completers indicated attachment problems, e.g. by staying in dysfunctional relationships or by an extensive fear to become rejected by the therapist. Moreover, phobias of change and phobias of internal stimuli were frequently expressed.

7.4 Implications for further treatment

Although it cannot be satisfyingly determined whether the participants in the current study suffered from a structural dissociation of the personality, Van der Hart et al.'s (2006) theoretical framework illustrates well why non-completers may not have been able to fulfil the requirements of the treatment. At the same time, a range of ideas of what they may have needed can be derived from their work.

Based on their theory, the authors propose a phase-oriented treatment with a stabilization - , traumatic memory processing – and integration phase which was also pursued in the current treatment program. However, Van der Hart et al. (2006) advocate the conveyance of a much broader spectrum of resources and skills. At the same time, their program promotes flexible shifting between the single stages, rather than a step-wise approach.

Assessment:

With respect to the initial assessment, Van der Hart et al. (2006) recommend a systematic assessment of dissociation. As part of the present outcome evaluation, dissociative symptoms were merely assessed by the Dissociative Experiences Scale (DES), with no indication of a severe dissociative symptomatology in the respective study participants. This result, however, does not automatically exclude a structural dissociation of the personality, as a structural dissociation may not be identified by this measure: (...) *“it is usually only over time and with careful and extensive observation that the therapist develops a clearer picture of the complexity of the patient’s structural dissociation”* (Van der Hart et al., 2006, p.16).

Apart from dissociation symptoms, a thorough assessment of existing social and psychological resources across various domains of life appears indispensable which can be considered as one of the shortcomings in the present study. Although

efforts have been made to gain insight into patients' situation-specific reactions, it would have been useful to investigate action tendencies in far greater detail, along with changing patterns and possible difficulties to complete actions. Moreover, an assessment and acknowledgement of clients' energy levels would have been of merit.

Stabilization phase

Associated with a detailed assessment of clients' action tendencies is the conveyance of strategies that enable clients to acquire the appropriate skills. At the same time, maladaptive actions must be addressed along with strategies to increase clients' mental energy levels (Van der Hart et al., 2006). In the current study, a clear priority was on the establishment of clients' safety. However, due to time restrictions, this came at the cost of other treatment components. Similarly, time was permitted to target the most interfering interactional problems, but more resources would have been necessary to utilize therapeutic interactions more efficiently. Furthermore, Van der Hart et al. (2006) emphasize that every traumatized person should learn to acknowledge the constraints of their energy level at a given time. Due to the standardization and concomitant structure of the current treatment program, such an approach was difficult to accommodate. Although an exploration and activation of personal resources was included in the treatment program, especially non-completers may have felt over-burdened by the requirements of the respective treatment phases, which could be one explanation for their inability to adhere to the program. Also, the above mentioned phobias could not be addressed in sufficient detail, apart from the phobia of traumatic memories. In this context, it may have been of particular benefit to target anticipated consequences of change, given that most of the participants have lived with their restrictions for a long period of time.

Processing of traumatic memories

In line with the suggested trauma treatment guidelines, the current treatment program strongly focussed on the processing of traumatic memories. Taking into account the observed results and the hypotheses from the TSD, it appears that more time should have been invested for a stabilization and symptom reduction, before progressing to this next stage. Even though the first four sessions involved an exploration of resources and the conveyance of relaxation and anxiety management strategies, an acquirement of improved coping and affect regulation skills would have

been beneficial. Moreover, it would have been of merit to spend more time on the establishment of a firm therapeutic alliance and to target interactional difficulties.

Integration

Regarding the integration of traumatic memories, dysfunctional interpretations of the traumatic event and its aftermath were addressed in the treatment program. Moreover, symbolic integration and reframing was strongly fostered in the hypnotherapy group. Yet again, given the severity and multiplicity of traumatization in the study participants, more time for grief work would have been valuable. Also, it is acknowledged that the integration concept in the TSD comprises far more than mere reframing of a particular experience, as dissociation denotes a lack of integration between different parts of the personality. In this way, an integration signifies a successful incorporation of the split parts, necessitating a painstaking collaboration between all the above mentioned mechanism.

