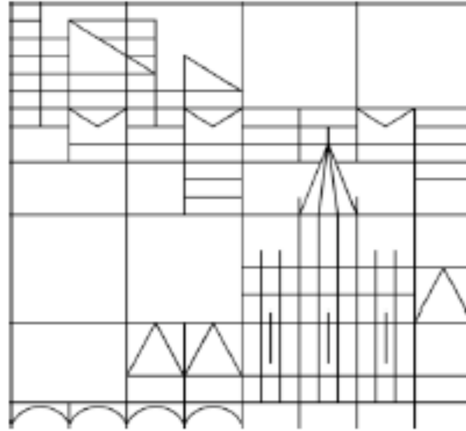

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Consequences of traumatic stress in Rwandan genocide survivors: Epidemiology, psychotherapy, and dissemination

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Wenn die Untat kommt, wie der Regen fällt, dann ruft niemand mehr: halt!
Wenn die Verbrechen sich häufen, werden sie unsichtbar.
Wenn die Leiden unerträglich werden, hört man die Schreie nicht mehr.
Auch die Schreie fallen wie der Sommerregen.

When evil-doing comes like falling rain, nobody calls out, ’stop!’
When crimes begin to pile up they become invisible.
When sufferings become unendurable the cries are no longer heard.
The cries, too, fall like rain in summer.

- Bertolt Brecht -

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Acronyms and Abbreviations

AD	Anxiety Disorder
ANOVA	Analyses of Variance
APA	American Psychiatric Association
BDI	Becks Depression Inventory
CAPS	Clinician-Administered PTSD Scale for DSM-IV
CBT	Cognitive-Behavioral Therapy
CDR	Coalition for the Defense of the Republic
CES-D	Center of Epidemiologic Studies Depression Scale
CHH	Child-headed Household
CIDI	Composite International Diagnostic Interview
CP	Creative Play
CT	Cognitive Therapy
DRC	Democratic Republic of the Congo
DSM	Diagnostics and Statistical Manual of Mental Disorders
EBP	Evidence-Based Practice
ES	Effect Size
FAR	Forces Armees Rwandaises (Rwandan Armed Forces)
HSCL-25	Hopkins Symptom Checklist (25 items)
HTQ	Harvard Trauma Questionnaire
ICTR	International Criminal Tribunal for Rwanda
IE	Imaginal Exposure
IPT	Interpersonal Psychotherapy
M	Arithmetic Mean
MD	Major Depression
M.I.N.I.	Mini International Neuropsychiatric Interview
N	Sample Size
NET	Narrative Exposure Therapy
NGO	Non-Governmental Organization
NUR	National University of Rwanda
PDS	Posttraumatic Stress Diagnostic Scale
PE	Prolonged Exposure
PG	Prolonged Grief
PG-13	Prolonged Grief Disorder questionnaire (13 items)
PGD	Prolonged Grief Disorder

PTSD	Posttraumatic Stress Disorder
PTSS-10	Posttraumatic Symptom Scale
RFR	Rwandan Francs
RPF	Rwandan Patriotic Front
SC	Supportive Counseling
SD	Standard Deviation
TT	Testimony Therapy
UN	United Nations
UNAMIR	United Nations Assistance Mission to Rwanda
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
US	United States
vivo	victim's voice (NGO)
WHO	World Health Organization
WL	Waiting List

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1. Overview

Organized violence has lasting and devastating effects at the individual and community level. Previous studies in crisis regions, including Rwanda, have revealed grave consequences of violence on psychological functioning, as presented in Chapter 1. With the epidemiological study described in Chapter 2, we assessed mental health problems and needs in the post-war Rwandan society. We conducted a cross-sectional survey to examine widows and orphans, two vulnerable groups that are prominently affected during wars. In 2007, 13 years after the 1994 genocide, we trained Rwandan psychology students to conduct psycho-diagnostic interviews. Under expert supervision, they interviewed 406 genocide survivors in five districts of Butare (southern Rwanda) for socio-demographic and clinical variables. The instruments included an event-list adapted to the context of the Rwandan genocide, the validated version of the Posttraumatic Stress Diagnostic Scale (PDS) and the Hopkins Symptom Checklist (HSCL-25), as well as the Prolonged Grief Disorder questionnaire (PG-13) and the Mini International Neuropsychiatric Interview (M.I.N.I.) suicide section C in Kinyarwanda. We recruited orphans from age 18 to 31 and widows without age restrictions. We found that the genocide victims had experienced on average 11.3 different types of potentially traumatic events during their lifetime. Most of them related to the genocide, such as *expectation to die* (89.9%), *forced movement* (89.7%), and *forced to hide to be saved* (88.9%). The most common worst life events were the *genocide* in general, *sexual violence,* and *witnessing murder* or *massacre*. Mental health problems were very frequent in the sample with 34.7% suffering from Posttraumatic Stress Disorder (PTSD), 7.9% Prolonged Grief Disorder (PGD), 40.9% Major Depression (MD), 50% Anxiety Disorder (AD), and 38.2% suicide ideation. The vulnerability of widows was higher on average. The sum of experienced traumatic event types was the best indicator for an increased risk to suffer from clinically relevant symptoms. At the time of interview, only 5.4% of all participants received professional psychological help.

Mental health problems, in particular PTSD, are a major issue in post-conflict countries. I discuss general intervention approaches and specific psychotherapy of trauma-spectrum disorders adequate for application in post-war countries in Chapter 4. The great number of victims resulting from organized violence demands dissemination of effective short-term therapy to local human resources. I further present literature about the feasibility and

effectiveness of trauma therapy dissemination for victims of organized violence. Accordingly, we performed a randomized controlled trial in Rwanda representing the second empirical study which, is described in Chapter 5. With the previously conducted cross-sectional epidemiological survey we had identified orphans and widows who had survived the 1994 genocide suffering from chronic PTSD. After a pre-test, we randomly assigned 76 genocide survivors to treatment or to a six-month waiting list (WL). In the first round of dissemination, clinical experts trained Rwandan Psychology graduates (B.A.) in Narrative Exposure Therapy (NET) and Interpersonal Therapy (IPT). The Rwandan Psychologists administered NET/IPT to the patients in the treatment group under constant expert supervision (first dissemination generation). In a second round of dissemination, we conducted a randomized trial to evaluate the *train the trainer model*. Skilled therapists, who had participated in the first round, trained and supervised a second generation of Rwandan psychologists to offer treatment to the WL group (second dissemination generation). We conducted evaluations before therapy and at three-, six-, and twelve-month follow-up interviews using the main outcome measures for PTSD, PGD, and MD. Participants of the first dissemination generation of NET/IPT therapists reported a significant reduction in PTSD symptoms (Effect Size (ES) = 1.48). Equally, NET/IPT in second dissemination generation was effective (ES = 1.15). PGD, MD, and suicidal tendency reduced substantially over time both in the NET/IPT and the WL group. Participants maintained and increased treatment gains at follow-up interviews. The results indicate that short-term trauma therapy can be disseminated in first and second generation to Rwandan graduates. It proved to be an effective intervention, which implies general feasibility in post-conflict societies. For a broader understanding of the project context, I present an overview of Rwanda’s history and culture in the Annex.

2. Mental health

The World Health Organization (WHO) has defined mental health as “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (WHO, 2001). The American Psychiatric Association (APA) has defined mental health problems as “psychological and behavioral patterns that are associated with emotional suffering, or disability, loss of freedom, and increased mortality. These conditions are considered to arise from a biological, behavioral, or psychological dysfunction within the individual” (American Psychiatric Association, 2000). Neuropsychiatric conditions (especially MD, AD, and substance abuse) contribute substantially to the overall disease burden of societies, and are now the leading cause of non-fatal disabling conditions in low- and high-income countries (Lopez, 2006), (Neugebauer, 1999). In 2001, WHO estimated that about 450 million people are suffering from mental or behavioral disorders worldwide (Kohn, 2004). The burden of psychological disorders goes well beyond their effect on mental health. Further consequences are physical problems and mortality (in particular suicide), and they are associated with poverty, marginalization, and social disadvantage (Vikram Patel, 2007).

For efficient mental health planning, intervention, and prevention, psychiatric epidemiology has to quantify a society’s mental burdens (Neugebauer, 1997), (Keane, 1990), (McDonnell, 2004). Therefore, clinicians have developed international psychiatric standards and concepts with matching structured diagnostic instruments for population-based surveys that WHO and the majority of researchers have judged valid and reliable for cross-cultural application (Beiser, 1986), (Sartorius, 1996), (Renner, 2006), (Bernstein Carlson, 1994), (Sack, 1997), (Nicholl, 2004). The available data clearly suggest that violence, personal loss, and disaster have a strong adverse impact on mental health globally (Bernstein Carlson, 1994), (Rubonis, 1991), (Keane, 2006), (Pfefferbaum, 2006). Still, assessment methods and the universality of psychiatric disorders are controversially debated in cross-cultural mental health research (Nicholl, 2004), (Kleinman, 1987), (Summerfield, 2001). Authors criticize that symptoms in different cultures may not have the same value or meaning (Bracken, 1993). Further they criticize PTSD as a social construct of the Western society that is based on the individualism (Summerfield, 1999). I will take up this discussion further at intervention approaches for trauma-spectrum disorders in Chapter 4.2.2.

2.1. Epidemiology of mental health problems

Every year, up to an estimated 30% of the global population suffer from a form of mental disorder, about one-third of them from more than one (Bijl, 2003), (Kessler, 2005), (Wittchen, 2005). Neuropsychiatric disorders are the leading cause of disability worldwide, accounting for 37% of all healthy life-years lost to disease (WHO, 2001). In Western societies, yearly prevalence of mental health problems was found to be highest for depression (6.9%), specific phobias (6.6%), somatoform disorders (6.3%), and substance dependence (2.4%) (Wittchen, 2005).

The prevalence of MD in adult populations was consistently high worldwide (Wong, 2001): well-controlled studies estimated the lifetime prevalence of MD in the United States (US) to be between 5.2% and 16.2% (Weissman, 1996), (Kessler, 2003). Weissman found the lifetime cross-national MD prevalence to be 1.5% in Taiwan, 2.9% in Korea, 4.3% in Puerto Rico, 16.4% in France, and 19% in Lebanon (Weissman, 1996). Representative community surveys in Europe showed a one-year depression prevalence of 9.3% in Finland (Lindeman, 2000) and a six-month prevalence of 8% in Italy (Dubini, 2001). Depression was more prevalent in women and in formerly married participants (divorced, separated, widowed), living without their family, not attending church, having low income, and few children (Kessler, 2003), (Dubini, 2001), (Bornstein, 1973). Prigerson described depression as the main risk factor for suicide (Prigerson, 1999a).

In Western epidemiological studies, lifetime prevalence of AD as estimated at 15%, with a point prevalence of 7%, including Phobia, Specific Phobia, Agoraphobia, and Panic Disorder (Perkonigg, 1995), but estimates of anxiety disorders in relation to depression are missing (Angenendt, 2004).

The act of deliberately ending one's own life is a major public health problem. Data from 1996 for 53 countries suggested that on average 15.1 persons per 100.000 inhabitants (3.5 men: 1 woman) committed suicide. Suicidality is a multi-factorial complex behavior and is commonly exhibited in exceptional circumstances or in the context of mental disorders (WHO, 2001), (Wolfersdorf, 2004).

2.1.1. Mental health and traumatic exposure

Prevalence estimates of exposure to traumatic events and symptomatology varied across epidemiological studies as a function of differences in stressors, definitions, and ascertainment methods (Breslau, 2002). In representative population surveys in the Northern hemisphere, prevalence estimates of lifetime exposure to traumatic events were 60.7% in men. Most common were combat exposure and witnessing of such events. In women, lifetime exposure was 51.2%, with rape and sexual molestation being the most frequent experiences (Kessler, 1995). Kessler has defined PTSD as the predominant disorder in victims of traumatic events and stressors (Kessler, 1995). Resulting estimates of PTSD lifetime prevalence ranged from 1% to 12.3% in industrialized countries (Helzer, 1987), (Kessler, 1995), (Stein, 2002).

Elevated PTSD scores were found in women (twice as high as for men), previously married people (separated, divorced, or widowed), people with low income and education, and with multiple traumatic experiences (Kessler, 1995), (Lauterbach, 2005). Breslau and Keane found in meta-analyses, a history of psychiatric disorder, childhood trauma, cumulative traumatic experiences, life adversity, and family psychiatric disorders consistently to be risk factors for PTSD following traumatic events (Breslau, 2002), (Keane, 2006). The estimated median remission time of PTSD was 24.9 months, but studies reported that between 30% and 50% of adolescent and adult PTSD patients did not recover even after many years (Breslau, 2001), (Kessler, 1995), (Yule, 2000), (Keane, 2006). In addition to PTSD, 80% of trauma victims suffered from co-morbid lifetime psychiatric disorders and poor health (Kessler, 1995), (Lauterbach, 2005), (Breslau, 2001). Numerous studies have reported a high concurrence of PTSD and MD. For instance, in Bleich's study of war veterans suffering from PTSD, 95% had lifetime and 50% current co-morbid MD (Bleich, 1997). In refugees living in the United Kingdom, Van Velsen found a co-morbidity of 25% (Van Velsen, 1996). Apart from MD, high rates of Prolonged Grief Disorder (PGD), substance abuse, and AD were common in people who had been exposed to traumatic experiences, and were a predictor of symptom severity and functional impairment (Breslau, 2002), (Mollica, 2001), (Kessler, 1995), (Frueh, 2000), (Bleich, 1997). These authors explained this concurrence with symptom similarity, biological predisposition, common causation, and sequential causation, assuming that co-morbid disorders were secondary to prolonged PTSD (Breslau, 2001), (Shalev, 1998).

2.1.2. Mental health and bereavement

In current studies, bereavement was found to greatly increase the risk of psychiatric complications such as depression, prolonged grief, anxiety, and trauma symptoms (Bornstein, 1973), (Amick-McMullan, 1989), (Prigerson, 1995), (Prigerson, 1997), (Zisook, 1997), (Carnelley, 1999). Harrison reported in 1.746 British adolescents, the loss of family members or friends to be associated with depressive symptoms. Further, a dose-response relationship between the number of losses and the severity of depression was demonstrated (Harrison, 2001). Over time, symptoms of depression and anxiety declined in mourners, according to several studies with large non-representative self-report samples (Boelen, 2007a), (Bonanno, 2002), (Prigerson, 1997), (Prigerson, 1996b), (Carnelley, 1999). In Western cultures, research has identified, distinct grief-specific symptoms, which put mourners at risk of sleep problems, suicidal ideation, and a persistent reduction of life quality, as well as physical problems such as headache, influenza, heart trouble, high blood pressure, and cancer (Prigerson, 1997), (Chen, 1999). While depending on culture and personality, grieving is a highly individualized process, it is also influenced by external factors and is thus difficult to define (Kersting, 2001), (Neria, 2003), (Silverman, 1992), (Dutton, 2005). Existing grief literature uses a theoretic approach. Symptoms associated with loss have been operationalized in a multitude of syndromes, e.g., pathological, traumatic, prolonged, or complicated grief (Hogan, 2001), (Prigerson, 1999b), (Prigerson, 2007), (Horowitz, 1997), (Burnett, 1997), (Prigerson, 2002).

Leading researchers have only recently revised the criteria for pathological grief to a syndrome named PGD, which represents the set of specific grief symptoms identified in persons with problematic adjustment to a loss (separation distress and behavioral problems). The refined set of consensus criteria fulfilled the requirements for a relevant mental disorder and was proposed for the DSM-V (Diagnostics and Statistical Manual of Mental Disorders Fifth Edition) (Boelen, 2007b), (Workman, 2009). Clear limitations of existing research were the use of small, relatively similar, and mostly non-representative samples of Western widowed elders, often with low response rates. This raised questions about how much the concept could be generalized (Kersting, 2001), (Boelen, 2005). Further criticism focused on the varied definitions, conceptualizations, and time-ranges of PGD in various studies, as well as the lack of inclusion of a functioning impairment item (Boelen, 2007a), (Silverman, 2000).

Current research showed that the majority of bereaved persons experienced grief reactions to a manageable degree and were able to return to a pre-loss level of functioning relatively soon:

Four to six months after the loss many of the bereaved felt significantly better and symptoms mostly subsided over the first year (Bonanno, 2005), (Bonanno, 2004), (Clayton, 1990), (Bonanno, 2002), (Prigerson, 1997), (Horowitz, 1997). Only a minority, usually 10% to 15% suffered from prolonged grief reactions (Bonanno, 2004), (Lichtenthal, 2004).

In a prospective study in the US, Bonanno, Wortman, and Nesse analyzed 185 widowed persons and found that even resilient individuals reported some initial distressing thoughts and emotions related to the death of their spouse. They found common grief patterns in 10.7% of the participants and a chronic grief pattern in 15.6% (Bonanno, 2004), (Bonanno, 2002). Prigerson compared 27 healthy participants in a control group to 97 conjugally bereaved elders. Some 20% of the bereaved participants had significantly worse scores on general health, mental health, and social functioning, and showed symptoms of MD (Prigerson, 1995). In a clinical population in Pakistan, 34% of the sample met the grief criteria at an average of 5.3 months after their loss (Prigerson, 2002). Bonanno et al. used Horowitz's grief scale to assess grief symptoms of 73 US-American bereaved participants four and 18 months after their loss. At the first assessment, 15% met the criteria for PTSD, 17% for grief, and 10% for MD. At 18 months, 10% met PTSD, 10% grief, and 12% MD criteria. The three psychopathological syndromes were highly inter-correlated (4 months/18 months: MD – PTSD at $r = .67$ / .74; MD – grief at $r = .63$ /.59; PTSD – grief at $r = .68$ / .49) (Bonanno, 2007), (Bonanno, 2002). In a sample of 56 recently widowed elderly, Prigerson identified 28% with MD (Prigerson, 1996b). In a study with 150 widowed participants, she further found that not the stress of bereavement per se but the associated psychiatric sequel, such as prolonged grief, determines long-term dysfunction (Prigerson, 1997).

Several studies described the length of time since the loss (years since loss in prolonged grievers: 2.83 versus healthy subjects: 15.25) (Prigerson, 1995) and the closeness of relationship with the lost person (Currier, 2006), (Mitchell, 2004), (Boelen, 2005), (Prigerson, 2002) as relevant for the severity of grief. Widows were reported to suffer from higher mean levels of grief, depressive and anxiety symptoms than widowers (Chen, 1999). Further, certain circumstances of death were associated with enduring distress, including stigmatic death (e.g., suicide or HIV/AIDS) (Green, 2001), (Kaltman, 2003), (Mitchell, 2004), death involving multiple loses (Harrison, 2001), (Pivar, 2004), and non-forewarned widowhood (Carnelley, 1999). Several researchers have found violent death to lead to more severe mental health

problems (Zisook, 1998), (Bonanno, 2007), (Kaltman, 2003), whereas the intentionality (accident versus murder) of death was not crucial (Currier, 2006).