Hypnotherapy in the context of SD

While it is difficult to derive benefits of hypnotherapy from the results of two participants, a few interesting observations could be made which are also relevant in the context of a structural dissociation. Moreover, these observations were congruent with the anticipated benefits of hypnosis, as outlined in the description of the treatment contents (Chapter V).

One major gain stated by the participants in the CBT/Hypnotherapy condition was the conveyance of a sense of control which is well supported by the hypnosis literature (Cardeña, 2000; Spiegel, & Spiegel, 2004). Furthermore, hypnosis seemed to play an important role not only in terms of participants' perceived control during the treatment process, but also with respect to their control expectancies before treatment. Thus, it is possible that trauma survivors with low control expectancies were particularly drawn to a hypnotherapy treatment. While this tendency may be somewhat critical regarding a possible disappointment of expectations, hypnotherapy has emerged as a helpful strategy for a reduction of externalized control expectancies, in that it is the client himself (or his unconscious mind) that creates the potential for recovery (Revenstorf, 2001).

Moreover, hypnosis seemed to assist the processing of traumatic memories, as it constituted a valuable tool to relive the stressful experience in a safe state of relaxation. Furthermore, it facilitated reframing of the experience without an explicit activation of cognitive resources. As demonstrated in Chapter V, a major premise of hypnotherapy is the assumption that information processing takes place on various levels of consciousness (Revenstorf, 2001). In the so called “trance logic” (Orne, 1959; Orne, 1973, cited in Revenstorf, 2001), critical and rational thinking processes are at least partly replaced by mechanisms that allow for more tolerance towards incongruent contents and less logical processing. It is of interest that exactly this “subconscious transition ” has been highlighted by one of the participants in the CBT/Hypnotherapy group.

7.5 Conclusion

The conducted Framework Analysis aimed at an elaboration of the major themes emerging in a treatment evaluation program for VOC. Thereby, the complexity of critical factors and the many challenges involved in such a treatment program became apparent. While strong efforts have been undertaken to accommodate severely traumatized VOC in a standardized trauma treatment approach, the program did not quite succeed in allowing enough time and other resources necessary for an active engagement in treatment of all enrolled participants. Nevertheless, VOC with more highly developed strategies were able to adhere to the treatment program and to demonstrate considerable gains. As a future perspective, it appears of merit to include a comprehensive assessment of dissociative patterns, as this has major implications on clients’ ability to benefit from the treatment. Moreover, it appears essential to allow for a comprehensive stabilization phase before processing of traumatic memories is instigated, as the latter requires a wide range of advanced skills along with a high level of mental energy and efficiency. An inclusion of hypnotherapeutic elements seems advantageous for all stages of treatment, but further systematic evidence is needed.

Conclusions and Implications

This final chapter presents the major conclusions derived from the dissertation. In addition, implications for research and evidence-based practice are discussed. The thesis will conclude with the author's reflections on the PhD process, with acknowledgments of both the gains and costs associated with undertaking the project.

8.1 Summary and conclusions

Each of the studies has contributed to a more comprehensive understanding of the complexity of problems faced by victims of crime. In the sections that follow, the major findings from the studies will be summarized, followed by an attempt to integrate the outcomes into a dissociation model of trauma.

Study I

Study I revealed that, in comparison to a normally stressed community sample of people without trauma experiences, victims of crime showed a considerably elevated level of overall stress and other adverse emotional states such as depression, anxiety and loneliness. Moreover, a significant proportion of the crime victims displayed severe posttraumatic stress symptoms along with a marked degree of depression and dysfunctional cognitions in relation to the self, others and the world. Differences between the groups were also reflected in physical health outcomes. Victims of crime demonstrated higher levels of C-reactive protein and a significantly altered cytokine pattern. Moreover, these results were supported by more reported physical health symptoms. The findings were interpreted as possible evidence for a distinct psycho-immuno-biological process in victims of crime which may be explained by an HPA axis dysregulation and concomitant low cortisol levels. Another explanation is a possible shift in cytokine activity which would suggest fluctuating patterns of immune functioning.