2.1.3. Mental health and violent bereavement

Life-threat and loss are often concurrent in civil-war settings, and it seems possible that resulting intrusive memories include characteristics of PTSD and grief aspects, but the relation has rarely been investigated (Neria, 2003), (Momartin, 2004b). Some authors distinguished PGD and PTSD in terms of the quality of intrusions (positive and negative memories of the deceased versus flooding memories of traumatic events associated with threat) and avoidance (separation distress versus trauma-associated triggers for intrusions, helplessness, and horror) (Kersting, 2001). Eth and Pynoos interviewed children who had witnessed a parent's homicide and reported the traumatic stress response to interfere with the children's ability to grieve (Eth, 1994). Currier found in 1.056 recently bereaved college students that PG (prolonged grief) after a violent loss originated in one's inability to make sense of the experience (Currier, 2006).

Boelen and van den Bout conducted an online study with 1.321 bereaved people (average time since loss: 32.5 months). The grief scores of victims of violent loss ($N = 246$) was significantly higher than those of victims of non-violent losses ($p < .05$) (Boelen, 2005). In a sample of 87 widowed participants, Kaltman and Bonanno found higher PTSD rates and more PTSD and MD symptom persistence when the loss had been violent (six months after the loss: 50% versus 15%; 14 months after the loss: 40% versus 5%) (Kaltman, 2003).

In the context of the attacks in the US on September 11, 2001, Neria et al. conducted a web-based survey of 704 bereaved adults. After 2.5 to 3.5 years, they diagnosed current grief in 43% of the participants, whereas 70% reported yearning for the deceased. Additional mental health problems were PTSD (43%), MD (36%), anxiety symptoms, and suicidal ideation (Neria, 2007). In Green's study of female undergraduates, traumatic loss as a singular traumatic experience placed the participants at risk for general distress and disorder, particularly for stress-related diagnoses (intrusive symptoms) (Green, 2001). In a study with friends of suicide victims ($N = 146$, $M = 6.3$ years after suicide), 20% of participants showed impaired life quality and were thus considered as prolonged grievers. Six participants fulfilled co-morbid diagnoses ($\varphi = .34$), and participants with grief diagnosis had elevated suicidal ideation ($OR = 5.08$; $p < .001$) (Prigerson, 1999a). Among children who had lost someone in

the 1998 American Embassy bombing in Nairobi (N = 156), the strongest predictor of grief symptoms was posttraumatic stress (31% unique variance in a multiple regression) – related to the bombing or other adverse life events. The results suggest a strong relationship between PTSD and grief, as additional negative life events and losses subsequent to the bombing increased the children's vulnerability (Pfefferbaum, 2006). Bonanno investigated the effect of violent loss in persons who had lost someone during the September 11, 2001, attacks (N = 447) and found a higher psychopathology than in studies with non-violent loss: 15.4% suffered from MD, 17.2% from PTSD, and 39.8% from grief. Of the participants meeting the grief criteria, 45% met it exclusively, but the authors found a high correlation between MD and PTSD (r = .76), MD and grief (r = .49), and PTSD and grief (r = .66). They concluded that when the loss was a result of a violent death, particularly high correlations between symptoms might make it difficult to distinguish grief from MD and PTSD (Bonanno, 2007), (Bonanno, 2002).

2.1.4. Relationship of different mental health problems

Numerous studies have found a high co-morbidity of PGD and other psychiatric disorders (MD, PTSD, and AD). This required a differentiation and validation of an independent grief concept (Prigerson, 2007). Factor-analytic studies supported the separation of grief from depression and anxiety. For instance, Boelen et al. found a three-factor solution of the symptom score of 103 bereaved outpatients in the Netherlands (Boelen, 2003). Equally, Prigerson and Chen found in recently widowed elderly subjects a significant better fit for the three-factor than for the one-factor solution (Prigerson, 1996b), (Chen, 1999). The three-factor model also fit data derived from 1.321 bereaved Dutch individuals better than the one-factor model, though the content of grief and depression overlapped. Correlations between the factors were r = .78 for grief and depression, .58 for grief and anxiety, and .78 for depression and anxiety. This led the authors to assume related but distinguishable symptom clusters (Boelen, 2005). Principal axis factoring showed grief symptoms of 150 widowed individuals loading high on the grief factor and poorly on the anxiety and depression factors (Prigerson, 1996a). In Boelen's factor analysis in 2007, the three-factor model again fit significantly better than the single-factor model for the symptoms of PGD, MD, and AD, despite high correlations between the clinical concepts (PGD – MD: r = .75, PGD – AD: r = .56, AD – MD: r = .78). In a predictive analysis of 87 mourners, all three syndromes were associated

with adverse physical and mental health outcomes at six and 15 months after the initial interview. Interestingly, only PGD levels heightened the risk of suicidal thoughts, even beyond the influence of MD and AD (Boelen, 2007a). In a study with 114 veterans, Pivar and Field reported high levels of grief-specific symptoms that were distinct from the sub-scales of PTSD, MD, and PGD in a principle component analysis. Their model described grief as an important factor of combat-related stress (Pivar, 2004).

Silverman and colleagues interviewed a representative sample of 67 widowed people in the US at two to 34 months after their loss (88% were in the first six months of bereavement). PGD, MD, and PTSD diagnoses had a moderately high but not complete overlap with each other (PG – MDD: $\varphi = .50$; PG – PTSD: $\varphi = .47$, MDD – PTSD: $\varphi = .37$). In 37% of the cases, participants with PGD also met the PTSD criteria; in 50% they also met MD criteria; and in 25%, all three assessed diagnoses were positive (Silverman, 2000). Latham and Prigerson found high correlations between PG and MD in a sample of 309 bereaved adults: 18 of 35 subjects with a PG diagnosis at baseline and 12 out of 20 at follow-up also met MD criteria (Latham, 2004). Equally, in a study with 25 bereaved spouses, Kim and Jacobs found a high overlap of diagnoses. Of the participants who suffered from grief, 94% also had MD, whereas only 33% of the non-grievers fulfilled the MD diagnosis (Kim, 1991). In Horowitz's study with 70 bereaved subjects (14 months after the loss), 21% of the grievers concurrently had a MD-diagnosis and 79% met the lifetime diagnosis of MD. Thus, previous vulnerability to depression seemed to predispose bereaved subjects for the development of prolonged grief after loss (Horowitz, 1997).

Several authors found incremental validity for the grief concept, as high levels of PGD contributed to an elevated risk of suicide (Prigerson, 1999a), (Latham, 2004), lower functioning (Silverman, 2000), quality of life impairment in combination with depression and anxiety (Silverman, 2000), and a variety of mental and physical health problems (Chen, 1999), (Silverman, 2000), (Silverman, 1992).

Furthermore, several studies demonstrated that co-morbid complicated grief contributes to greater mental health symptom severity and poorer functioning in bereaved participants. Grief reactions were associated with more severe depressive symptoms, higher traumatic stress level, elevated scores of suicidality, and physical complaints (Kersting, in press), (Beutel, 1995), (Kim, 1991), (Pasternak, 1993). Using path analysis, Prigerson found that the baseline severity of grief and anxiety predicted follow-up severity of depression (Prigerson, 1996b).

Also, Beutel reported a more chronic course of depression in combination with grief (Beutel, 1995). Pasternack and collaborators found different symptoms in conjugal bereaved people: while depression declined over a period of 18 months, grief did not reduce on a clinically significant scale (Pasternak, 1993). Reviewing current research outcomes, Prigerson argued for an association of grief, anxiety, depression, and PTSD. She highlighted that this should not call into question that the syndromes are distinct mental disorders. But clearly there is a need for further research (Prigerson, 1996a).

2.2. Epidemiology of mental health problems in vulnerable groups

In the preceding years, 13 major wars were recorded on the African continent, 34 armed conflicts and three wars worldwide (Harbom, 2008b), (Harbom, 2008a). Fourteen million refugees and an estimated 170 million civilians have been killed in armed conflicts since World War II (U.S. Committee for Refugees and Immigrants, 2008), (Universität Hamburg, 2007), (Bussmann, 2008), (Harff, 2003), (Rummel, 1994). Ninety percent of deaths were civilians, half female, and the fighting affected especially young persons (McDonnell, 2004). United Nations High Commissioner for Refugees (UNHCR) estimated in 2007 that 42 million people had fled their homes due to violent conflict (UNHCR, 2008). Epidemiological studies consistently identified elevated psychiatric morbidity in populations with experiences of war, persecution, and mass violence (Lopes Cardozo, 2000), (Lavik, 1996), (Kinzie, 1989), (Blair, 2000). The problem is now becoming visible for the humanitarian assistance community (WHO, 2001), but epidemiological investigations in post-conflict societies are still scarce and the body of established population-based findings on psychosocial distress and psychiatric disorders is incomplete (Neugebauer, 1997), (Mollica, 2002). Scientific analysis and empirical evidence are necessary to make recommendations for effective mental health policies and interventions for refugees and post-war societies (Mollica, 2002). The following cited investigations based on clinical concepts according to existing or proposed DSM criteria (American Psychiatric Association, 2000), (Prigerson, 2007) but most studies have serious methodological shortcomings due to non-representative sampling, small sample sizes, or lack of valid and reliable interview protocols (Neuner, 2007), (Hollifield, 2002).

2.2.1. Mental health in victims of organized violence in Western countries

An extensive body of studies on mental health in victims of organized violence was conducted in the West, where refugees faced problems related to the asylum-seeking process (Silove, 1997), forced separation from their families (Hauff, 1995), and adaptation to a new culture (Westermeyer, 1989), (Steel, 1999). Vast differences of PTSD rates were found in the studies, due to varying hardships, duration of traumatic exposure, and methodology. All research results confirmed however that refugees in Western countries are at high risk for mental disorders (Lavik, 1996).

Van Velsen et al. interviewed refugees from various countries in the United Kingdom. Some 52% were diagnosed with PTSD and 35% with MD (Van Velsen, 1996). Hauff et al. diagnosed 22.3% of 145 Vietnamese boat refugees with psychiatric disorders, whereas 17.7% suffered from a depressive disorder (Hauff, 1995). Thulesius and Hakansson found high levels of PTSD and depressive symptoms (Posttraumatic Symptom Scale (PTSS-10) – self report) in Bosnian refugees recruited in health centers. Approximately 18% to 33% were diagnosed with PTSD and 21% with MD (Thulesius, 1999). Ai and collaborators further studied refugees from the Bosnian war who had resettled in the US via social service agencies. Adult Kosovo refugees (N = 129) filled out a self-report questionnaire, reporting a mean of 15 traumatic events (out of 24 items on an event-list). Sixty-one per cent showed a significant PTSD symptomatology (PDS – symptoms only counting with frequency two, otherwise a PTSD rate of 78% would have been attained), but functioning was not assessed. Three-quarters reported at least one symptom of re-experiencing, 45% three or more avoidance symptoms, and 73.6% two or more arousal symptoms (Ai, 2002). Mollica and colleagues interviewed 534 Bosnian refugees living in Croatia. They reported an average number of 6.5 trauma events (out of 38 trauma events and 19 torture experiences), 39.2% showed symptoms of depression (18.6% suffered from depression only), 26.3% symptoms of PTSD (5.6% reported PTSD only), and 20.6% symptoms of co-morbid depression and PTSD (Mollica, 1999). Momartin and colleagues interviewed 126 Bosnian refugees, who had settled in Australia. They found 31% of the sample above the threshold for a complicated grief reaction, 63% with PTSD, and 40% with dysthymia or depression. Grief and depression were highly related, only eight chronic grievers did not suffer from co-morbid depression (Momartin, 2004b). Turner and colleagues conducted a large-scale non-randomized study on mental health among 842 refugees from Kosovo in English reception centers. In the General Health Questionnaire, 59.9% showed

clinically relevant results (cut-off: 7), the BDI indicated in 61.4% depression, whereas 43.7% had scores in the moderate or severe range. Anxiety was elevated in 56.9% of the participants, and 34.1% indicated moderate or severe symptoms. According to the PDS (scored conservatively above 2), 32.1% presented PTSD-relevant symptoms (Turner, 2003).

Extremely elevated rates of psychiatric problems were found in studies with Cambodian refugees in the US, who had left Cambodia 9 to 11 years ago, had mostly lived in refugee camps for years, and had suffered from massive violence from the Khmer Rouge regime. Bernstein Carlson and Rosser-Hogan randomly selected 50 Cambodians and found an average number of 14.1 traumatic experiences (from a list with 21 items). All respondents had lost all personal property and had spent more than one year in a refugee camp. Eighty-six per cent of the subjects met PTSD criteria, 80% were over the depression-, and 88% over the anxiety cut-off (HSCL-25: 1.75) (Bernstein Carlson, 1994). Marshall et al. studied mental health in 482 Cambodians (N = 482) in a US household-survey, and also reported high rates of trauma exposure in Cambodia (average of 15 out of 35 event types) and in the US (1.7 out of 11 event types). In the previous year, 62% of respondents met the DSM-IV diagnostic criteria for PTSD and 51% for MD. Co-morbidity was high: 71% of people with PTSD also met MD criteria, and 86% of participants with MD met also PTSD criteria (Marshall, 2005). Blair analyzed data of 124 Khmer Rouge survivors, finding that 45% of the participants met the criteria for PTSD and 51% for MD (Blair, 2000).

In Australia, Silove et al. contacted 40 refugees from 21 countries in an asylum-seeker center and interviewed them about their mental health (HSCL, Harvard Trauma Questionnaire – HTQ, and CIDI – Composite International Diagnostic Interview); 79% of the participants had been exposed to at least one traumatic experience, 36.8% suffered from PTSD, 23.1% scored above the anxiety-, and 33% above the depression threshold. Co-morbidity was substantial whereas 50% of the PTSD patients also presented HSCL symptoms above the cut-off (Silove, 1997). Lavik and colleagues interviewed 231 refugees from diverse countries living in Norway. They found a PTSD prevalence rate of 48% (PTSS-10), 16% dysthymia/depression, 6% anxiety (HSCL), and 20% other diagnoses (Lavik, 1996). In a US community clinic mental health program for Southeast-Asian refugees, Marshall and colleagues assessed the DSM criteria for PTSD and MD, and found that 38% of 404 widows should the symptoms of these disorders. About 75% of the respondents fulfilled MD criteria (non-validated, diagnosed in all visits) and 14% PTSD criteria, although usually the diagnoses were combined (Kroll,

1989). Hermansson and colleagues investigated the long-term mental health status of war-wounded male refugees from different countries in Sweden. The refugees scored for anxiety and depression (HSCL) on a symptomatic level in 43%, and at least one *quite severe reaction* of PTSD symptoms was found in 50% of the cases. The mental health problems were highly interrelated, with significant Spearman rank correlation between symptoms of anxiety – depression (.80), anxiety – PTSD (.79), and depression – PTSD (.71) (Hermansson, 2002). Momartin investigated the co-morbidity of PTSD and depression more closely in a non-representative sample of 126 Bosnian refugees living in Australia, recruited from a community center in a snowball system. Participants were assigned to four diagnostic groups: no clinically relevant symptoms (N = 39), pure PTSD (N = 29), pure MD (N = 8), and co-morbid PTSD and MD (N = 58). Life threat alone was associated with pure PTSD, whereas life threat and traumatic loss were both associated with co-morbid PTSD and MD. The co-morbid group exhibited more severe PTSD symptoms, stronger functional impairment, as well as higher levels of disability on all indices compared to non-affected participants or those with PTSD only (Momartin, 2004a). Furthermore, Mollica reported greater impairment in patients with co-morbid PTSD and MD diagnoses as these participants were five times more likely to report disability than persons without psychiatric symptoms (Mollica, 1999). Co-morbidity might in itself lead to more severe overall symptoms or, alternatively, the particular constellation of identified trauma exposure (traumatic loss and life threat) might have generated both co-morbidity as well as increased intensity of symptoms (Momartin, 2004a).

Associated factors

In refugee populations settled in Western countries, PTSD, depression, and anxiety symptomatology are elevated in victims of torture (Silove, 2002), (Lavik, 1996), (Jaranson, 2004), women (Hauff, 1995), (Lavik, 1996), (Ai, 2002), (Silove, 1997), unemployed persons (Lavik, 1996), (Marshall, 2005), people living in poverty (Marshall, 2005), (Silove, 1997), asylum-seekers with an insecure status (Lavik, 1996), and people facing resettlement stress (Bernstein Carlson, 1994), (Silove, 1997). Other factors associated with PTSD and MD were the experience of numerous losses of immediate family members (Blair, 2000), the separation from the immediate family, and living alone (Steel, 2002), (Hauff, 1995). Traumatic loss was the most consistent predictor of prolonged grief reactions in Bosnian refugees, and higher scores were found in widows than in married or single women (Momartin, 2002), (Momartin,

2004b). In Southeast-Asian refugees, widowhood was positively correlated with more symptoms of depression and anxiety (Kroll, 1989).

Repeatedly, in survivors of organized violence living in Western countries, the degree of traumatic exposure showed significant influence on general health (Turner, 2003), (Kroll, 1989), (Van Velsen, 1996), and symptoms scores of PTSD (Jaranson, 2004), (Ai, 2002), (Blair, 2000), (Marshall, 2005), (Mollica, 1998a), (Silove, 1997), depression (Turner, 2003), (Blair, 2000), (Kroll, 1989), (Marshall, 2005), (Mollica, 1998a), and anxiety (Turner, 2003), (Kroll, 1989). Thus, the more somebody was confronted with traumatic experiences, the more mental health problems were reported. Neuner named this phenomenon the *building block effect of traumatic exposure* (Neuner, 2004a).

Chronicity

Steel and collaborators investigated in a population-based study the long-term effects of trauma on the mental health of 1.413 Vietnamese refugees in Australia. Trauma exposure was the most important predictor for the mental health status after 10 years. Compared to non-exposed participants, respondents with one or two traumatic experiences were twice as likely to have an ICD-10 mental illness, those with three or more trauma categories had an eight times higher risk (Steel, 2002). Kinzie et al. investigated chronicity of PTSD symptoms in adults. Among South-East Asian refugees living in the US who visited their clinic, most had suffered from traumatic events 10 to 15 years before the study, but only few patients (6%) had recovered from PTSD (Kinzie, 1990). Similarly, Marshall reported chronicity of PTSD and MD in a high number of Cambodian refugees, who suffered from mental health problems two decades after they had taken refuge (Marshall, 2005). Sack conducted a longitudinal study with Cambodian youth in the US who had been massively affected by war trauma and loss (N = 38, non-random, 6 to 12 years old during the Pol Pot regime). The PTSD diagnosis from the initial interview (six years earlier) declined from 50% in 1984 to 38% in 1990. In contrast, the depression diagnosis dropped more substantially from 41% to 6% (Sack, 1993). In a follow-up study 12 years later (N = 31), the PTSD prevalence rate persisted at 35%, and MD rose to 14% (Sack, 1999).

2.2.2. Mental health in victims of organized violence in low- and middle-income countries

The majority of refugees in the world are displaced within the developing world, where they face an uncertain future with respect to food, shelter, and physical security (Shrestha, 1998). Beside the predominance of this high-risk populations, studies on mental health were limited due to difficulties in sampling and methodology (e.g., validation of questionnaires in different languages), as well as security concerns in war-affected countries (Neuner, 2007).

Over a period of three years, Kamau and colleagues assessed the general mental health status in a psychiatric service center in a refugee camp in Kenya. They interviewed survivors of organized violence and civil war, who had fled from Sudan, Somalia, and Ethiopia (N = 1.825). According to the DSM-IV, 39% of the patients received an initial PTSD diagnosis, 22.7% suffered from anxiety disorders, 12.3% had a psychosis, and 10.6% were identified with depression (Kamau, 2004). Somasundaram and Sivayokan conducted an epidemiological survey in 101 randomly selected families during the armed conflict in Northern Sri Lanka (participants were 15 years and older). Half of the sample had experienced five to nine war stressors, one quarter had more than 10 different war experiences. Of the participants, 64% had developed a psychosocial sequel, including somatization (41%), PTSD (14%), AD (26%), MD (25%), alcohol and drug misuse (15%), and functional disability (18%). Somatic complaints ranged from 0 to 22 with a mean of five complaints per person (Somasundaram, 1994). Dahl handed out questionnaires to assess trauma history and PTSD symptoms (PTSS-10) among 111 displaced women living in the Bosnia-Herzegovina war zone. Among the occupants of a Women's Center, he found a PTSD-case prevalence of 53% (Dahl, 1998). In a random community survey in war-affected Lebanon, Karam and colleagues interviewed 658 adults. The lifetime prevalence rate of the DSM-III-R-defined MD was 27.8% (with variations across the communities from 16.3 to 41.9%) (Karam, 1998). In a two-stage cluster sample survey in Eastern Afghanistan, Scholte and colleagues interviewed 351 households (N = 1.013, age 15 and older). In the war-affected area, high rates of symptoms of depression (38.5%), anxiety (51.8%), and PTSD (20.4%) were reported (Scholte, 2004a). De Jong conducted a similar survey in Freetown, Sierra Leone, for *Doctors Without Borders* shortly after direct fighting had stopped. He assessed traumatic experiences, trauma symptoms (Impact of Event Scale: not validated), and health complaints (N = 245, participants aged 15 and older). The results showed high exposure to conflict and very high levels of disturbance – 99% of respondents had high PTSD symptom scores (De Jong, 2000). Lopes Cardozo

interviewed 1.358 Kosovo Albanians (older than 15 years) shortly after the Kosovo war in a random household survey. The participants reported a high prevalence rate of traumatic events: 21.6% had experienced 0 to 3 events, 39% 4 to 7, 27.5% 8 to 11, and 11.9% 12 to 16 different events such as combat situations (66.5%), being close to death (61.6%), torture or abuse (48.9%), murder of a family member or a friend (26.4%), having witnessed a murder (23.9%), kidnapping (17.7%), rape (4.4%), or forced displacement (81.8%). Of the respondents, 17.1% met the PTSD criteria (Lopes Cardozo, 2000). Polak interviewed 123 abducted girls in Northern Uganda about their war and trauma experiences. The mean number of reported traumatic event types was 23.5, the maximum 38. The authors found that all girls suffered from PTSD (Impact of Event Scale) symptoms on a clinically significant level (Amone-P'olak, 2005).

De Jong and colleagues conducted the first systematic and high-quality epidemiological surveys in post-war communities between 1997 and 1999. They interviewed survivors of war and mass violence (aged 16 and older), who were randomly selected from communities. They found PTSD prevalence rates of 37.7% in Algeria (N = 653), 28.4% in Cambodia (N = 610), 15.8% in Ethiopia (N = 1.200), and 17.8% in Gaza (N = 585) (De Jong, 2001). In a demographic survey (N = 3.323) in Northern Uganda and Southern Sudan, Karunakara and colleagues also found a substantial mental health burden. They reported an average event load of 6.1 events in Ugandan nationals, 7.0 in Sudanese nationals, and 9.8 in Sudanese refugees; PTSD rates were 18%, 48%, and 46%, respectively (Karunakara, 2004). Hotz studied 35 Tibetan refugees in India and found clinically relevant symptom scores for anxiety (41.4%) and depression (14.3%; HSCL cut-off: 1.75) (Hotz, 1998). Basoglu et al. examined effects of war trauma on mental health and cognition. In a cross-sectional survey in the former Yugoslavia, they studied 1.358 adult war survivors recruited in a snowball system. A mean of 12.6 war-related events was reported, 33% of the participants suffered from current or lifetime PTSD, and 10% from current MD (Basoglu, 2005). Mollica and colleagues interviewed 993 adult Cambodians who lived in Thai refugee camps. Fifty-five per cent fulfilled depression criteria and 15% suffered from PTSD. Up to 20% reported physical health impairments that limited their activity, as well as moderate or severe body pain. Despite the high levels of mental health problems, the majority of respondents were functioning well on a day-to-day basis (Mollica, 1993). In a case-control survey in a large representative community-sample of

Bhutanese refugees in Nepalese refugee camps, Shrestha and collaborators found that 14% of those who had been tortured and 3% of the non-tortured refugees were suffering from PTSD (each group N = 526). Depression and anxiety rates were prevalent with 25% in the tortured and 14% of the non-tortured population (Shrestha, 1998). In a study with 104 Burmese political refugees in Bangkok who had suffered from multiple traumas, Allden found a PTSD prevalence rate of 23%. Furthermore, 38% of the respondents presented elevated depressive symptoms (HSCL cut-off: 1.75) (Allden, 1996). Ovuga and colleagues worked with 102 formerly abducted child soldiers in Northern Uganda. They found that 87% reported having experienced ten or more war-related traumatic events, 60% were suffering from PTSD, and 88.2% from MD (HSCL cut-off: 1.75) (Ovuga, 2008). In a representative epidemiological survey (N = 1.114), Ertl et al. examined trauma-spectrum disorders and related functional impairment in formerly abducted and war-affected youth in Northern Uganda. Trained local counselors found that 7% (N = 639) of the non-abducted and 25% (N = 475) of the abducted youth fulfilled a PTSD diagnosis, rising up to 36% when the time of abduction was longer than one month (N = 224) (Ertl, 2008).
Soskolne and colleagues interviewed 951 Israeli citizens in high-risk (Tel Aviv) and low-risk (Jerusalem) regions about their war experiences. In both regions, the participants exhibited a similar deterioration in their physical health status, with high levels of somatization (18% and 12%) and anxiety (34% and 26%) (Soskolne, 1996). Carey assessed mental health problems using the CIDI and M.I.N.I. among 201 patients in an urban primary care center in South Africa. The participants reported 3.8 traumatic events on average, and current PTSD was found in 19.9% of the respondents. PTSD patients had an elevated prevalence of MD, panic, and somatization disorder, and co-morbidity further affected social functioning (Carey, 2003).

Studies on children showed similar prevalence rates of mental health problems as described for adults. In a cross-sectional study in a primary healthcare center with 3.079 children between 1 and 15 years in Iraq, Al-Jawadi and Abdul-Rhaman found a point prevalence of mental disorder of 37.4% according to the DSM. The most prevalent disorders were PTSD (10.5%), enuresis (6%), and anxiety disorder (4.3%) (Al-Jawadi, 2007). Terheggen et al. investigated the mental health status among Tibetan pupils living as refugees in India. The respondents had experienced a mean of three event types. One fourth experienced substantial anxiety and 42% depression symptoms (Terheggen, 2001). In Sri Lanka, an examination of

296 Tamil school children affected by war, domestic violence, and the 2004 Tsunami showed a PTSD prevalence rate of 30.4%. MD was found in 19.6% and current suicidal ideation in 17.2% of the respondents (Catani, 2008).

Associated factors

In the described studies, PTSD and other mental health problems were elevated for participants who had experienced torture (Hotz, 1998), (De Jong, 2001), reported a psychiatric history (De Jong, 2001), (Lopes Cardozo, 2000), suffered from current illness or chronic health conditions (De Jong, 2001), (Lopes Cardozo, 2000), lived in poor refugee camp conditions (De Jong, 2001), experienced daily hassles (Miller, 2008), (De Jong, 2001), had domestic stress, were less educated (Lopes Cardozo, 2000), (De Jong, 2001), (Karunakara, 2004), had lost a family member, had a parent who abused alcohol (De Jong, 2001), were unemployed (Lopes Cardozo, 2000), (Karunakara, 2004), (Mollica, 2002), lived in household with nine or more people (Sabin, 2003), or had a low economic status (Somasundaram, 1994), (Karunakara, 2004). Gender differences were significant for general psychological distress, anxiety, depression, PTSD, and psychosocial functioning, whereby women were in a worse situation on all measures (Miller, 2008), (Allden, 1996), (Karam, 1998), (Sabin, 2003), (Lopes Cardozo, 2000), (Karunakara, 2004), (Kamau, 2004), (Scholte, 2004a), (Shrestha, 1998). Especially when the husband was absent from home (Dahl, 1998) or dead (Lopes Cardozo, 2000), (Mollica, 2002), (Sabin, 2003), elevated score were reported.

In sum, numerous studies (Catani, 2008), (Karunakara, 2004), (Karam, 1998), (De Jong, 2001), (Carey, 2003), (Ovuga, 2008), (Allden, 1996), (Dahl, 1998), (Lopes Cardozo, 2000), (Scholte, 2004a), (Terheggen, 2001), (Mollica, 1998b) demonstrated a building block effect of traumatic exposure.

Chronicity

Mollica and colleagues observed the chronicity of clinical symptoms in 376 Bosnian refugees in Croatia in a three-year follow-up self-report. MD persisted in 43% of the participants. Additionally, 16% of formerly asymptomatic persons expressed symptoms of psychiatric disorder at the second interview. Only 23% of the PTSD patients were given the diagnosis at the follow-up interview. PTSD occurred primarily in association with depression (Mollica, 2001). Sabin and collaborators assessed factors associated with poor mental health among 170

Guatemalan refugees living in Mexican refugee camps. Twenty years after the civil conflict, 11.8% fulfilled the PTSD criteria (HTQ), 54.4% had anxiety symptoms, and 38.8% had symptoms of depression (HSCL) (Sabin, 2003)

Finally, Kinzie and collaborators followed up on 27 children, who had been severely traumatized at ages 8 to 12. A structured interview and self-rating scales showed that PTSD (48%) and depression (41%) were still highly prevalent three years after the initial interview (Kinzie, 1989).

2.3. Epidemiology of mental health problems in Rwanda

Studies on Rwandan genocide survivors assessed immediate consequences on mental health. Shortly after the 1994 genocide, de Jong et al. investigated psychological problems among 854 Rwandan and Burundian refugees (older than 14 years) in three refugee camps. Ethnic and political tensions, poor living conditions, and an unstable security situation allowed only for a general assessment with 'neutral questions' (General Health Questionnaire). The authors found about 50% of the respondents to have mental health problems, which incapacitated their coping capacities and required professional help (De Jong, 2000). Sydor and Philippot conducted interviews shortly after the genocide in three orphanages in Kigali. They screened 133 non-accompanied orphans (9 to 17 years) for mental health problems according to the DSM-IV criteria. PTSD was prevalent in 24.1% of them, and 10.5% fulfilled the depression criteria. Aggression- and anxiety-scores were in a dysfunctional range for 17% and 23%, respectively (Sydor, 1996). About one year after the onset of the genocide, Dyregrov conducted the *National Trauma Survey* about war experiences and mental health status with 3.030 children (8 to 19 years). The children reported that they had been exposed to a multitude of stressors (violence, loss, and threat): 90% had expected to die, 90% had witnessed killings, 35% had lost close family members, and 30% had witnessed rape or sexual mutilation. To survive most had had to hide, including 15% who had hidden under dead bodies. The psychological consequences were symptoms of intrusions, avoidance, and hyper-arousal (Dyregrov, 2000). Neugebauer and colleagues reanalyzed the data of *National Trauma Survey* (N = 1.547) and found an average of 14 experienced potentially traumatic event types (out of a list of 28). An estimated 58% of the orphans fulfilled the PTSD criteria (Neugebauer, 2009).

In an ethnographic study, Bolton assessed the perception of mental health effects of the 1994 genocide in Rwanda. Participants freely listed symptoms, which mostly corresponded to the DSM-IV diagnostic criteria for PTSD and depression (Bolton, 2001). Five years after the genocide, Bolton conducted a household-survey among Rwandans and found an MD prevalence rate of 15.5% (HSCL). He reported a strong association between depressive symptoms and functional impairment (Bolton, 2002).
Sydor and collaborators investigated the relationship between PTSD and depression in Rwanda. Diagnoses overlapped: 18% exclusively suffered from PTSD, 3% exclusively from depression, and 6% fulfilled both diagnosis criteria (Sydor, 1996). Using UCLA diagnosis, Murorunkwere (2007) conducted interviews with 24 children suffering from PTSD, and found a high co-morbidity with other mental disorders (Brief Symptom Inventory), such as anxiety ($r = .77$, $p < .001$), depression ($r = .47$, $p < .05$), and somatic problems ($r = .59$, $p < .01$) (Murorunkwere, 2007).
About Rwanda, no epidemiological studies about suicidality have been published, but reports from psychiatric consultations in the central psychiatric hospital (Ndera) confirmed a high prevalence in the clinical population. Of 250 recorded patients, 34.3% had suicidal ideas and 9.2% reported serious attempts to commit suicide. In interviews with 86 patients and relatives, ideas about methods to commit suicide such as drowning, use of toxic substances, hanging, shooting, and defenestration were described. Participants additionally expressed high-risk behavior such as starving, drug abuse, and unsafe sex (Mugabo, 2004).

Associated factors

In studies with genocide survivors, factors associated with higher PTSD symptom scores were female gender (Neugebauer, 2009), (Pham, 2004), old age (Pham, 2004), and exposure to violence. All studies found a building block effect of experienced traumatic events on PTSD severity. For instance, Neugebauer found that participants who had experienced more than 25 traumatic events had a PTSD prevalence rate of 100% (Dyregrov, 2000), (Neugebauer, 2009), (Pham, 2004), (Schaal, 2006).
Other relevant factors for elevated mental health problems were widowhood, being present in Rwanda before 1994, Tutsi ethnicity (Pham, 2004) and a low level of education (De Jong, 2000), and living within a community compared to living in an orphanage after the genocide (Dyregrov, 2000). Further, a higher level of depressive symptoms was found in poorer

participants (three or less household assets, less than one meal per day), not having any friends, and poor health. Grief symptoms were more prevalent in depressed participants and those who had lost a parent due to the genocide. The grief caused by parental loss complicated the mental health status of the respondents. Furthermore, orphan status was a risk condition for depression (Boris, 2008).
In a clinical population, suicide ideation was especially expressed in depressed, widowed, and divorced patients (Mugabo, 2004).

Chronicity
Pham and colleagues investigated long-term consequences of the Rwandan genocide in 2002. They assessed trauma exposure in a random multistage cluster survey and found that each of their 2.074 adult respondents had experienced violence. In Rwanda, 92.8% had experienced the genocide, 75.4% were forced to flee their homes, 73% had lost a close family member due to murder, and 79.9% had lost property. Of their participants, 24.8% met symptom criteria for PTSD (PTSD Checklist), whereas 57% had at least one re-experiencing symptom, 43.2% had three or more symptoms of avoidance/numbing, and 25.7% had two or more of the hyper-arousal symptoms. In the four communes across Rwanda, Butare (Ngoma) had the significantly highest event load and symptom severity with a PTSD rate of 33.8% (Pham, 2004). Gishoma found a comparable PTSD prevalence rate of 30% in children living in child-headed households (CHH) (Gishoma, 2005). Ten years after the genocide, Schaal and Elbert interviewed 68 Rwandan orphans (13 to 23 years) about their trauma experiences and symptoms. The interviewees either lived in CHH or in orphanages in Kigali. All had been exposed to extreme levels of violence: 91% had had to hide to survive, 88% had expected their death at some point, and 35% had hidden under dead bodies to stay alive. Seventy-seven per cent of the orphans had witnessed someone being killed and 41% had witnessed the murder of a parent. They all reported traumatic stress symptoms, and 44% of the sample met DSM-IV criteria for PTSD, 35.5% for MD, and 37.3% expressed suicidal thoughts (38.5% of them in an elevated range) (Schaal, 2006).
Boris also worked with 539 CHHs and investigated the mental health status of the head of household. Of this sample, 64% stated that they had lost confidence in people, and more than 40% had the feeling that life was meaningless. The youth felt stigmatized and socially excluded: 60% of the orphans felt rejected by the community, most youth (70.5%) reported

some form of maltreatment, and 14% had experienced forced sex. According to the Center of Epidemiologic Studies Depression Scale (CES-D), 53% of the participants suffered from depression and 7% reported a suicide attempt or suicidal thoughts in the previous two months (Boris, 2008).

3. Empirical study: Epidemiology

We conducted a random house-to-house survey between the September 4 and 30, 2007 in Butare. Numerous studies have confirmed the negative consequences of traumatic stress. Also in Rwanda, several research groups had found an elevated PTSD prevalence (Schaal, 2006), (Pham, 2004). But researchers in post-war societies have neglected the broader consequences of violence and loss, like PGD and suicidality (De Jong, 2005). Until date, no random household-survey had been conducted on vulnerable groups, and no study existed about the mental health concerns of widows in Rwanda. The cross-sectional epidemiological study served two purposes: We wanted to validate the concepts and measures of mental health problem within the Rwandan post-war population as first goal. We further aimed to screen participants eligible for the treatment trial to evaluate field-friendly psychotherapy of trauma-spectrum disorders as a second goal.

3.1. Questions and hypotheses of the study

With the epidemiological study, we intended to investigate the mental health situation of widows and orphans who survived the 1994 Rwandan genocide. We assessed prevalence of well-studied clinical concepts like PTSD, depression, and anxiety in Rwanda. Furthermore, we investigated the prevalence of PGD. We were interested in the reasons and interrelations between clinically relevant problems, consequences of psychological problems on daily functioning, and physical health. We intended to test the following specific hypotheses in the epidemiological study:

- Widows and orphans in Rwanda were confronted with multiple traumatic events and experienced numerous losses in their life (Dyregrov, 2000), (Schaal, 2006), (Neugebauer, 2009).
- Resulting from traumatic exposure and bereavement, related mental health problems, namely PTSD, PGD, depression, anxiety, and suicidal ideation, are highly prevalent (Dyregrov, 2000), (Boris, 2008), (Schaal, 2006), (De Jong, 2001).