Study II

Study II sought to complement the findings from Study I by elaborating on individual stress conceptualizations of crime victims, as well as their ways of coping with the adverse experience(s). Traumatic memories were mentioned as the major source of strain, even though a variety of other stressors and previous trauma experiences were encountered as well. Participants indicated that they did not possess efficient strategies to deal with traumatic stress, with some of the strategies that were applied rather being maladaptive. In line with the immunological results in Study I, the pattern of stress was described as fluctuating, with extreme and debilitating states of distress on the one hand and withdrawal, exhaustion or an inability to feel on the other. Furthermore, the meaning of the crime emerged as an important factor in relation to the impacts experienced. This study also examined the extent of personal growth resulting from the experience, and suggested that growth can co-exist with traumatic stress symptoms and does not necessarily promote adaptive coping.

Study III

Study III involved the completion and evaluation of a combined CBT/hypnotherapy treatment program for victims of crime, and employed both an outcome and a process evaluation. The outcomes showed that treatment completers benefited from both the CBT and the combined CBT/Hypnotherapy treatment; the majority of participants were not able to finish treatment, however. Due to the high rate of non-completers, it was not possible to demonstrate any statistically distinct benefits of hypnotherapy. A positive impact was, however, the reliable improvement observed for the individual clients in the hypnotherapy group. Furthermore, the qualitative framework analysis revealed that participants in the hypnosis group perceived hypnotherapy as helpful in approaching their traumatic memories, as well as for integrating their experiences. The framework analysis also indicated that treatment completers and non-completers differed in their expectations towards their own ability to influence the treatment and in their expectations towards the therapist. More specifically, there was a strong indication that they had an external locus of control and had partly unrealistic ideas about the therapist role in non-completers. It was suspected that people with an external locus of control may be particularly drawn to hypnotherapy because of misconceptions and unrealistic expectations about its

potential. In line with the findings in the two previous studies, a biphasic pattern was identified across different domains of functioning, as evident in risk taking versus withdrawal behaviours; extreme emotional reliving versus emotional detachment; physical hyperarousal versus hypoarousal; and an intrusion of memories versus difficulties to remember the traumatic experience.

8.2 Integration of findings

When one considers the findings from the three studies together, the alternating pattern of functioning emerges as the most consistent observation. As mentioned before, a biphasic pattern has long been described as one of the hallmarks of PTSD (APA, 2004), and alternating psychobiological states have been detected throughout trauma research (Nijenhuis & Den Boer, 2007). What is most interesting, however, is that this trend can be observed on so many different levels of functioning, in this way reflecting the often discussed distinctiveness of posttraumatic reactions. Furthermore, the observed biphasic pattern is consistent with the more recent trauma theories such as the Theory of Structural Dissociation (TSD) (Van der Hart et al., 2005; 2006), Brewin et al.'s Dual Representation Theory (1996) and Friedman et al.'s allostasis concept (Friedman, 2004; Friedman & McEwen, 2004) which bring together psychological and biological explanations of posttraumatic psychopathology.

For this dissertation, the Theory of Structural Dissociation (TSD) has the most compelling explanatory power. This theory was described in Chapter VII. The TSD proposes the coexistence of at least two psychobiological systems, characterized by a different psychological, physiological and neural reactivity to threat cues (Van der Hart et al., 2004). The ANP (Apparently Normal Personality) is directed towards functioning in daily life, and therefore avoiding traumatic reminders, whereas EP (Emotional Personality) is engaged in an active or passive defense of (life) threatening situations (Van der Hart et al., 2006). Accordingly, it is likely that these different psychobiological systems also involve a different neuroendocrine and autonomous activity with corresponding impacts on other systems such as immune functioning (Nijenhuis & Den Boer, 2007; Van der Hart et al., 2004; 2006). Derived from Porges's polyvagal theory (2001, 2003 in Nijenhuis & Den Boer, 2007), it has been suggested that ANP is associated with the ventral vagal branch of the parasympathetic nervous

system which is supposed to assist functions such as social communication, self soothing and calming. This system also contains another important component, referred to as the ventral brake, which inhibits sympathetic activity and in this way allows the individual to remain in a quiet state. EP, on the other hand, is associated with sympathetic nervous system activity which requires a release of the ventral vagal brake, thus enabling a quick mobilization, when flight or fight is indicated (Nijenhuis & Den Boer, 2007).