- Symptoms endured over the 14 post-conflict years, as chronicity of untreated mental health problems remain stable (Pham, 2004), (Boris, 2008), (Schaal, 2006), (Kinzie, 1989), (Mollica, 1998b), (Allden, 1996).
- Clinical suffering causes interference with the daily life and health status of the participants (Zisook, 1997), (Bolton, 2002), (Catani, 2008).
- Clinical concepts are related and occur co-morbid (Sydor, 1996), (Murorunkwere, 2007). The co-morbidity of symptoms is associated with greater symptom severity (Beutel, 1995), (Kim, 1991), (Pasternak, 1993).
- Widows and orphans are especially vulnerable to mental health problems (Kessler, 1995), (Chen, 1999), (Kessler, 2003), (Momartin, 2004b), (Schaal, 2006), (Boris, 2008), (Sydor, 1996). Higher age is associated with more mental health problems in Rwanda. Thus a greater symptom severity in the widow population is expected (Pham, 2004).
- Female gender (e.g., Neugebauer: 2.6-fold) (Neugebauer, 2009), (Pham, 2004) and a low economic status (Karunakara, 2004) are relevant factors for mental health problems after trauma and loss in Rwanda.
- The building block effect, the positive relationship of between number of traumatic event types and losses on the one hand, and symptom severity on the other hand, is present in all assessed mental health concepts (Harrison, 2001), (Mollica, 1998b), (Catani, 2008), (Neugebauer, 2009).

3.2. Training of the interviewers

The non-governmental organization (NGO) *vivo* has worked to overcome and prevent traumatic stress and its consequences. It represents an alliance of professionals experienced in the fields of psychotraumatology, international health, humanitarian aid, and field research (vivo, 2009). *vivo* offered the expertise, experience, and human resources to realize this project.

In April 2007, Rwandan Psychology Professor Jean Pierre Dusinguizemungu recruited 15 of his psychology students at the *National University of Rwanda* (NUR), seven women and eight men, for an information meeting about the project. All students agreed to participate in the interviewer training and the proceeding interviews. *vivo* members, Ph.D., Susanne Schaal, Clinical Psychologist, and I included another 15 Bachelor students in the training. Ten studied

in their third year and five in the fourth year. In August 2007, we conducted an administrative meeting in preparation for the interview training on two successive weekends, from Friday morning 9 a.m. until 6 p.m. Sunday evening. The students were available only on the weekends as they completed internships across Rwanda. The training took place in the *Institute of Education and Christianity* of Butare and the training language was French. The students received a sitting allowance for their participation.

The training started with the presentation of the whole project and of *vivo*. Afterwards we introduced the questionnaire and discussed important aspects of psychological interviews. One participant read out the instructions on informed consent in a role-play. In small groups the students worked out key behaviors to establish a confident relationship with an interviewee. In a plenary discussion, they gathered, discussed, and completed their ideas. We chose the same procedure for possible problems that may arise during an interview (e.g., dissociation, crying), and how to resolve them. Working directly on the utilized tool for socio-demographic data, general health, and functioning, we read out and discussed each question. Afterwards, we exercised in pairs each part of the questionnaire. One observer provided feedback to the interviewer.

For the assessment of psychological disorders, students had basic knowledge from the university. In short theoretical classes, we refreshed their knowledge about PTSD, PGD, and co-morbid features such as MD, AD, and suicidal ideation. The participants discussed all questions of the diagnostic questionnaires and administered them step by step in role-plays until a satisfactory standard was reached. Finally, they used the whole questionnaire in role-plays. We supervised the exercises constantly.

In the final lecture, we presented the interview procedure. We asked each interviewer to do 27 interviews at random in an assigned district. During the first week, we accompanied the interviewers to the districts. Each student did his first interview under expert supervision. As the interview language was Kinyarwanda, one additional interviewer interpreted simultaneously. The interviewer and the expert kept score on separate questionnaires. We compared and supervised them after the interview. After the expert observed at least one satisfying interview and a comparable scoring, the psychology student worked on his own with a maximum of three interviews per day. The interviewing period was four weeks. We provided expert supervision on a personal level throughout the study at least once a week. We discussed general questions and problems during group supervision once a week. The

psychology students received 2.000 Rwandan Francs (RFR; about €2.50) per interview plus transport, phone, and supervision money.

3.3. Recruitment of the participants and interview procedure

In Rwanda, we applied at the National Institute of Statistics for a research permission. The general director of the National Institute of Statistics Louis Munyakaziwas issued the permission on September 3, 2007. Afterwards, we contacted the mayor of Butare who prepared a research permission for Huyé district in the Southern Province of Rwanda on September 4. We presented these official permissions to the administrators of the five central sectors of Butare (Ngoma, Huyé, Mbazi, Tumba, and Mukura – illustrated in Figure 1) and received a verbal permission to interview the local population. Additionally we contacted AVEGA, a local NGO, and the association of genocide survivors in Mukura to spread information about the project and build trust in the population. The University of Konstanz Ethical Review Board approved the survey in 2007.

Figure 1: Administrative map of Rwanda: Southern Province, Huyé District[1]

[1] Source: Government of Rwanda

The 15 interviewers went into the five central sectors, three to five interviewers per sector. We chose one interviewer as a coordinator in every sector. He appointed cells of the sector to each interviewer. Each student started randomly and went from house to house. If nobody was at home, the interviewer returned later.

We included orphans (with one or both parents lost) and widows in the study. We recruited orphans between 18 and 31 years and widows without age restrictions. For both groups the loss did not necessarily happen during genocide but only those who had experienced the 1994 genocide in Rwanda could participate. Per household, we interviewed a maximum of one widow and one orphan. If several household members met the inclusion criteria, the interviewers chose the participant randomly. They conducted the interviews in Kinyarwanda in a quiet place to ensure privacy. Each participant received 1.000 RFR (about €1.50) for the time they spent with the interviewer (two to three hours) because the participants were unable to work during that time and many Rwandans live on a daily income basis. In total, 18 people out of 427 refused to take part in the study and three participants broke the interviews off. They gave reasons as lack of time, mistrust, and unwillingness to talk about the past. The interviewers observed acute suicidal tendencies in four participants and consequently visited them again for suicide prevention. In addition, I visited one of these four participants to prevent suicide. The described procedure resulted in a randomly assigned group of widows and orphans, which may be seen as representative of widows and orphans in central Butare.

3.4. Questionnaires

We obtained Kinyarwanda language versions of all measures through translation and independent back translation. Teams of psychology students in their last year for a Bachelor degree translated from English or French into Kinyarwanda. A different team performed the back translation, blind to the original version. Experts checked discrepancies and derived a final version through consultation and discussion with the Rwandan students. Each interview started with the explanation of the informed consent. The investigator and participant signed to confirm procedure explanation, confidentiality, and voluntariness to take part in the study. We used the following instruments in the clinician standardized interview:

Demographic part

The socio-demographic part contained questions about the person (name, age, sex, children), and the education – number of school years and highest educational degree – of the participant and their husband or father. The Rwandan students assessed the living situation (address, who and how many people were living at home), how the participant gained her living (occupation, support from others), employment of the husband or father, and what kind of property the person possessed now and before the genocide. We assessed following possessions: owning a house, vegetable garden, agricultural fields, economic plants, and animals. We further investigated the economic situation with questions about nutrition (meals per day and meals with meat per week), income, type of light used (electricity, oil lamps, candles), and the capacity to satisfy the family's needs (nutrition, clothing, school fees, and healthcare).

We included an assessment of general health, professional psychological help, religion, friends, partner, and social activities of the person and the family. Additionally the interview contained questions about the loss of loved ones: who was lost in life, how many children were lost, worst loss, economic situation after loss, number of years since the worst loss, reason of death, funeral, and religious attitude.

Event Scale

We used the Rwandan adjusted event scale (Schaal, 2007). It based on the event list by Neuner, Schauer (Neuner, 2004a), and Dyregrov (Dyregrov, 2000). The scale contained 25 potentially traumatic events (e.g., *Did you witness a massacre?*, *Did you witness the killing of your father or mother?,* or *Did you have to hide under dead bodies?*). We assessed each event type *ever*, *related to genocide*, and *in the previous yea*r.

PDS

PDS of Foa (1995) is a self-report questionnaire. In our study we used it as a screening instrument for PTSD according to the DSM-IV diagnosis criteria (Foa, 1995), (American Psychiatric Association, 2000). The PDS contained questions about the *worst event* in life, and if the person experienced *intense fear, helplessness*, *or horror* (A criterion). The preceding 17 questions about symptoms shown in the previous four weeks concerned *reliving* (B criterion: one out of five symptom), *avoidance* (C criterion: three out of seven symptoms),

and *hyper-arousal* (D criterion: two out of five symptoms) on a four-point scale from 0 (not at all/once in the previous month), 1 (once a week or less/ from time to time), 2 (two to four times per week/half of the time), up to 3 (five or more times per week/almost every day). Thus the frequency but not the intensity of the PTSD symptoms was assessed. Further questions probed for symptom duration (E: one to three months were classified as *acute*, more than three months *chronic* PTSD), delayed onset and functioning impairment (F criterion: one impairment) in areas of occupation, household duties, social relations, free time, school, and overall in life, as well as for general life satisfaction. The PDS severity-score, including the frequency of the symptom, ranged from 0 to 51. Onyut et al. had done the Kinyarwanda translation in the Ugandan Nakivale refugee camp in 2004 (Onyut, 2005b). Rwandan interviewers and therapists had worked in groups on the translation and blind back-translation of the PDS. Ten Bachelor psychology students in Butare repeated the procedure. We compared the two Rwandan questionnaire versions and found a general accordance. Onyut and colleagues also had conducted re-test and an inter-rater validation of the Kinyarwandan PDS in Nakivale and found satisfactory results of psychometric properties (Onyut, 2005b).

PG-13

We used the Prolonged Grief Disorder (PGD) questionnaire of Prigerson to assess PGD, according to the proposed criteria for DSM-V scored from 1 (not at all), 2 (at least once/ slightly), 3 (at least once a week/somewhat), 4 (at least once a day/quite a bit), up to 5 (several times a day/overwhelmingly) (Prigerson, 2007). Symptoms required a significant severity defined as *at least once a day* or *quite a bit* (4). According to Prigerson, the most efficient algorithm for PGD included as B criterion *yearning* (*longing or yearning* or *intense feelings of emotional pain, sorrow, or pangs of grief*) and at least five of the nine following symptoms of the C criterion in a significant way: *avoidance of reminders of the deceased*; *disbelief or trouble accepting the death*; *a perception that life is empty or meaningless without the deceased*; *bitterness or anger related to the loss*; *emotional numbness*; *feeling stunned, dazed, or shocked*; *feeling that part of oneself died along with the deceased*; *difficulty trusting others*; and *difficulty moving on with life*. The D criterion assesses the symptom duration at more than six months after the loss, and the E criterion a significant reduction in one's ability function in social, occupational or other important areas. The severity-score of the PG-13 ranged from 11 to 55.

HSCL-25

We used the Hopkins Symptom Checklist (HSCL) to screen for depressive and anxiety symptoms in the previous week. Derogratis introduced the HSCL as a self-report symptom inventory in 1974 (Derogatis, 1974). Hesbacher, Rickels, and colleagues presented a list of 25 items (10 related to anxiety and 15 to depression), each to rate from 1 (not at all) to 4 (extremely). Severity-scores for depression and anxiety ranged from 15 to 60 and 10 to 40, respectively. The authors proposed a cut-off for clinical relevance at 1.55 per symptom but other authors introduced a higher cut-off (1.75) with better psychometric values (Hesbacher, 1980), (Nettelbladt, 1993), (Smith Fawzi, 2007). Mollica et al. tested the HSCL-25 in Asian refugee populations and found excellent psychometric properties (Beiser, 1986). Bolton developed an algorithm for approximating the HSCL to DSM-IV criteria for MD. A MD diagnosis required at least one of the depressed mood items (*crying easily*, *feeling hopeless*, *feeling blue*, or *feeling lonely*). Further symptoms of diminished interest or pleasure (*loss of interest* or *loss of sexual pleasure or interest*), significant weight loss or change in appetite, sleeping problems, psychomotor agitation, fatigue or loss of energy (*feeling low in energy* or *everything is an effort*), diminished ability to think or concentrate, and recurrent thoughts of death were added. At least five out of the nine depressive symptoms had to be present for the DSM-IV diagnosis (Bolton, 2002), (American Psychiatric Association, 2000). Following the same procedure as explained for the PDS, Onyut and colleagues translated and validated the HSCL-25 in a Rwandan refugee population in Uganda with mostly satisfactory results (Ertl, 2005). We re-translated the tool in Butare and compared the two versions. We found a general accordance of the HSCL.

M.I.N.I.

We used the M.I.N.I. of Sheehan et al. as screening instrument for suicidal tendency (Sheehan, 1998). The psychometric properties had consistently shown very positive results (Sheehan, 1998).

3.5. Data analysis

I present the sample in frequencies and per cent. I used the Kolmogorov-Smirnov-test to check Gaussian distribution. Accordingly, I chose parametric or non-parametric tests. I calculated all comparisons two-tailed. I conducted an exploratory analysis for socio-demographic variables in relation to the clinical concepts. Further I calculated linear regressions on the severity-scores of PTSD and PGD. I performed all analyses with SPSS 17.0 for Macintosh.

Parametric analysis

I chose parametric analysis for normally distributed variables or in case of big sample size with statistical spread. I used the t-test to calculate comparisons of two samples and I administered the Levene test to assess the homogeneity of variances. I calculated one-way ANOVAs (Analyses of Variance) to investigate the influence of one or several independent variables on a dependent variable and described them with the Pillai Spur. To classify different groups post-hoc, I chose the Duncan-test. I calculated correlations according to the Pearson product-moment coefficient.

Non-parametric analysis

With the Mann-Whitney U-test, I compared two independent samples. For dependent samples, I chose the Wilcoxon-test (Z). I used the Kruskal-Wallis H-test to compare more than two independent samples and the Chi-square-test according to Pearson for dichotomous variables. I calculated correlations with Spearman's Rho for ordinal-scaled variables.

Building of indices and scores

I calculated the z-transformation to standardize variables with different ranges ($z = x - m / s$). The addition of different possessions formed the possession index (0 to five): owning a house, vegetable garden, agriculture fields, economic plants, and animals. I constructed another index for the total number of all kinds of animals. The addition of z-transformed variables formed a general economic index: possession index, number of animals, number of snacks and meals on the preceding day, consumption of meat during the preceding week, and the amount of income in the previous month. I divided the sum by six.

I added all different physical health items to a health score (0 to 11). Further I formed a severity-score for each clinical concept by adding the frequency or the severity points of relevant items. I built a clinical symptom index based on the z-transformed PDS-, PGD-, HSCL- anxiety-, and depression-severity-scores, and the sum of the M.I.N.I. suicide risk points.

3.6. Description of the sample

In the epidemiological study, the psychology students randomly chose 406 genocide survivors in the five central sectors of Butare. The sample had following characteristics.

Sort of loss, age, and gender

The sample consisted of 206 orphans (50.7%) and 200 widows (49.3%). We only selected participants if they had lost at least one parent or their partner. The cause of death was not necessarily related to the genocide. Several participants had been both widowed and orphaned. We classified them as widows.

Orphans had to be minors during the genocide, and between four and 17 years old in 1994. Thus, the age range of orphans was from 18 to 32 years. The mean age of orphans was 23 years (SD = 4.19). The age of widows ranged from 22 to 97 years, with a mean age of 50 years (SD = 12.53).

The whole sample consisted of 357 female (87.9%) and 49 male (12.1%) participants. In the orphan sample (N = 206), 76.2% of the interviewed were female and 23.8% male.

Sector

Three to five interviewers conducted between 72 and 90 interviews in each of the five sectors. Several interviewers worked in different sectors. The number of interviews in each sector is presented in Table 1.

Table 1: Number of interviewees in the five geographic sectors of the study

	Orphan	Widow	Total	%
Tumba	57	33	90	22.2
Mukura	34	46	80	19.7
Mbazi	43	39	82	20.2
Huyé	31	51	82	20.2
Ngoma	41	31	72	17.7

Children

Widows had more children on average (M = 3.18, SD = 1.86; median = 3, range 0 to 9) than orphans (M = .70, SD = 1.18; median = 0, range 0 to 6).

Education

Regarding the length of school visit and the obtained school degree, there was a significant difference between widows and orphans as can be seen in Table 2. On average, widows were less educated than orphans (3.92 versus 5.96 years, T = 6.25; $p < .001$) and had a significantly lower educational degree (χ^2 (4, N = 406) = 26.84, $p < .001$). Of the widows 63.5% had no degree, 29% primary school, and 7.5% higher forms of education. Of the orphans, 41.3% had no degree, but 45.6% had completed primary school, and 13.2% had a higher education level such as secondary school, university, or apprenticeship.

Table 2: Education level of the participants in % by orphans and widows

	Orphan	Widow
No education	41.3	63.5
Primary school	54.6	29
Secondary school	7.8	1.5
Apprenticeship	4.9	6
University	.5	-

Further, the education level of the husband was assessed in the widow population. Eight participants (4%) could not answer the question, 44% of the family members had no school degree, 42% had accomplished primary school, 6% secondary school, 3.5% apprenticeship, and .5% university.

In the orphan sample, the education level of the father was assessed if they never had been married. Fifty-nine persons (28.6%) were not able to answer, 20.4% had no education, 40.8% had finished primary school, 5.8% secondary school, and 4.4% apprenticeship.

Housing situation

The widows were living with their own child (86%), other family member (38.5%), other (18%; e.g., orphans, families they were employed at, or foster families), sibling (4%), friend (4%), and mother (2.5%). Including the interviewee, a median of four persons was living in each household (range 1 to 11).

The orphans were living with their sibling (47.1%), own child (32.5%), other family members (24.8%), mother (23.8%), friend (10.7%), other (33%), partner (18.9%), and father (1.5%). For this population, a median of 4.5 persons was living in each household with a range from 1 to 67 (orphanage).

Living situation

To make a living (multiple answers possible), widowed participants reported agriculture or small business (82.5%), employment (5%), support by a family member (9%) or a person living in the same house (9%), and having other forms of income (5.5%). They received further support from the government (58%) and the church (18%). This support consisted of health care (59.5%), education allowance (35.5%), food (6%), land (1%), and agriculture (.5%).

The orphans were self-supporters (59.2%), employees (15.5%), supported by a family member (9.7%), or by a person sharing the house (19.4%), and having other kind of income (7.3%). They received government (45.6%) and church (12.1%) support, consisting of health care (51.5%), education allowance (27.7%), food (5.8%), and land (1%).

Seventy seven per cent of the widows possessed a house, 78% a vegetable garden, 71.5% cultivable land, 19% economic plants, fruits or vegetables, and 45% animals ($M = 1.13$, range 0 to 13, $SD = 1.99$). Given one point for each of the possession categories, the average of possession was currently 2.91 ($SD = 1.42$). Before the genocide 93% of the widow population had an own house, 85.5% a vegetable garden, 81.5% agricultural land, 28.5% economic plants, fruits or vegetables, and 54.4% animals. Widows possessed a mean of 3.44 items before the 1994 war ($SD = 1.25$).

Of the orphan population currently 62.6% possessed a house, 62.6% a vegetable garden, 63.6% cultivable land, 16.5% economic plants, and 33.5% animals (M = 1.11, range 0 to 13, SD = 2.32). On average, an orphan possessed currently 2.39 items (S = 1.54). With their family before the genocide 89.3% of the orphan sample had possessed a house, 76% a vegetable garden, 76.1% cultivable land, 36.3% economic plants, 54.4% animals, and had had a mean of 3.31 possessions (SD = 1.57).

Comparing the sum of possessions before and after the genocide, a highly significant reduction of welfare became evident for widows (Wilcoxon Z = -4.48, $p < .001$) and orphans (Wilcoxon Z = -6.46, $p < .001$).

Religion

Of the widows, 75.5% were Catholic, 14.5% Protestant, 2.5% Muslim, 1.5% without religion, 1% Adventist, and 5% practiced other forms of religion. Respondents practiced religious activities like going to mass or choral in average 1.87 times per week (SD = 1.7, range 0 to 8). We asked the same questions concerning religion for the time before the worst loss. In that time the average number of religious activities was 1.99 per week (SD = 1.83) with a range from 0 to 10 activities per week.

Of the orphans were 46.6% Catholic, 32% Protestant, 5.3% Muslim, 5.8% without religion, 2.9% Adventist, and 7.3% practiced another religion. They practiced religious activities in average 1.59 times per week (SD = 2.65, range 0 to 35). Before the worst loss, the average number of religious activities was 1.71 per week (SD = 1.54) with a range from 0 to 7 activities per week.

Participants rated the importance of religion for their lives from 0 (not at all) to 3 (very important). Seventy-seven per cent of widows rated religion as *very important*, 18.5% *pretty important*, 4% *not too important*, and 1% *not important*. Before the loss, 64.5% considered religion as *very important*, 25% *pretty important*, and 10.5% *not too important* for their life.

Sixty per cent of orphans rated religion as *very important*, 30.6% *pretty important*, 5.3% *not too important*, and 4.4% *not important*. Before the loss, 40.8% considered religion as *very important*, 25.7% *pretty important*, 16% *not too important*, and 5.3% *not important* for their life. Twelve per cent were not able to answer this question.

Thus, importance of religion increased after the worst loss for widows (Wilcoxon Z = -2.91, p < .005) and orphans (Wilcoxon Z = -5.47, p < .001).

Physical health

To assess the physiological well-being in the previous month, we asked about somatic pain and sickness in nine categories. On average, respondents suffered from three illnesses during the previous month (range 0 to 9). Twenty-six per cent did not know their current HIV status. The widows suffered from *headache* (71%), *cough* (51.5%), *stomach ache* (40%), *fever* (39.5%), *throat ache* (28.5%), *malaria* (24%), *diarrhea* (16%), *HIV/AIDS* (15.4%), and *typhus* (1%). Additionally, 28.5% reported *other*, and 23% *chronic illnesses* such as asthma, arthritis, scars, or fractures. Of the orphans, 57.3% reported *headache*, 50% *cough*, 39.8% *stomach ache*, 33.5% *fever*, 27.2% *throat ache*, 24.3% *malaria*, 10.7% *diarrhea*, .5% *typhus*, 23.3% *other illnesses*, 15.5% *chronic illnesses*, and 6.3% *HIV/AIDS*. The health status of the participants by widow and orphan can be seen in Table 3. Widows suffered significantly more from headache in the previous month (χ^2 (1, N = 406) = 8.29, p < .01). HIV/AIDS was also more prevalent in widows (χ^2 (1, N = 301) = 6.48, p < .05).

Table 3: Health problems in the previous month in % by orphans and widows

	Orphan	Widow
Headache	57.3	71
Stomach ache	39.8	40
Throat ache	27.2	28.5
Cough	50	51.5
Fever	33.5	39.5
Diarrhea	10.7	16
Malaria	24.3	24
HIV	6.3	15.4
Typhus	.5	1
Other illness	23.3	28.5
Chronic illness	15.5	23

Psychological support

Currently, 22 people out of the whole sample (5.4%) received professional therapeutic help at a hospital or church, including 6.3% of the orphan sample and 4.5% of the widows.

General and social functioning

The genocide survivors were further asked about their current occupation. Ninety-one per cent of the widows were self-supporters, 4.5% were employed, and 4.5% had no occupation. One widow had been looking for a job in the previous months. Of the orphans, 54.9% were self-supporters, 2.9% were visiting primary school, 3.4% secondary school and 1.5% university, 1.5% was in an apprenticeship, and 17% had no occupation. Of the orphans, 85.7% were looking for a job. The median income per month for widows was 2.000 RFR (about € 3; range 0 to 53.000), and 4.000 RFR (about €5; range 0 to 100.000) for orphans.

We used the frequency of meat consumption in the previous week plus the number of snacks (small, uncooked meals) and meals on the preceding day to assess the nutrition status. In the widow sample, 80% had not taken any snacks, 19.5% had one, and .5% had two snacks (M = .21, SD = .42). Of the interviewed widows, 4.5% had had no meal on the preceding day, 64% had eaten one meal, 31% had eaten two, and .5% three meals (M = 1.28, SD = .55). Eighty-eight per cent had not consumed meat in the preceding week, 9.5% had eaten meat once, and 3% twice or more often (M = .18, SD = .54).
In the orphan sample, 65% had eaten no snacks, 32% one, and 2.4% two snacks on the preceding day (M = .37, SD = .53). Of the orphans, 3.4% had not eaten a meal, 35% had one, 60.2% two, and 1.5% three on the preceding day (M = 1.6, SD = .58). In the previous week, 68% of the orphan sample had not consumed meat, 20.4% had eaten meat once, 7.8% twice, and 4% more often (M = .58, SD = 1.37).

The survivors were asked if they would have the capacity to take care of their family. In the widow sample, 43.5% affirmed that they could provide their family with sufficient food, 55.5% did not have the capacity, and 1% did not have this responsibility. For clothing, 43.5% had enough income, 55.5% were lacking the necessary means, and 1% did not have this responsibility. The government provided education and healthcare for 24% of the widows and 21.5% of the orphans. Twenty-five per cent lacked the means to pay for school fees and 38%

could not supply their families with healthcare. Asked which kind of lighting was used at home, 2.5% responded to live without light, 84.5% used petrol lamps, 4% electricity, .5% candles, and 8.5% other types (e.g., burning herbs). Of the orphans, 37.9% were able to provide sufficient food, 38.8% did not have the capacity, and 23.3% did not have the responsibility. Forty-one per cent had sufficient income for clothes, 35.9% were lacking the necessary means, and 23.3% did not have this responsibility. The government offered education or it was taken care of someone else in 49% of the sample, 15.5% had the capacity to cover school costs, and 35.4% lacked the means. The government or other persons provided healthcare for 30.1% of the orphans, 31.6% had enough money to pay for it themselves, and 38.3% were not able to fulfill this responsibility. One orphan reported no lighting at home (.5%), 17% used electricity, 5.3% candles, 72.8% petrol lamps, and 4.4% other types.

To assess social functioning, we asked for friends at work, friends to share problems with, friends to exchange help with, and a partner. In the widow sample, 95% participated regularly in social activities (e.g., *Gacaca* or administrative meetings), of the orphans 74.3% regularly attended. Sixty per cent of the widows were members of at least one society (e.g., widows association), 14% of several groups, and 40% did not take part in any association. Seventy-four per cent of the orphans did not participate in any association, 22.3% in one, and 3.9% in at least two. The median for friends for both widows and orphans was three at work, two for problem-sharing, and one for help exchange. Seven per cent of the widows and 52.4% of the orphans currently had a partner.

3.7. Results

Clinical variables and their correlates are analyzed in the following sections. Causes and consequences of mental health problems are presented and clinical concepts evaluated, followed by a discussion of the results of the population-based epidemiological study.

3.7.1. Traumatic Events

As it was an inclusion criterion to have lived through the 1994 genocide in Rwanda, all participants had experienced at least one potentially traumatic event. Most frequent answers in

the event list (described in chapter 2.4.) for widows were *expected dying* (95%), *forced to hide to be saved* (93%), *displacement* (90.5%), and *witnessed an attack with a weapon* (86%); these events had happened mainly during the genocide. The most frequent traumatic events reported for the year preceding the interview were *witnessed a serious accident* (22.5%), *witnessed a physical attack* (12.5%), *expected death* (12%), and *witnessed a serious injury* (9.5%).

Orphans answered most often with *displacement* (88.8%), *expected dying* (85%), *forced to hide to be saved* (85%), and *witnessed an attack with a weapon* (87.6%). As for the widows, the reported experiences had mainly happened during the genocide. In the previous year, orphans had most frequently experienced the following events: *witnessed a physical attack* (22.3%), *witnessed a serious accident* (20.5%), *witnessed a serious injury* (15%), and *suffered a serious illness or injury* (15%).

Potentially traumatic experiences of widows and orphans differed in some points. In their life, widows had significantly more often experienced a *life threatening accident* (χ^2 (1, N = 406) = 4.35, p < .05), a *life threatening illness or injury* (χ^2 (1, N = 406) = 3.89, p < .05), a *confrontation with war or combat situation* (χ^2 (1, N = 406) = 5.33, p < .05), a situation in which they *expected dying* (χ^2 (1, N = 406) = 11.29, p = .01), and *forced hiding* (χ^2 (1, N = 406) = 6.67, p = .01). In relation to the genocide, they had lived through more *sexual abuse* (χ^2 (1, N = 406) = 4.34, p < .05), had more often been *attacked with a weapon* (χ^2 (1, N = 406) = 5.80, p < .05), and had more often *witnessed an attack with a weapon* (χ^2 (1, N = 406) = 6.32, p < .05). During their lifetime, orphans experienced significantly more often: *witnessed a life-threatening accident* (χ^2 (1, N = 406) = 7.70, p < .01), *witnessed a serious injury* (χ^2 (1, N = 406) = 6.35, p < .05), and *witnessed the murder of a parent* (χ^2 (1, N = 406) = 17.91, p < .001). In the previous year they had experienced significantly more often the following events: *physical aggression* (χ^2 (1, N = 406) = 6.80, p < .01), *attacked with a weapon* (χ^2 (1, N = 406) = 8.04, p < .01), and *witnessed an attack with a weapon* (χ^2 (1, N = 406) = 7.92, p < .01). Table 4 illustrates the percentage of widows and orphans who have experienced potentially traumatic experiences. Statistically significant differences are highlighted.

Table 4: Potentially traumatic event types of orphans and widows ever, related to genocide, and in the last year

	Ever		Related to genocide		In the last year	
	Orphan	Widow	Orphan	Widow	Orphan	Widow
Accident	14.6	18	2.9	7.5	4.4	3
Witness accident	**57.8**	**44**	8.3	10	20.5	22.5
Poisoned/witched	16	17,5	1.9	1	3.9	2
Taken captive/kidnapped	24.8	18.5	22.8	16	0	1
Illness/injury	**33**	**42.5**	11.7	17.5	11.2	9
Sexual abuse	19.4	22.5	**11.2**	**18.5**	1.5	1.5
Witness sexual abuse	15	15.5	13.6	15	1	0
Genocide	100	100	-	-	-	-
War/combat situation	**11.7**	**20**	-	-	1	.5
Physical attack	43.7	38.5	29.1	31	6.8	3.5
Witness physical attack	**77.7**	**66.5**	52.9	53	**22.3**	**12.5**
Seriously hurt	27.2	25.5	15.5	15.5	5.8	2.5
Witness serious injury	**71.8**	**60**	55.3	49	15	9.5
Attacked with weapon	64.6	69.5	**55.3**	**67**	**6.3**	**1**
Witness attack weapon	78.6	86	**76.2**	**86**	**3.9**	**0**
See mutilated persons/ cadaver	72.3	71	65	65	1.5	2
Witness killing of person	53.4	51	50.5	50.5	1.5	.5
Witness killing of parent	**16**	**3.5**	**14.6**	**2.5**	0	0
Witness massacre	42.7	40	42.2	39	0	0
Forced movement	88.8	90.5	84	89	1.9	1.5
Expect dying	**85**	**95**	**75.7**	**92.5**	**5.3**	**12**
Forced to hide	**85**	**93**	**81.6**	**91.5**	1.5	1.5
Hiding under cadaver	21.4	16	20.9	15.5	0	0
Cause harm	1.5	1	.5	1	1	.5
Other event	16	16.5	9.7	10.5	1.5	2.5
Number different event types mean (SD)	11.38 (4.37)	11.22 (3.98)	9.44 (4.10)	9.01 (4.84)	**1.20 (1.63)**	**0.87 (1.17)**

3.7.2. Number of potentially traumatic events

Sort of loss, age, and gender

In widows, an average of 11 out of 25 event types were experienced *ever* (M = 11.22, SD = 3.98, range 3 to 21), 9 were *genocide related* (M = 9.44, SD = 4.10, range 2 to 19), and one was in the *last year* (M = .87, SD = 1.17, range 0 to 5).

In orphans, an average of 11 event types were experienced *ever* (M = 11.38, SD = 4.37, range 3 to 22), 9 during the *genocide related* (M = 9.01, SD = 4.84, range 1 to 20), and one in the *last year* (M = 1.20, SD = 1.63, range 0 to 9). The number of potentially traumatic events experienced by widows and orphans during their lifetime is illustrated in Figure 2.

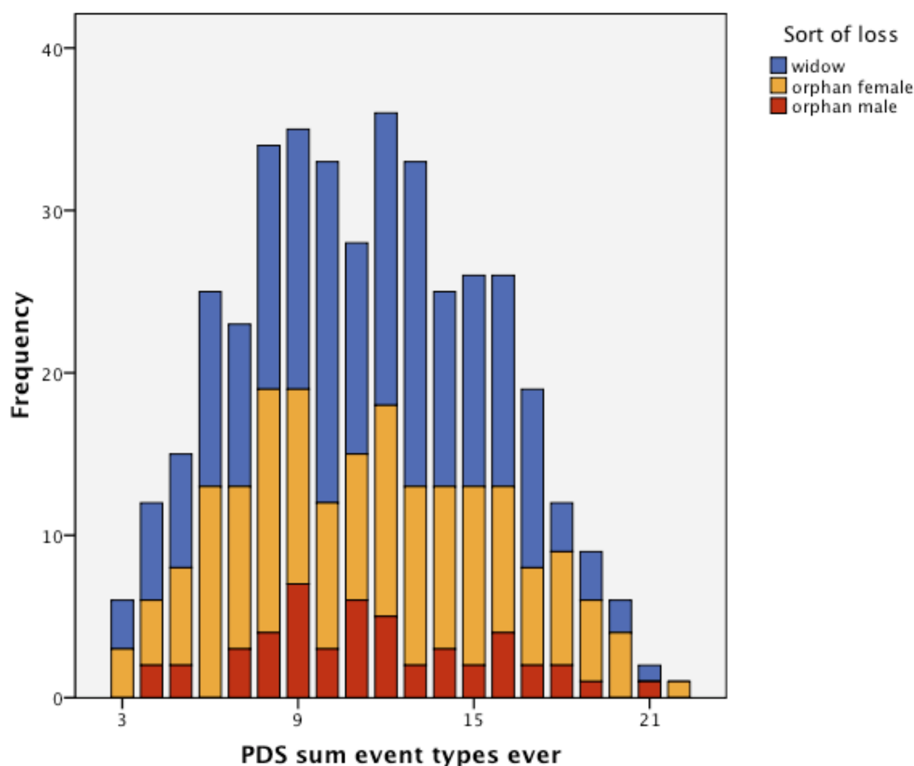

Figure 2: Number of event types experienced by orphans and widows

Between orphans and widows there was no difference in the total sum of experienced event types *ever* and *related to genocide*; but younger genocide survivors had experienced more stressful events in the last year (Spearman and Kendall's $r = -.175$, $p < .01$).

The sum of experienced event types was similar for female and male participants. In the orphan population, males had more often experienced: *witnessed a serious accident* (χ^2 (1, N = 206) = 7.55, $p < .01$), *witnessed a serious injury* (χ^2 (1, N = 206) = 6.11, $p < .01$), and

females had experienced more *sexual abuse* (25.5% versus 0%) (χ^2 (1, N = 206) = 15.49, p < .001).

Sector

A univariate ANOVA on the total number of potentially traumatic events showed a significant difference for the five sectors (F (4, 406) = 18.81, p < .01). The Levene test showed similar variances within the groups. The Duncan test, based on the observed mean, showed two homogenous groups for the five interview sites (Table 5). The participants from sectors Huyé and Mbazi had significantly less potentially traumatic events in their life than genocide survivors from the other districts.

Table 5: Sum of potentially traumatic events by sector

Place interview	N	Subgroup	
		2	1
Huyé	82	9.30	
Mbazi	82	9.33	
Tumba	90		12.28
Ngoma	72		12.54
Mukura	80		13.15

Religion

The number of potentially traumatic event types differed between religious groups, especially during the genocide (one-way ANOVA F (5, 405) = 2.84, p < .05). The mean for the Muslim group was 10.06 whereas practitioners of other religions had a mean of 12.88. The exact numbers are shown in Table 6.

Table 6: Religion and sum of event types experienced during genocide

Religion	N	M
Islam	16	10.06
Protestant	95	10.98
Catholic	247	11.25
Adventist	8	11.50
No religion	15	12.73
Other	25	12.88

3.7.3. Worst event

The most frequent worst traumatic experiences were the *confrontation with the genocide* (19.5%), being *witness of a massacre* (9.4%) or *killing* (9.1%), and *sexual abuse or rape* (8.9%). For a detailed overview see Table 7.

Table 7: Worst events by orphans and widows

	Orphan		Widow	
	%	N	%	N
Life threatening accident	1	2	-	-
Witness serious accident	1	2	1	2
Taken captive or kidnapped	.5	1	-	-
Life threatening illness or injury	1	2		2
Sexual abuse	7.8	16	10	20
Witness sexual abuse	.5	1	-	-
Confrontation with genocide	17	35	22	44
Confrontation with war or combat situation	.5	1	.5	1
Physical attack	2.4	5	3.5	7
Witness physical attack	1	2	1	2
Serious physical injury	.5	1	1	2
Witness serious physical injury	2.4	5	.5	1
Attacked with weapon	4.4	9	5.5	11
Witness attack with weapon	5.8	12	5.5	11
See mutilated persons or cadaver	8.7	18	8	16
Witness murder	6.8	14	11.5	23
Witness murder of parent	10.2	21	1	2
Witness massacre	9.2	19	9.5	19
Forced movement	6.3	13	9	18
Expect dying	1.9	4	3	6
Forced to hide	4.4	9	3	6
Hiding under cadaver	2.9	6	1.5	3
Other event	3.9	8	2	4

3.7.4. PTSD

We used the PDS to assess PTSD according to the DSM-IV criteria (American Psychiatric Association, 2000).