It is important to note that the distinct psychobiological systems, however, do not appear to be mediated exclusively by one specific part of the autonomous nervous system (ANS). For example, EP can also engage in submission which has been related to a third mechanism, the dorsal vagal part of the parasympathetic nervous system (Nijenhuis & Den Boer, 2007; Van der Hart et al., 2004). Similarly, ANP is not only associated with the ventral vagal branch, but also the sympathetic nervous system or the dorsal vagal part. This means daily functioning is facilitated by both a maintenance of a calm state, but also a defense against intrusions, which are executed by mechanisms such as emotional detachment or derealization. Moreover, a particular ANS mediated threat response is reflected in particular physiological reactions: People whose EPs are activated would be expected to demonstrate increased heart rates and blood pressure when engaging in an active defense of threat. If they are, however, in an EP mediated state of submission, decreased heart rate and blood pressure would be expected.

A range of empirical findings have lent support to the hypothesis of response-related differences in biological functioning. Regarding the outcomes of this research project, a study by Mason, Wang, Yehuda, Riney, Charney, and Southwick (2001) is of interest, as they found varying cortisol levels in dependence of an emotional engagement versus detachment. Thus, elevated cortisol levels could be associated with an EP driven fight, flight or freeze reaction, whereas lowered cortisol levels would accompany an ANP or EP mediated defense reaction. Hence, previously mentioned inconsistencies in physiological findings *across* studies and differing patterns of physiological and metabolic functioning *within* one sample or *within one person* could be explained by these distinct neurovegetative processes (Griffin, Resick, & Mechanic, 1997; Lanius et al., 2002; Schmahl, Elzinga, & Bremner, 2002).

The threat response and a consequent activation of EP or ANP are also indicated by different patterns of cerebral metabolism, which reveal an activation of particular brain functions (Nijenhuis & Den Boer, 2007). Thus, it is assumed that an active EP defense is associated with the amygdala and the somatosensory cortex. Once the amygdala is activated, a whole range of other reactions such as an activation of the sympathetic nervous system and the HPA axis will occur. In contrast, an ANP mediated defense may increase activity in the anterior cingulate and the medial prefrontal cortex which inhibits amygdala activity, in this way serving as a compensatory mechanism.

In sum, a dissociation model of trauma appears as the most appropriate explanation for the findings obtained in the present research project, even though such a conceptualization was not considered from the very beginning. Besides providing a plausible explanation for the trauma-related alterations across various domains of functioning, a dissociation model also constitutes the most useful theoretical underpinning for an application of hypnosis in trauma treatment.

Figure 8.1 shows an effort to integrate the findings from the current research project with the postulates from the Theory of Structural Dissociation (TSD). Exposure to a crime may result in psychological and neurobiological disturbance. The extent and severity of traumatic sequelae depends on crime and victim characteristics; research has shown that trauma eventuating in early childhood can interfere with the development of normal brain functioning, such as with the maturation of integrative structures such as the prefrontal cortex and the hippocampus (Benes, 1998; Heim & Nemeroff, 1999). Moreover, psychological integrative skills are not yet fully developed, in that the sense of self is highly state-dependent (Wolf, 1990) and not much volitional control over mental states can be exhibited (Nijenhuis, Van der Hart, & Steele, 2004). Furthermore, these impacts may be aggravated by a lack of social support and adequate interaction with caretakers, resulting in an insecure attachment of the child (Pearlman & Courtois, 2005; Putnam, 1997). The suggested model, however, is not exclusively focusing on childhood trauma survivors, as adult crime victims may be hindered by other factors including previous trauma experiences, a psychiatric history, or an inability to modulate one's acute biological stress response and establish homeostasis (McFarlane, 2000). Nonetheless, the age at crime onset

seems critical, as research has demonstrated more dissociative symptoms in abused children under the age of six years (Draijer & Boon, 1993; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Van der Linden, 1998; Roth et al., 1997). Furthermore, crime characteristics may be critical. Accordingly, Nijenhuis, Van der Hart, Kruger, and Steele (2004) demonstrated that somatoform dissociation was best predicted by repeated threats to physical integrity.

If the crime experience cannot be integrated, a structural dissociation of the personality may occur, manifested in positive and negative psychoform and/or somatoform dissociative symptoms. There are, however, also secondary psychological and physiological consequences, probably based on conditioning processes (Van der Hart et al., 2006). Moreover, the single factors mutually influence each other, in that social support facilitates self efficacy, whereas self efficacy is needed to establish social support. Similarly, a phobia of attachment may deprive individuals of social support, while a secure attachment can only be achieved in stable relationships. The more conditioned responses result, the more likely a traumatized individual is to develop chronic symptoms, involving multiple negative consequences such as an increased risk of harm to self and others, and an enhanced probability of re-victimization.

It should be noted that the relationships between the single categories may be more dynamic than portrayed in the figure. Also, it appears difficult to determine the order of the consequences of structural dissociation, i.e. whether a certain symptom or behaviour represents a primary or secondary consequence.

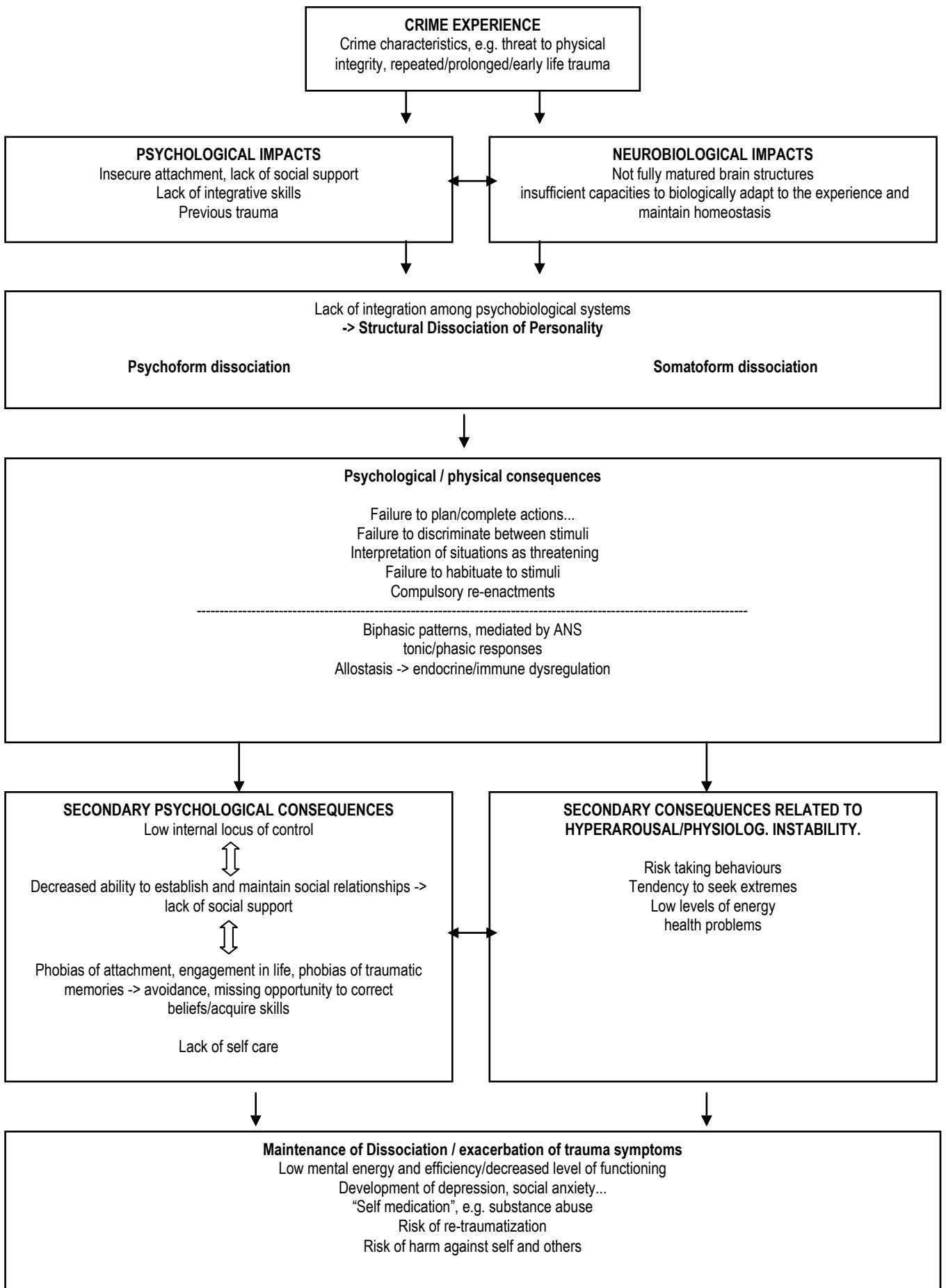


Figure 8.1. Preliminary model of complex traumatization in VOC

8.3 Implications for research and evidence based practice

An adoption of a dissociation model of trauma and the concomitant alternations in functioning have major implications for both research and practice.

The commonly recommended trauma measures presume a stable singular state, which is associated with the idea that the measured construct (e.g. treatment progress) can be captured by changes in these very measures. The reliability and validity of these assessments, however, is challenged if potential dissociative states are not taken into account. Hence, it is imperative to find out whether a traumatized person suffers from a structural dissociation of the personality, requiring an assessment of dissociation symptoms by standardized questionnaires and a careful clinical exploration (Van der Hart et al., 2006). Similarly, both the researcher and practitioner need to determine which psychobiological system or part of the personality is dominant at the time of assessment. As with physiological outcomes, symptoms