A criterion: Confrontation with a traumatic event

All 406 genocide survivors had experienced at least one event that was *life threatening* and *caused serious injury or threat to their physical integrity* (DSM-IV criterion A1 – objective). Thereby all widows and 96.6% of the orphans had experienced *intense fear, helplessness or horror* (criterion A2 – subjective) and fulfilled the DSM-IV A criterion.

B Criterion: Persistent re-experience

In the previous month, 59.5% of the widows had experienced *unwanted memories*, 50% *unpleasant dreams*, and 43% *acted or felt as if the traumatic event happened again*. Sixty-five per cent got *emotionally upset,* and 56% had *physical reactions when reminded about their worst event*. Eighty-three per cent fulfilled the B Criterion (N = 165).

Of the orphans, 45.1% reported *unwanted memories*, 41.7% *unpleasant dreams*, and 22.3% *acted or felt as if the traumatic event happened again*. Forty-five per cent got *emotionally upset* and 34% had *physical reactions when reminded about their worst event*. Sixty-four per cent fulfilled the B criterion (N = 131). The items of the B criterion are presented in Table 8.

Table 8: B Criterion in % by orphans and widows

	Unwanted memories	Unpleasant dreams	Flashback	Emotionally upset	Physical reaction
Orphan	45.1	41.7	22.3	45.1	34
Widow	59.5	50	43	65	56

C Criterion: Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness

Of the widows, 57.5% *tried to avoid thoughts or feelings* and 42% *certain activities, places, or people that reminded them of their worst life event. To remember important parts of the trauma* was difficult for 12%, and 33% described *diminished interest in activities*. Fifty-two per cent reported *detachment or estrangement from others*, 24% a *restricted range of affect*, and 41% had a *sense of foreshortened future*. In total, 103 widowed participants (51.5%) fulfilled the C criterion.

Of the orphans, 52.9%*tried to avoid thoughts or feelings* and 39.8% *certain activities, places, or people that reminded them of their worst life event*. *To remember important parts of the trauma* was difficult for 11.2%, and 26.7% reported *diminished interest in activities*. Forty-six per cent described *detachment or estrangement from others*, 29.1% a *restricted range of affect*, and 30.1% a *sense of foreshortened future.* In total, 88 orphans (42.7%) fulfilled the C criterion. The C criterion items are illustrated in Table 9.

Table 9: C Criterion in % by orphans and widows

	Avoidance of thoughts or feelings	Avoidance of activities, places, or people	No memory	No interest	Detachment or estrangement	Restricted affect	Foreshortened future
Orphan	52.9	39.8	11.2	26.7	45.6	29.1	30.1
Widow	57.5	42	12	33	52	24	41

D Criterion: Increased arousal

In the previous month, *sleeping* (64.5%) and *concentration* (43%) *difficulties* were common in the widow population. Thirty-six per cent reported *irritability or outbursts of anger*, 53% *hyper-vigilance*, and 57% *exaggerated startle response*. Sixty per cent met the D criterion of the DSM-IV.

In the previous month, *sleeping* (35.9%) and *concentration* (36.9%) *difficulties, irritability or outbursts of anger* (30.6%), *hyper-vigilance* (38.3%), and *exaggerated startle response* (36.4%) were reported in the orphan population. Forty-seven per cent of the orphans fulfilled the D criterion. The D criterion items by widow and orphan are presented in Table 10.

Table 10: D Criterion in % by orphans and widows

	Sleeping problems	Concentration problems	Irritability/ outbursts of anger	Hypervigilance	Exaggerated startle response
Orphan	35.9	36.9	30.6	38.3	36.4
Widow	64.5	43	35.5	53	57

E Criterion: Symptom duration

Ninety-one per cent of the widows experienced the reported PTSD symptoms for more than three months, .5% between one and three months, and 2.5% less than one month. Six per cent reported no symptoms.

Of the orphans, 77.7% experienced the PTSD symptoms for more than three months, 5.3% between one and three months, 4.4% less than one month, and 12.6% didn't report any symptoms.

Symptom onset

Of the widow sample, 61.5% started to have PTSD symptoms during the six months following their worst event and 32.5% reported delayed onset (more than six months after the event). The orphans had a symptom onset in the first six months after their worst event in 39.2% of the cases, 48% reported delayed onset, and the remainder (12.8%) did not have any symptoms or were unable to remember their onset.

F Criterion: Functional impairment

PTSD symptoms caused problems in different areas of functioning as can be seen in Table 11. *Impairment in general satisfaction* and *functioning in life* were the most frequent answers. The majority of both widows (69.5%, N= 139) and orphans (60.2%, N = 124) reported a significant disturbance of functioning in their life due to trauma symptoms. Widows reported a mean of 2.61 out of 8 functioning items (SD = 2.20, range 0 to 7), and orphans 2.05 items (SD = 2.17, range 0 to 7).

Table 11: Functioning impairment in % by orphans and widows

	Orphan			Widow		
	No	Yes	Not applicable	No	Yes	Not applicable
Work	41.7	20.9	37.4	41	24.5	34.5
Housekeeping/responsibilities at home	39.8	18.4	41.7	55	44	1
Relation with friends	73.3	26.7	-	72.5	27.5	-
Hobbies and distractions	66	34	-	54.5	45.5	-
School	15	5.3	79.6	4	-	96
Relation with family	64.6	13.1	22.3	70.5	20	9.5
Satisfaction with life in general	54.4	45.6	-	50	50	-
Overall functioning in all life domains	58.7	41.3	-	51	49	-

PDS severity-score of symptoms

For the widow sample, the mean severity-score was 13.29 PDS symptoms (SD = 9.16) with a range from 0 to 43. The re-experience cluster had a mean of 4.24 symptoms (SD = 3.52), the avoidance cluster a mean of 4.44 (SD = 3.75), and the hyper-arousal cluster a mean of 4.61 (SD = 3.41). The symptom clusters correlated on a high level ($p < .001$): B – C at r = .64, B – D at r = .55, and C – D at r = .61.

The orphan sample had a mean severity-score of 10.61 PDS symptoms (SD = 9.88, range 0 to 42), the re-experience cluster a mean of 2.91 (SD = 3.21), the avoidance cluster a mean of 4.41 (SD = 4.47), and the hyper-arousal cluster a mean of 3.29 (SD = 3.64). Equally, the symptom clusters correlated statistically significantly ($p < .001$): B – C at r = .60 , B – D at r = .65, and C – D at r = .67.

PTSD diagnosis

Of all participants, 141 (34.7%) fulfilled the current PTSD diagnosis with a mean severity-score of 21.55 (SD = 7.96, range 7 to 43). Widows fulfilled the PTSD diagnosis in 41.4% of the cases, with a mean severity-score of 21.02 (SD = 7.62), orphans in 28.2% with a mean severity-score of 22.29. Table 12 presents an overview of the fulfilled PTSD symptom clusters according to the DSM-IV.

Table 12: Fulfilled diagnosis criteria in % according to the DSM-IV (N = 406)

	A Criterion	B Criterion	C Criterion	D Criterion	E Criterion	F Criterion	PTSD
Orphan	96.6	63.6	42.7	46.6	83	60.2	28.2
Widow	100	82.5	51.5	74.5	91.5	69.5	41.4

3.7.5. Relationship of PTSD, socio-demographic factors, and traumatic event types

Sort of loss, age, and gender

Widows were significantly more often diagnosed with PTSD than orphans (χ^2 (1, N = 406) = 7.97, $p < .001$), as illustrated in Figure 3. On average, the widows were older and thus the age of the genocide survivors correlated highly significantly with the PDS severity-score (Spearman's Rho = .15, $p < .01$). There was no significant gender effect on the PTSD diagnosis, as 29.9% (N = 47) of the female and 22.4% (N = 11) of the male participants fulfilled the criteria.

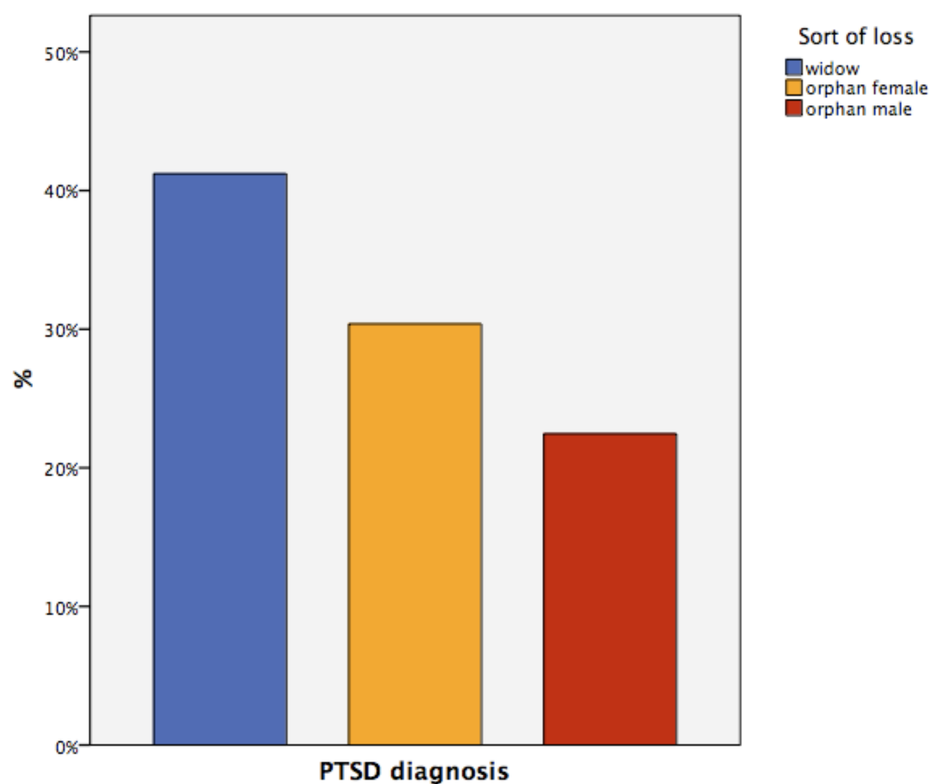

Figure 3: PTSD diagnosis in % by orphans and widows

Sector

The severity-score of PTSD symptoms differed significantly between the five sectors (one-way ANOVA, F (4, 406) = 10.84, $p < .001$). The Levene test for variance homogenity of the severity-score was not significant. Participants living in Ngoma, Tumba, and especially Mukura, showed a significantly higher rate of PTSD than Huyé and Mbazi, as presented in Table 13.

Table 13: PTDS diagnosis by district

		Tumba	Mukura	Mbazi	Huyé	Ngoma	Total
PTSD diagnosis	N	36	47	15	16	27	141
	%	40	58.8	18.3	19.5	37.5	34.7

School, income, and work

Out of 42 participants who had a regular employment, only five suffered from PTSD (χ^2 (1, N = 406) = 10.77, $p < .001$). Comparing participants with and without a PTSD diagnosis, the

income being not sufficient to satisfy needs of food (χ^2 (1, N = 406) = 6.05, p < .05) and health (χ^2 (1, N = 406) = 7.21, p < .01) was more often in PTSD patients. No statistically significant relation between education and PTSD symptoms was found.

Building block effect

The sum of PDS event types experienced *ever* and the sum of event types *related to genocide* correlated at a highly significant level (p < .001) with the B cluster (r = .44, r = .44), C cluster (r = .45 and r = .42), D-cluster (r = .48 and r = .46) and the PDS sum (Pearson's r = .53 and r = .51, p < .001). The building block effect of traumatic experiences on the PTSD symptoms is illustrated in Figure 4.

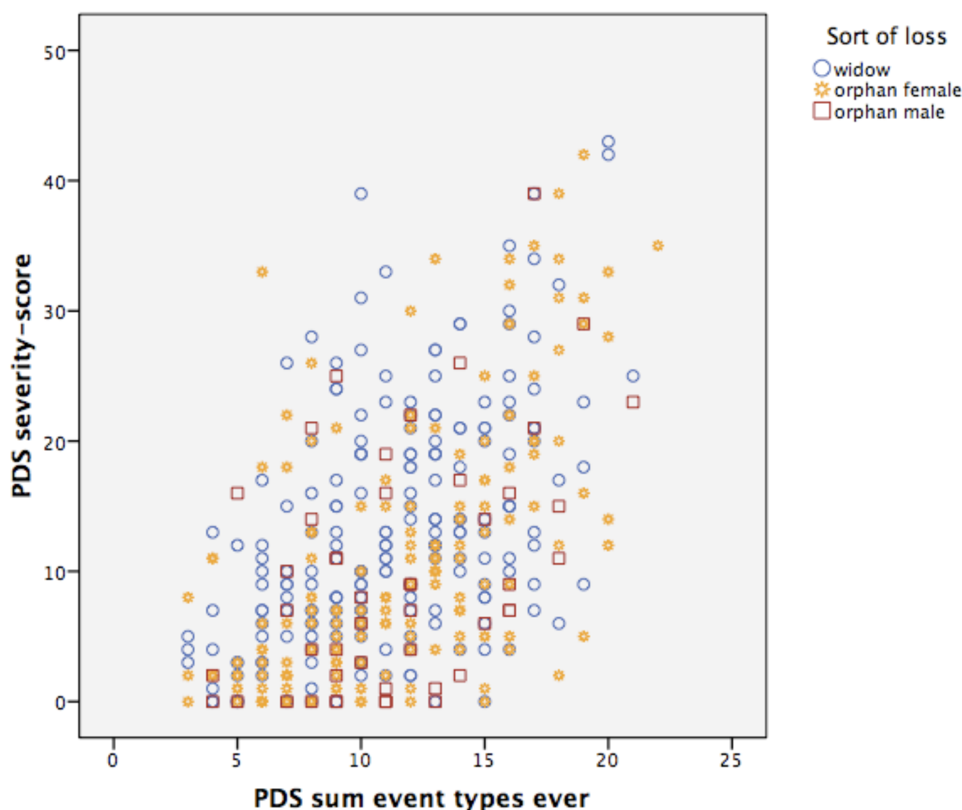

Figure 4: Number event types related to PTSD symptom severity

Predictors of PTSD symptom severity: Linear regression

A linear regression was calculated on the symptom severity-score to determine predictors of PTSD. The sort of loss and sum of event types experienced *ever* explained thirty per cent of the variance (adjusted R^2 = .295; F (2, 405) = 85.73, p < .001). The results of the analysis are presented in Table 14.

Table 14: Multiple linear regression on the PDS severity-score

	Standardized Coefficients ß	T	α
Sort loss (widow)	.149	3.58	< .001
PDS sum event types ever	.528	12.66	< .001

Dependent Variable: PDS severity-score

3.7.6. Loss

By definition, all widows had lost their partner, 80.4% had lost their mother, 86.9% their father, 70.5% at least one child (median = 3, range 0 to 12), 88% at least one sibling, 97% another family member, and 76% another person, e.g., neighbor or friend. Of the orphans, 66% had lost their mother, 94.6% their father, 6.8% at least one child (median = 1, range 0 to 2), 84.5% a sibling, 96.1% another family member, and 83% another person.

3.7.7. Worst Loss

Widows most frequently classified the loss of their partner, orphans the loss of their mother and father as their worst loss in life. Orphans who had additionally lost their partner, were classified as widows. Detailed numbers by widow and orphan are listed in Table 15.

Table 15: Most troubling loss by orphans and widows

	Widow		Orphan	
	N	%	N	%
Husband	113	27.8	-	-
Mother	16	8	78	37.9
Father	10	5	78	37.9
Child	36	18	3	1.5
Sibling	18	9	29	14.1
Other family member	5	2.5	16	7.8
Other	2	1	2	1
Total	200	100	206	100

In the widow sample, the worst loss was also described as that of the closest person to them in 93.5% of the cases. Ninety-one per cent had less money and 84.5% were unable to satisfy

their basic needs after the loss. For widows, the mean time elapsed since the worst loss was 12 years (SD = 4.06, range 1 to 38 years).

In the orphan sample, 85.4% had lost their closest person. The majority (83.8%) had less money, and 73.7% were unable to satisfy their needs. On average, the worst loss had happened 10.93 years earlier (SD = 4.23, range 1 to 22 years). In most cases, the worst loss of all participants had happened during the genocide (mode = 13 years).

The person, the participants classified as their worst loss died because of the genocide, an illness – 12.1% related to HIV/AIDS -, and an accident. Three participants of the sample (. 7%) did not know the cause of death. For most participants, the worst loss had been violent. For widows, this was the case in 72.2% and for orphans in 67.3%. Significantly more widows than orphans had experienced their worst loss during the genocide (χ^2 (4, N = 403) = 16.75, p < .01). The results for widows and orphans are presented in Table 16.

Table 16: Death circumstances of the worst loss by orphans and widows

	Orphan		Widow	
	N	%	N	%
Genocide	113	55.1	136	68.7
Illness	61	29.8	51	25.8
Accident	9	4.4	3	1.5
Age	1	.5	3	1.5
Other	21	10.2	5	2.5
Total	206	100	200	100

In case the worst loss had happened during the genocide, the body had been found in 58.1% of the cases in the widow sample. Of the widows, 36.5% had been present at the time of death, there had been a funeral for 68.9% of the deceased (mass funerals during the mourning period were included). When there had been a funeral, 80.1% of the widows had participated.

Of the orphans, 47.3% reported that the body of their worst loss had been found, 42.7% had been present at the time of death, a funeral had taken place in 68.3% of the cases, and when there was a funeral, 81.8% of the orphans had been present.

3.7.8. Number of losses

The participants were asked about relatives and close persons in seven categories lost during their life (e.g., husband, mother, father, child, sibling, other family member, neighbor/friend). Widows reported three to seven kinds of loss, with a median of 6. On average, orphans had suffered from four different kinds of loss (range 1 to 6). Over 80% of the sample had experienced four or more different types of loss in their life.

Sort of loss, age, and gender

The age and thus the type of loss of the genocide survivors was crucial for the sum of loss types. The age of the participants correlated on a highly significant level with the number of losses (Spearman's Rho = .656, $p < .001$). Consequently, widows had experienced more different types of loss in their life than orphans (χ^2 (6, N = 404) = 209.81, $p < .001$). By definition, all widows, but none of the orphans, had lost their partner (grouping criterion). Widows had more often lost their mother (80.4%) than orphans (66%) (χ^2 (1, N = 405) = 10.65, $p < .01$). Contrary, more orphans than widows had lost their father, with a statistically significant difference (94.6% versus 86.9%, χ^2 (1, N = 404) = 7.20, $p < .01$). The clearest difference existed with regard to the loss of children: 70.5% of the widows had lost at least one child but only 6.8% of the orphans (χ^2 (1, N = 406) = 174.48, $p < .001$). Widows had lost a median of three children, compared to one lost child for orphans (Mann-Whitney-U, $p < .001$). No significant differences were found for the loss of siblings, other family members, and other persons (such as friends and neighbors). The total number of loss types differed significantly, as illustrated in Figure 5.