differ in relation to the type of threat response. For example, Van der Hart, Nijenhuis, Steele, and Brown (2004) describe that ANP is primarily characterized by symptoms representing loss or inhibition such as amnesia, anaesthesia, and paralysis. EP symptoms, on the other hand, are of a more transient nature and may occur as re-experiencing symptoms (Van der Hart et al., 2004). Nonetheless, EP can also reflect symptoms of anaesthesia and analgesia when people recall the traumatic experience, in this way complicating the determination of the dissociative state.

Other difficulties involve the distinction between a structural dissociation and a non-pathological altered state of consciousness (Van der Hart et al., 2004). In addition, testing may be compromised if traumatized individuals have not yet learnt to activate the respective dissociative parts. This is supported by observations in the present research process, and suggests that there may be difficulties to distinguish between single traumatic events and different qualities of traumatic reactions.

As outlined in Chapter VII, a structural dissociation model also has major implications for trauma treatment, because the focus is on an integration of the dissociated parts and the development of a coherent personality (Van der Hart et al., 2006). The findings from this project strongly point to the importance of stabilization

and a reconstitution of daily functioning before other problems can be targeted. While a stabilization phase is acknowledged in most treatments of complex trauma (Van der Kolk & Courtois, 2005), the TSD based recommendations extend beyond a common understanding of stabilization. Thus, a variety of interventions are suggested, which start from a systematic strengthening of the part that promotes functioning in daily life (Van der Hart et al., 2006). At the same time, it is critical to overcome obstacles such as, for example, the phobia of attachment, but also the phobias between different dissociative parts which, apart from the avoidance of traumatic memories, may not have received much attention in treatment studies. As emphasized above, a dissociation model of trauma also invites an application of hypnotherapeutic interventions. Hence, it would be of merit to investigate further the effectiveness of hypnotherapy in the context of complex trauma.