As widowers were not included, gender was only compared for orphans. Similar results for male and female orphans with regard to the number of loss types were found (χ^2 (5, N = 205) = 2.21, $p = .29$).

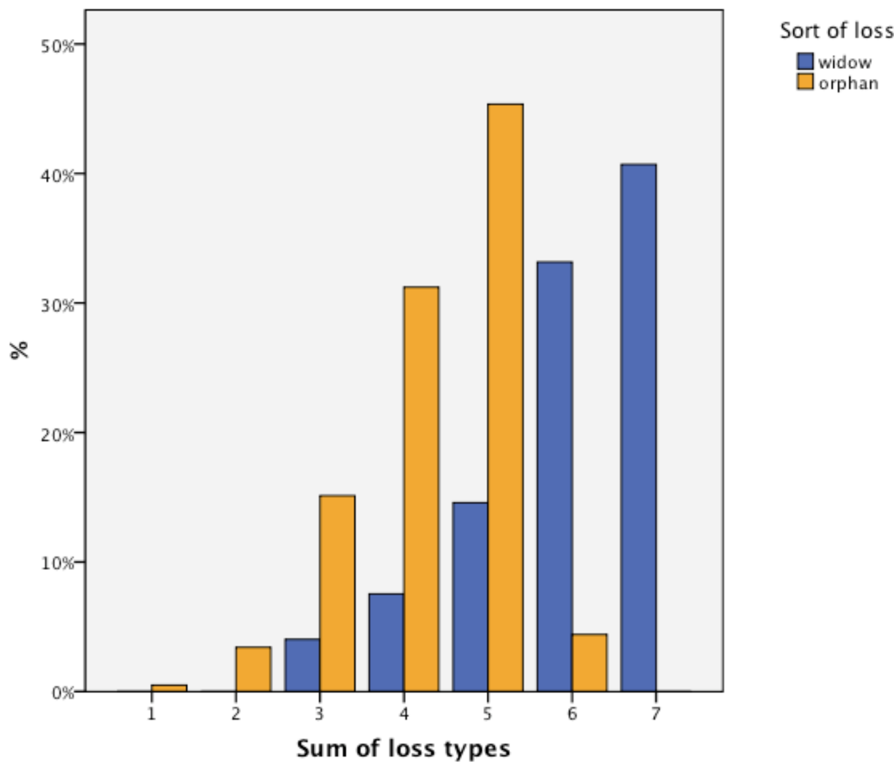

Figure 5: Number of different losses by orphans and widows

Sectors

The Kruskal-Wallis-test was calculated for the number of loss types comparing the sectors and resulted in no significant difference (χ^2 (4, N = 404) = 8.31, p = .81). However, Mukura sector was the hardest hit (M = 5.49).

3.7.9. Prolonged Grief Disorder

The proposed DSM-V criteria of Prigerson were assessed in all 406 participants and are presented in the following section (Prigerson, 2007).

B Criterion: Yearning

Of the widows, 65% reported *longing* or *yearning* for the closest person lost in the previous month, 36% had that feeling at least once a day. Eighty per cent of the widows reported *intense feelings of emotional pain*, *sorrow* or *pangs of grief* related to the lost person, whereby 28% had that feeling at least once a day. Forty-four per cent of the widow sample fulfilled the B criterion according to Prigerson (Prigerson, 2007).

Longing or *yearning* for the closest person lost was reported by 69.9% of the orphans, 30.1% had the feeling at least once a day. Seventy per cent of the orphans reported *intense feelings of emotional pain*, *sorrow* or *pangs of grief* related to the lost person, whereby 20.9% had that feeling at least one a day. Thirty-three per cent of the orphans fulfilled the B criterion.
Exact numbers can be seen in Table 17. Only the symptom frequency and severity marked in grey was relevant for the PGD diagnosis.

Table 17: B Criterion in % by orphans and widows

	Orphan			Widow		
	Not at all	Sometimes	At least once a day	Not at all	Sometimes	At least once a day
Longing/yearning	30.1	39.8	30.1	35	29	36
Emotional pain/ sorrow/pangs of grief	30.1	49	20.9	20.5	51.5	28

C Criterion: Cognitive, emotional, and behavioral symptoms

The most prevalent symptoms related to the loss were *feeling stunned, shocked or dazed*, *feeling that life is unfulfilled, empty, or meaningless*, and *difficulties to trust others*. Fourteen per cent of the widow and 11.2% of the orphan sample fulfilled the five required symptoms of the C cluster, as shown in Table 18.

Table 18: Loss-related symptoms of the C Criterion of PGD in % by orphans and widows

	Orphan			Widow		
	Not at all	Sometimes/ slightly/ somewhat	At least once a day/ quite a bit/ overwhelmingly	Not at all	Sometimes/ slightly/ somewhat	At least once a day/quite a bit/ overwhelmingly
Trying to avoid reminders that the person is gone	51.5	27.2	21.4	39	35	26
Feeling stunned/ shocked/dazed	35.9	44.7	19.4	24	40	36
Confusion about role in life/ diminished sense of self	53.9	23.3	22.9	41	35.5	23.5
Trouble accepting the loss	81.1	11.1	7.8	80.5	13	6.5
Difficulties to trust others	40.8	36.9	22.3	44	37.5	18.5
Feeling bitter over the loss	41.3	30.1	28.7	47	23.5	19.5
Feeling moving on is difficult	64.6	20.4	15	66	21	13
Feeling emotionally numb	62.1	21.4	16.5	65.5	19.5	15
Feeling that life is unfulfilled/empty/ meaningless	47.6	28.6	23.8	36	36	28

D Criterion: Symptom duration

Eighty-one per cent of the widows and 80.8% of the orphans had PGD symptoms for more than six months following the worst loss.

E Criterion: Functional impairment

The symptomatic distress was associated with subjective functional impairment in 59% of the widows and 56.8% of the orphans.

Severity-Score

For widows, the average severity-score of Prolonged Grief symptoms was 24.89 (SD = 8.55) with a range from 11 to 53. The yearning cluster (B cluster) had a mean of 5.47 symptoms

(SD = 2.35) and the C cluster's mean was 19.42 (SD = 7.15). The B and C clusters had a statistically significant Spearman and Kendall rank correlation of $r = .51$ ($p < .001$).
Orphans had an average severity-score of Prolonged Grief symptoms of 24.03 (SD = 8.94) with a range from 11 to 49. The B cluster had a mean of 5.17 symptoms (SD = 2.5) and the C cluster's mean was 18.86 (SD = 7.3). The B and C clusters had a significant Spearman and Kendall rank correlation of $r = .56$ ($p < .001$).

PGD diagnosis

In total, 32 interviewees (7.9%) fulfilled the PGD diagnosis. Widows had an average severity-score of 40.41 (SD = 4.8, range 36 to 53), and orphans of 42.13 (SD = 3.44, range 35 to 49). Table 19 gives an overview of the fulfilled PGD criteria.

Table 19: Fulfilled diagnosis criteria of PGD in % according to Prigerson 2007

	A Criterion	B Criterion	C Criterion	D Criterion	E Criterion	PGD
Orphan	100	32.5	11.2	80.8	56.8	7.3
Widow	100	44	13.5	80.8	59	8.5

3.7.10. Relationship of PGD, socio-demographic factors, and loss

Sort of loss, age, and gender

The PGD diagnosis was comparable for widows and orphans (8.5% versus 7.3%). The PGD severity-scores were also similar in both groups. The age of the bereaved was unrelated to the PGD severity-score (Spearman's Rho = .03).
Only female participants (N = 32) were suffering from PGD. Of the orphans, 15 women but no man fulfilled the PGD diagnosis criteria (χ^2 (1, N = 206) = 5.05, $p < .05$). The PGD severity-score was higher for female orphans but did not differ significantly from the male orphans (T = -.60, p = .55).

Sector

The PGD severity-score differed significantly in the sectors (one-way ANOVA, F (4, 401) = 7.67, $p < .001$). The Duncan-test showed three homogenous groups for PGD symptoms (α = . 05): the district of Mukura had the highest scores (M = 38.96), Huyé the lowest (M = 31.74) and Tumba, Mbazi and Ngoma formed a middle group (M = 34.93 to M = 36.31).

School, income, and work

Education was not related to PGD at a statistically significant level. For the economic situation, negative Spearman rank correlations between the PGD severity-score and the number of *meals on the previous day* ($r = -.10$, $p < .05$) and the economic index ($r = -.11$, $p < .05$) were found. In other words, PGD was more often found among poor participants.

Building block effect

The number of loss types showed a statistically significant but weak Spearman rank correlation with the PGD severity-score ($r = .13$, $p < .05$).

Religion

The importance of religion was unrelated to PGD. However, the PGD severity-score differed for the denomination in a one-way ANOVA test ($F (5, 405) = 3.97$, $p < .01$). Muslim participants ($M = 30$, $SD = 6.76$) had the lowest PGD severity-score, whereas people without religion scored significantly higher ($M = 41.07$, $SD = 12.26$).

Circumstances of the death

The circumstances of the death of the worst loss were crucial for the PGD diagnosis as illustrated in Table 20. The PGD diagnosis was significantly more frequent in case of a violent death (χ^2 (1, N = 406) = 4.77, $p < .05$). Most of the participants who suffered from PGD had experienced their loss during the genocide (91.3%). A one-way ANOVA test on the PGD severity-score by cause of death showed significantly different variances ($F (4, 403) = 11.96$, $p < .001$).

Table 20: Cause of death in relation to the PGD diagnosis

		Genocide	Illness	Accident	Age	Other
PGD diagnosis	No	221	109	12	4	25
	Yes	28	3	0	0	1
PGD severity-score (M)		26.58	20.29	22.0	18.5	23.35

Predictors of the PGD symptom severity: Linear regression

As can be seen in Table 21, the regression explained 24% of variance of the PGD severity-score. Factors included were being a widow, PDS sum of event types, violent death, and years since loss inverse.

Table 21: Multiple linear regression on the PGD severity-score, adjusted $R^2 = .242$; $F(4, 401) = 33.05$, $p < .001$

	Standardized Coefficients ß	T	α
Type of loss (orphan)	-.058	-1.32	.186
PDS sum of event types	.409	8.72	< .001
Violent death	.207	4.11	< .001
Years since loss	-.137	-2.86	.005

Dependent Variable: PGD severity-score

3.7.11. Depression

For widows, the HSCL severity-score for depression ranged from 15 to 56 (on a scale going up to 60) with a mean of 27.61 and a median of 26. The symptom mean was 1.84 per item. Forty-nine per cent of the widows were over the HSCL cut-off. According to the Bolton algorithm, 34% fulfilled the MD criteria (1% missing). The relevant symptoms are listed in Tables 22 and 23. Functional impairment was not assessed for MD (Bolton, 2002).

For orphans, the HSCL severity-score for depression ranged from 15 to 51 with a mean of 25.15 and a median of 23. The symptom mean was 1.68 per item. Thirty-four per cent were over the cut-off (1% missing), and according to the Bolton algorithm, 23.3% of the orphans had an MD (Bolton, 2002).

Widows were significantly more often over the cut-off of clinical relevance of symptoms in the HSCL depression score than orphans (χ^2 (1, N = 402) = 9.53, p < .005). Depressive symptoms are presented in Table 22.

Table 22: Depressive symptoms in % (N = 405/406)

	Orphan				Widow			
	Not at all	A little	Quite a bit	Extreme	Not at all	A little	Quite a bit	Extreme
Feeling low in energy, slowed down (A6)	44.4	26.8	15.6	13.2	33.5	33.5	20	13
Blaming yourself for things (A7)	72.2	14.6	9.3	3.9	79	11	9	1
Crying easily (A1)	81.4	5.4	7.8	5.4	74	11.5	8.5	6
Loss of sexual interest or pleasure (A2)	68.8	8.3	10.2	12.7	42.7	6.5	11.6	39.2
Poor appetite (A3)	66.3	17.1	12.7	3.9	55	22	14	9
Difficulty falling asleep, staying asleep (A4)	56.6	13.7	15.1	14.6	32.5	15.5	28	24
Feel hopeless about the future (A1)	60	18.5	9.3	12.2	49.5	26.5	13.5	10.5
Feeling blue (A1)	42.4	18	18.5	21	25	22	27	26
Feeling lonely (A1)	49.3	17.1	16.6	17.1	36	28.5	21.5	14
Thoughts of ending your life (A9)	90.7	4.9	2.9	1.5	92.5	4.5	1	2
Feeling of being trapped or caught	79.5	9.3	5.9	5.4	71	12.5	9	7.5
Worrying too much about things (A8)	58.5	20	13.7	7.8	56.5	17	18	8.5
Feeling no interest in things (A2)	62.4	9.8	14.1	13.7	62.8	15.6	12.6	9
Feeling everything is an effort (A6)	64.9	19	8.8	7.3	60.5	17.5	10.5	11.5
Feelings of worthlessness (A7)	62.9	11.2	14.1	11.7	63	13	10	14

3.7.12. Anxiety

For widows, the severity-score of the 10 HSCL anxiety questions ranged from 10 to 39 (mean = 20.19, SD = 7.05, median = 9). The item mean was 2.02 (SD = .71). Fifty-nine per cent of the widows passed the AD cut-off of 1.75. The information of two persons (1%) of the sample was missing.

For the orphans, the anxiety ranged from 10 to 40 on the severity-score (M = 17.94, SD = 7.19, median = 6) with an item mean of 1.79 (SD = .71). Forty-two per cent were over the HSCL cut-off.

With regard to anxiety as well, widows significantly more often passed the cut-off score compared to orphans (χ^2 (1, N = 404) = 12.15, p < .01). Exact numbers of anxiety symptoms for orphans and widows are presented in Table 23.

Table 23: Anxiety symptoms in % (N = 405/406)

	Orphan				Widow			
	Not at all	A little	Quite a bit	Extreme	Not at all	A little	Quite a bit	Extreme
Suddenly scared for no reason	71.8	8.7	8.7	10.7	58	16.5	12	13.5
Feeling fearful	53.4	16.5	15.5	14.6	40	21.5	24.5	14
Faintness, dizziness, or weakness	39.8	30.1	16.5	13.6	29.5	27.5	17.5	25.5
Nervousness or shakiness inside	49	21.4	15	14.6	33.7	22.6	25.6	18.1
Heart pounding or racing	56.3	14.1	15	14.6	36	28.5	15.5	20
Trembling	80.6	8.7	5.3	5.3	78	10	7.5	4.5
Feeling tense or keyed up	62.1	13.1	14.1	10.7	55.5	21.5	11.5	11.5
Headache	40.8	18	18.9	22.3	27.6	14.6	27.1	30.7
Spells of terror or panic	79.6	5.3	6.3	8.7	68.5	14	9	8.5
Feeling restless, can‘t sit still (A5)	59.2	14.1	12.6	14.1	44	18.5	23	14.5

3.7.13. Suicide tendency

More than one third (37%) of the widows were at risk for suicide (Figure 6). According to the M.I.N.I., the risk was low for 29% of the participants (1 to 5 points), moderate for 4.5% (6 to 9 points), and high for 3.5% (10 and more points). The highest score was 23 points.

Of the orphans, 39% reported suicide tendencies: 29.8% in a low, 2% in a moderate, and 7.8% in a high range. The maximum sum-score for suicide risk was 33. The data of one person was missing (.2%).

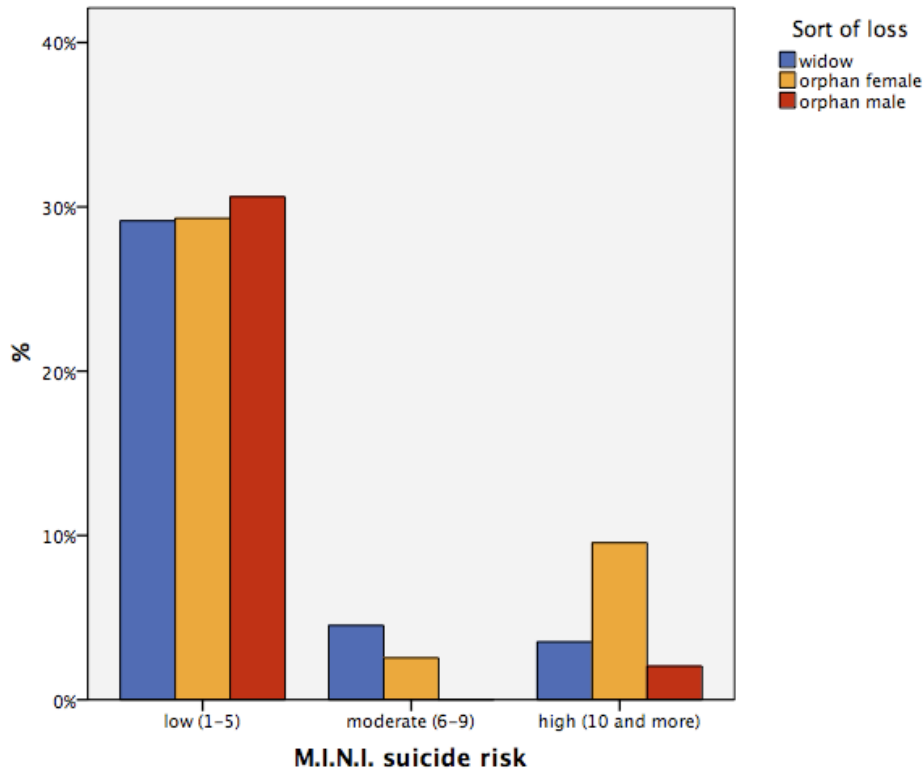

Figure 6: Suicide risk according to the M.I.N.I. by orphans and widows

3.7.14. Relationship of the clinical concepts

The Pearson correlations between the severity-scores of the clinical concepts were all highly significant ($p < .001$). As can be seen in Table 24, especially the HSCL sub-scales ($r = .73$) and PDS – PG-13 ($r = .72$) correlated on a high level.

Table 24: Pearson correlation of clinical concept symptom severity-scores

	PG-13	HSCL Depression	HSCL Anxiety	M.I.N.I. Suicide
PDS	.72	.69	.69	.33
PG-13		.63	.58	.33
HSCL Depression			.73	.43
HSCL Anxiety				.30

PGD and other clinical concepts

The participants who fulfilled the PGD diagnosis additionally suffered from other clinically relevant symptomatology (96.9%) as can be seen in Figure 7. One participant of the sample exclusively had PGD; all other participants fulfilled one (6.25%), two (18.75%), or all three additional diagnoses (71.88%).