Consistent with psychobiological models such as the TSD, the present research outcomes also shed light on physical health consequences of a crime. Research has suggested that many victims of crime present at general health care settings, rather than mental health services (Kimerling & Calhoun, 1994; Mezey, King, & MacClintock, 1998). As a consequence, it is important to raise awareness of a possible history of victimization in primary health care providers and to foster closer alliances between general and mental health professionals. Moreover, an acknowledgment of physical health impacts may influence health care policies and improve the access of care (Schnurr & Green, 2004b). Regarding the assessment of health impacts, the findings indicated that a measurement of immunological measures may not yield conclusive results, while imposing an additional burden on participants. Hence, it may be of greater benefit to pay attention to physical health symptoms by a thorough assessment of the patient history and screening of medical reports, which also helps to shed light on other processes such as somatization and somatoform dissociative symptoms. In addition, it assists the patient to understand the links between their psychological and physical symptoms.

Finally, the present research project has raised a number of questions in relation to appropriate methods for evidence based practice in victims of crime. The treatment study yielded a high rate of treatment discontinuation which compromises the results of an outcome evaluation. Moreover, a mere outcome evaluation may not

do justice to the complexity of the problems presented. Associated with the complexity is the heterogeneity of a victim of crime population, due to various mentioned factors such as dissociative states, intercurrent environmental demands and factors related to the natural course of the symptoms (Shalev, 2000). Thus, research into victims of crime needs to place its constructs within a context of time (development) and space (relationships, family, and culture) (Alexander, 1992). As a consequence, a process evaluation with an employment of mixed methods has proven useful in accommodating these difficulties. Nonetheless, there should also be an openness to other designs such as controlled single case studies (Cardeña, 2000). The appropriateness of a particular methodology, however, can only be appraised in light of the research goals and the existing knowledge in a particular field (Schnurr, 2007).

The final section of this thesis will be devoted to a more personal reflection on the PhD process which comprises an acknowledgment of the limitations and the gains of the research process.

8.4 Final reflections - Where to from here?

Having arrived at the end of the project, it seems appropriate to share some final reflections on the PhD process and to envision some directions for the future.

As outlined in the introduction to this project, the journey was not straightforward and involved many unforeseen obstacles. Thus, in a way there is a sense of “little did I know” when embarking on the challenging task of trying to grasp the complexity of victimization. Hence, upon the completion of this project, one must ask whether the set goals have been achieved and whether the author’s expectations have been fulfilled. The most important question, however, is what has been learnt from this process.

The idea for this project evolved from an interest in psychosomatic medicine and the view that mental and physical illnesses are inextricably entwined. Similarly, there was a strong interest in psychological treatment evaluation and evidence-based practice. The search for relevant areas of research soon revealed that specific problems of victims of crime have not attracted much psychological interest, even

though certain crime victims such as rape survivors have frequently been part of studies into the general sequelae of traumatization. In addition, there was little emphasis on the specific and broader consequences of interpersonal violence with a surprising ignorance of the context. As a result of these considerations, the project intended to explore the complex problems in the face of victimization and to take into account both the psychological and physical consequences as well as to utilize this knowledge in a treatment program for victims of crime.

As described in the Literature Review, the project began with an exploration of the theoretical background by scrutinizing dominant trauma theories and recommended guidelines for treatment evaluations. Although the wealth of research into the consequences of traumatization became apparent, there was an element of surprise when discovering that, over the last two decades, most research interest has been devoted to the concept of Posttraumatic Stress Disorder, while many other consequences seemed virtually overlooked. This is even more astonishing, given that there is considerable evidence on comorbid conditions and responses that are not covered by the PTSD concept. Similarly, there was a strong bias towards CBT treatments, whereas other opportunities were only considered marginally. Motivated by a personal interest in hypnotherapy, the application of hypnosis in trauma treatment was explored and appeared promising because of its significant role in the history of trauma treatment, as well as its compatibility with trauma theories. However, at this stage, the overall significance of a dissociation theory was not yet evident to the author, resulting in a decision to abide by the well evidenced PTSD treatment models, as well as the recommended methodological “gold standards”.

Over the course of the project, the complexity of the problems and the importance of the context became more salient which led to the adoption of a broader methodology. However, with the completion and evaluation of the treatment study, it also became apparent that the theoretical construct of PTSD and a conceptualization of posttraumatic illness as an anxiety disorder could not provide a satisfying explanation for the observed phenomena. Thus, the research process encouraged a shift towards a dissociation model which can integrate a wide spectrum of clinical presentations, as well as psychological and biological concomitants of victimization.

Challenges

Due to the complexity and the nature of the project, there are multiple methodological limitations which have been acknowledged in the respective chapters. However, a brief reference should be made with respect to an achievement of the overall research goal. As indicated in the title, the thesis describes a *step* towards a broader understanding of complex traumatization in victims of crime, acknowledging that many further steps are necessary to gain a deeper insight into the complex problems in the aftermath of victimization. Nevertheless, effort was taken to reach a comprehensive understanding within the given constraints of a PhD project such as limited resources and a narrow time frame.

Engagement in this project involved various challenges; First, it was extremely difficult to recruit victims of crime. Second, the studies were complicated by logistical and time requirements. Third, it was demanding to simultaneously meet research and practice expectations, while also dealing with the frustrations of non-attendance and treatment discontinuation.

From a therapist point of view, it was challenging to accommodate the complex needs of the clients. In this context, it is of paramount importance to also consider possible negative consequences of the treatment. While every precaution was taken to avoid risk and harm to participants, more subtle negative outcomes cannot be excluded with absolute certainty, such as disappointment in the treatment and a re-confirmation of an already low control expectancy in those people who were not able to complete treatment. This touches upon ethical dilemmas regarding research in traumatized individuals that have been highlighted by several authors, for example Newman and Kaloupek (2004). On the other hand, most of the study participants were not able to access services elsewhere, meaning that the study participation offered a valuable opportunity to link in with mental health professionals. Accordingly, it should be mentioned that in South Australia there are very few public therapeutic facilities can accommodate patients with complex psychopathology.

Another important (self)-observation are the consequences of trauma treatment and research on the therapist/researcher, well expressed by McFarlane and Van der Kolk (1996, p.43):

(...) clinicians and researchers are not exempt from developing the same ambivalence and numbing that victims provoke in the general public...their continuous confrontation with the brutal facts of life make it very difficult for them to maintain a detached scientific attitude.

At times, the intense occupation with terrifying and life threatening crimes, but also the presence of unpredictable fluctuations in functioning and, in particular, high arousal levels did have a draining effect on the therapist. Moreover, it was sometimes difficult to adequately accommodate participants' overvalued expectations of care, commitment, and therapist responsibilities. The looming risk of vicarious traumatization, as well as the importance to retain a high level of energy and efficiency, introspection and awareness of one's own maladaptive strategies have been stressed by various authors (Figley, 1995; Van der Hart et al., 2006). The latter is particularly crucial with respect to a potentially detrimental counter-transference.

Coming back to the complexity of the research project, one must ask whether the right decision was made by embracing such a multifaceted project. While the comprehensive nature of this undertaking constituted a demanding task, it appeared necessary to attain an understanding of the consequences of victimization, particularly given that complexity is often not considered in psychological research. Nonetheless, the next steps in this area of research should involve a more narrow approach; the testing of the effectiveness of hypnosis within an identified theoretical framework, for example.

The final reflections here will be devoted to the personal gains from this research process. Besides an acquirement of academic and research skills, being able to share a person's most vulnerable moments is considered as a major privilege and deserves every respect possible. Moreover, having the opportunity to learn from people who survived the most unbearable and unspeakable experiences provides an excellent platform for personal growth. Due to the complexity of the project, an exchange with various academic and health professionals was required which led to valuable professional and personal contacts. Thus, similar to many paradoxes in the context of trauma, there is a simultaneous sense of both, exhaustion and a new found strength.

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