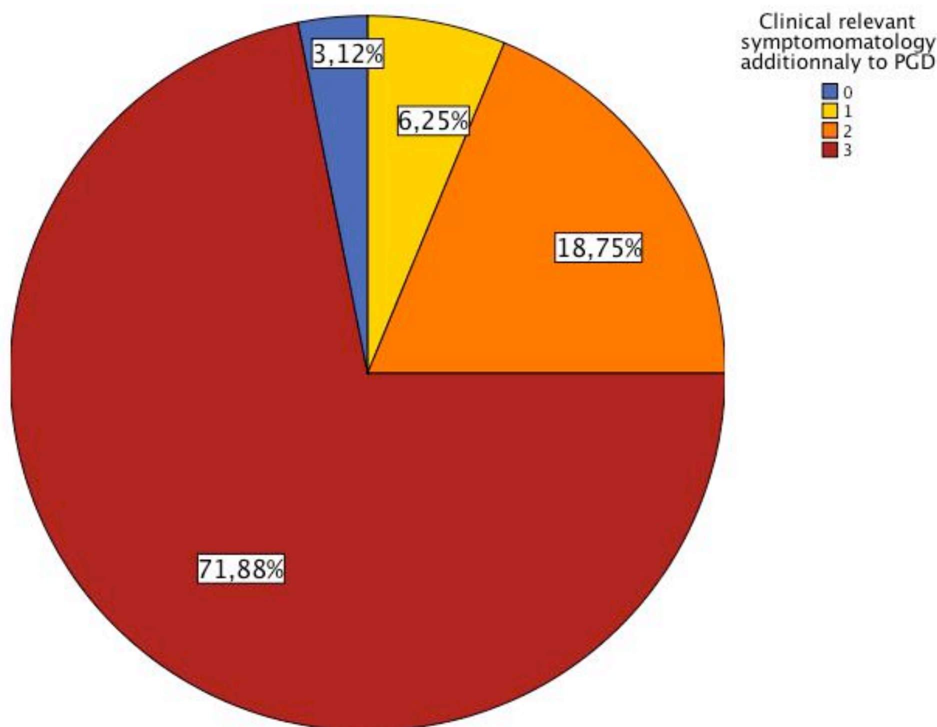

Figure 7: Number of clinical concepts PGD patients fulfilled additionally

• *PGD and PTSD*

There was a significant overlap between the participants who fulfilled the PTSD (N = 141) and PGD diagnosis (N = 32), as illustrated in Table 25 (χ^2 (1, N = 406) = 3.77, p < .001). Most of the bereaved that suffered from PGD also fulfilled the PTSD diagnosis (84.4%).

Table 25: Frequency of PGD and PTSD diagnosis

		PGD diagnosis		p
		No	Yes	
PTSD diagnosis	No	260	5	< .001
	Yes	114	27	

✳ Participants whose worst loss was non-violent

The sample contained 122 participants whose worst loss was non-violent. The same variables as seen in the full sample influenced the mean PGD severity-score (M = 20.31, SD = 7.74). In a multiple linear regression, the *sum of PDS event types ever* and *years since the worst loss* (inverse) explained 19% of the PGD severity-score variance (F (2, 120) = 15,34, $p < .001$). The PGD severity-score of these bereaved correlated with the PDS severity-score at a highly significant level (Pearson's $r = .51$, $p < .001$).

✳ Participants with PTSD and PGD diagnosis

Genocide survivors who suffered from both diagnoses (6.65% of the sample) included both orphans and widows (N = 13 and N = 14, respectively). Only one participant whose worst loss was non-violent suffered from both disorders. For 92.59% (N = 25) the worst loss was related to the genocide. PTSD patients who also suffered from PGD had experienced significantly more *PDS sum event types ever* ($U = 836.5$, $p < .001$) and *PDS sum event types related to the genocide* ($U = 762.5$, $p < .001$). They also had higher severity-scores for PDS ($U = 579.5$, $p < .001$), HSCL depression ($U = 715.5$, $p < .001$), and HSCL anxiety ($U = 858$, $p < .001$), compared to PTSD participants without PGD (N = 114).

✳ Participants with PGD but no PTSD diagnosis

The five participants who suffered from PGD but no PTSD were all women, and included three widows and two orphans. They were between 22 and 63 years old and came from all sectors. As worst loss, three named the loss of their mother, one of her child, and one of her sibling. Three of them had experienced their worst loss during the genocide (violent, 13 years since loss) and two due to an illness (one and five years since loss). The mean for experienced *PDS events type ever* (M = 12.60), as well as the scores for PDS severity (M = 11.20), HSCL anxiety (M = 11), and HSCL depression (M = 13) did not differ significantly between the PGD patients and the rest of the sample. One person had a low suicide risk.

• *PGD and MD/AD*

The HSCL-25 symptoms were also significantly related to PGD, as shown in Table 26 (MD: χ^2 (1, N = 402) = 3.33, $p < .001$; AD: χ^2 (1, N = 404) = 1.93, $p < .001$). The majority of PGD

patients had clinically relevant depressive (90.3%, N = 28) and anxiety symptoms (87.5%, N = 28) above the cut-off criteria.

Table 26: PGD diagnosis and depression/anxiety over the HSCL-25 cut-off

		PGD diagnosis		χ^2
		No	Yes	p
Depressive symptoms over cut-off	No	233	3	< .001
	Yes	138	28	
Anxiety symptoms over cut-off	No	197	4	< .001
	Yes	175	28	

3.7.15. Clinical symptoms and health

On average, participants who suffered from PTSD, PGD, MD, or AD had more physical diseases in the previous month than participants without diagnoses, excluding HIV/AIDS as a chronic condition. The Mann-Whitney-U-test is presented in Table 27.

Table 27: Mann-Whitney-U-test of sum of illnesses in the previous month in relation to clinical diagnoses

	U	p
PTSD	5950	< .001
PGD	2623.5	< .05
MD	7115	< .001
AD	6260.5	< .001

Spearman correlations between the severity-scores of the clinical concepts and the sum of illnesses were all significant ($p < .001$), showing a relationship between psychological and physiological health. Table 28 lists the details.

Table 28: Spearman correlation between the symptom severity-scores of the clinical concepts and health

	PDS	PGD	HSCL-Depression	HSCL-Anxiety	M.I.N.I.
Sum illness	.34	.32	.33	.41	.21

A Spearman correlation between the number of clinical diagnoses (0 to 4) and the number of illnesses (0 to 6) in the previous month, was also highly significant ($p < .001$) with $r = .39$.

3.7.16. Clinical symptoms and economic status

On average, the economic index was lower for participants who suffered from clinically relevant symptoms of PTSD (U = 11962, p < .001), MD (U = 14270.5, p < .05), or PGD (U = 4027.5, p < .05). The Mann-Whitney-U-test showed significant differences, as shown for the PTSD diagnosis in Table 29.

Table 29: Mann-Whitney-U-test on the economic index in relation to PTSD diagnosis (U = 11962)

		N	Median eco-index	Middle rank	Range	p
PTSD diagnosis	No	243	.006	204.77	-.93 – 2.85	< .001
	Yes	132	-.220	157.12	-.82 – 1.49	

The Spearman correlation between the number of clinical diagnoses and the economic index showed a significant outcome (r = -.17, p < .001). Equally, the clinical symptom index correlated with the economic index in a weak but highly significant Pearson correlation (r = -.15, p < .001).

3.8. Discussion

With this study, we examined the mental health situation of widows and orphans who survived the 1994 Rwandan genocide and were confronted with numerous traumatic events and losses in their life. Symptoms of PTSD, depression, and anxiety, as well as suicidal ideation, were highly prevalent and chronic, whereas a PGD diagnosis was rare. Clinical suffering often caused interference with daily life. There was substantial co-morbidity of all psychiatric diagnoses, which was associated with greater symptom severity. Furthermore, a positive relationship between the experienced number of traumatic event types and greater symptom severity of mental health problems existed. Another main finding was that the frequency and severity of mental health problems were related to widowhood, physical illness, and a low economic status.

3.8.1. Traumatic events

All participants had experienced the 1994 genocide and were confronted with numerous traumatic events. The most frequent traumatic experiences reported by widows were *expect dying*, *forced to hide to be saved*, *forced movement*, *witness attack with weapon*, and *see*

mutilated persons. Almost 70% had survived an *attack with a weapon*, 40% had been *witness of a massacre*, and 22.5% had suffered from *sexual abuse*.

In the orphan sample, the most common traumatic events were *forced movement*, *expect dying*, *forced to hide*, *witness attack with weapon*, and *witness physical attack*. Further experiences among the orphans were *witness murder* (53.4%), *witness massacre* (42.7%), and *witness murder of parent* (16%).

Thus, widows and orphans had experienced mostly similar traumatic event types but some significant differences existed. Over their lifetime, widows had more often suffered from a *serious illness or injury*, lived through a *war or combat situation*, had *expected dying*, and were *forced to hide*. In relation to the genocide, widows had more frequently experienced *sexual abuse*, *attack with a weapon*, *witness attack with a weapon*, *expect dying*, and *forced to hide*. In the previous year, widows had more often *expected dying*.

In their lifetime, orphans had more often been *witness of serious accident*, *witness of physical attack*, *witness of serious injury*, and *witness of murder of parent*. In most cases, the parent had been killed during the genocide. *In the previous year*, orphans had been more often experienced the events *witness of physical attack*, *attacked with weapon*, and *witness of an attack with weapon*. In both samples, the average number of potentially traumatic event types was 11 *over lifetime*, 9 *related to genocide*, and one in the *last year* (out of a maximum of 25).

These results confirm studies about violence exposure in Rwanda. Schaal and Elbert found an average of nine traumatic life event types experienced by orphans in Kigali (Schaal, 2007). Similarly, Dyregrov reported in his *National Trauma Survey* with children that 90% had believed that they would die, most had had to hide to survive, and 15% of the sample had hidden under dead bodies. On average, his participants had experienced 14 different event types of a 28-event list (Dyregrov, 2000). Furthermore, among adult respondents, Pham found that 79.9% had lost their property and 75.4% had been displaced. All participants reported violent events (Pham, 2004). This present study is the first to investigated mental health in widows in Rwanda.

Comparing widows and orphans, there was no significant difference for the number of experienced event types *ever* and *related to the genocide*. Orphans were exposed to more violence in the *previous year*. In the orphan sample, 26.2% had witnessed attacks in the previous year, and 6.3% had been attacked themselves. This might be the result of a general

acceptance of violence as a conflict management strategy, as expressed by 55.4% of Rwandan adults (Pham, 2004). Similar to this study, an elevated exposure to violence during the previous year for orphans was described by Schaal (15.3% had witnessed an attack and 5.1% were physically attacked) and Boris (70.5% of youth living in CHH reported maltreatment and 14% forced sex) (Schaal, 2007), (Boris, 2008). Thurman and colleagues studied heads of CHH and found that many of them were marginalized. Eighty-six per cent felt rejected and 57% had the impression that the community would rather hurt than help them (Thurman, 2006).

Male and female participants did not differ in the total amount of experienced event types, but they had experienced different types of traumatic events. Male orphans had more often been *witness of an accident* and had experienced *a serious injury*. Women had been more often exposed to *sexual violence*. This is conform to a universal pattern found in the literature (Resnick, 1993), (Keane, 2006).

The number of experienced event types differed by the sector of residence. Especially in Mukura, inhabitants reported an extraordinary high number of events *related to the genocide*. Two factors might explain this variation. In Mukura, the genocide was very intense in that area (DesForges, 2002). Furthermore, the Rwandan government had built numerous settlements for severely affected genocide survivors.

Religion strongly correlated with violence exposure during the genocide in this sample. Muslims had the lowest, and those with other or no religion the highest means of traumatic event types. Reports documented the solidarity and protection of the Muslim community during the genocide. They refused to divide themselves ethnically, what may explain the lower event load of the Islamic interviewees (African Rights, 1995), (Prunier, 1995). Severely affected participants reported in personal communication that their church had disappointed them during the genocide and thus they had converted or opted out. This might explain the high means of traumatic exposure in non-believers and other types of religion.

As worst event, widows named confrontation with the *genocide* in general, *witness of murder*, and *sexual violence*. Orphans also named the *genocide* most frequently as worst event, followed by *witness killing of parent*, and *witness of massacre*.

In case the interviewees had suffered from *sexual violence* or had *witnessed the killing of a parent*, they most often named them as worst event. This is consistent with the literature.

Authors described sexual violence as severe trauma with great impact on the psychological well-being because it included life threat and injury (Rosenman, 2002), (Resnick, 1993). For the event *witness killing of parent*, Schaal found that if experienced, it was always named as the worst event (Schaal, 2007).

3.8.2. PTSD

Researchers widely assessed PTSD in persons affected by organized violence. For refugees in Western countries, authors reported a prevalence between 14% and 86% (Van Velsen, 1996), (Dahl, 1998), (Kamau, 2004), (Somasundaram, 1994), (Mollica, 1999), (Momartin, 2004a), (Turner, 2003), (Marshall, 2005). In low- and middle-income countries, studies found a PTSD prevalence among refugees between 15% and 55.9% (De Jong, 2001), (Karunakara, 2004), (Basoglu, 2005), (Mollica, 1993), (Allden, 1996), (Ovuga, 2008), (Carey, 2003), (Scholte, 2004a), (Lopes Cardozo, 2000). In Rwanda, studies reported a PTSD prevalence between 24.1% and 58% for orphans in the years after the genocide (Sydor, 1996), (Gishoma, 2005), (Neugebauer, 2009). About ten years later, Pham documented a PTSD prevalence of 24.8% for adults (Pham, 2004) and Schaal found 44% in orphans (Schaal, 2006). In this study, 41.1% of the widows and 28.2% of the orphans suffered from PTSD. This number is in line with recent studies of the consequences of exposure to violence.

On average, we found a PDS symptom severity of 13.29 in the widow sample, and of 10.61 in the orphan sample, with a maximum of 51. Widows reported as most frequent symptoms *emotionally upset when reminded about their worst event*, *sleeping problems*, *unwanted memories*, *avoidance of thoughts and feelings that remind about the worst life event*, and an *exaggerated startle response*. Orphans most often experienced an *avoidance of thoughts and feelings that reminded the worst life event*, *detachment or estrangement from others*, *unwanted memories*, *emotionally upset when reminded about the worst event*, and *unpleasant dreams*. Thus, most of the interviewees still experienced PTSD symptoms to a great extent even 13 years after the genocide. This result fit with findings on the chronicity of symptoms among South East Asian survivors of organized violence (Sack, 1999), (Kinzie, 1990), as well as in Rwandan samples (Schaal, 2006), (Pham, 2004).

Widows fulfilled significantly more often a PTSD diagnosis than orphans. Older and widowed participants were affected to a greater extent. This had also been shown in Pham's study with 2.091 randomly selected adults in Rwanda (Pham, 2004) and other contexts of organized violence (Lopes Cardozo, 2000), (Mollica, 2002), (Sabin, 2003).
In numerous studies, researchers reported women to have higher PTSD rates than men (Pham, 2004), (Neugebauer, 2009), (Karunakara, 2004), (Scholte, 2004a). This study, in contrast, did not find a significant difference in the PTSD severity between men and women. This might be due to a selection bias. The interviewers of the epidemiological study approached the households during daytime. Men were mostly day laborers who worked outside their house. Possibly only unemployed men with strong functional impairment were recruited. Another result of the random community recruitment was the over-representation of women in the orphan sample. As numerous female orphans were employed as housekeepers with domestic responsibilities, they were more likely to be at home during daytime.
The PTSD symptoms significantly differed across the sectors. In Mbazi and Huyé districts, 18.3% and 19.5% suffered from PTSD, respectively. In Ngoma and Tumba, we found a prevalence of 35.7% and 40%. In Mukura, 58.8% fulfilled the PTSD diagnosis. As discussed earlier, the number of experienced traumatic event types varied with the genocide intensity across sectors (DesForges, 2002). Another reason for the variation in PTSD prevalence across the different districts might be the building policy of the Rwandan government. They built numerous settlements in the Mukura region to host the most affected genocide victims. In his survey, Pham also reported significant variations of PTSD symptoms across Rwanda, with the district Ngoma (also investigated in our study) most strongly affected (Pham, 2004).
In previous studies with victims of organized violence, little education (De Jong, 2000), (Lopes Cardozo, 2000), (Karunakara, 2004), a low economic status (Karunakara, 2004), (Somasundaram, 1994), and unemployment (Karunakara, 2004), (Lopes Cardozo, 2000), (Mollica, 2002) were related to more PTSD symptoms. In the present sample, no relation between PTSD and education was found. However, participants with a regular employment significantly less often fulfilled the PTSD diagnosis. Furthermore, PTSD patients were more often unable to satisfy their needs concerning nutrition and healthcare.

The building block effect of traumatic event types on the mental health status has been consistently reported in the literature (Schaal, 2006), (Karunakara, 2004), (Dyregrov, 2000),

(Neugebauer, 2009), (Neuner, 2004a). Similarly, in this study, the number of experienced traumatic event types was the most influential predictor of PTSD symptoms.

3.8.3. Loss

Apart from their partner, widows had most frequently lost *another family member*, a *sibling*, and their *father*. Orphans had also most frequently lost *another family member*, followed by their *father*, and a *sibling*.

As worst loss, widows most frequently named their *husband*, followed by a *child*. Orphans named their *mother*, their *father*, and a *sibling* as worst losses. In most cases, the worst loss was the *closest person* to the participant, and the loss had *negative economic consequences*. The loss of a parent and a husband might be perceived as especially painful, as orphans and widows were stigmatized in the Rwandan society. Consequently, apart from the loss of a loved one, such a loss represented a change in the life situation and the social status in Rwanda (Boris, 2008).

For widows, the worst loss had happened on average 12 years earlier, for orphans, 10.93 years earlier. In most cases, the loss was violent. Again, this might conform the positive attitude towards violent conflict resolution found by Pham (Pham, 2004).

Widows had experienced significantly more loss types in their lives compared to orphans as a result of significantly more lost children. This can be explained by their older age. Many widows already had children when the genocide took place. In the sample, over 80% of all participants had four or more different loss types. This demonstrated the big impact of the genocide on the current Rwandan society.

More than half of the participants in both samples classified their worst loss as related to the genocide, while about one-fourth said the cause of death was an illness. In the sample, only 12.1% identified AIDS as the cause for the worst loss. It was impossible to verify the death cause. But in Rwanda poisoning represented a more socially accepted way of reporting death from AIDS (Boris, 2008).

3.8.4. PGD

Researchers conducted few epidemiological studies on grief. The existing literature was limited in respect of small sample sizes and non-representative recruitment. Moreover,

authors changed the grief consensus criteria several times what seriously constrained the comparability of cited studies.

Prigerson classified 20% of mourners she investigated as prolonged grievers because they faced additional problems in general and mental health, social functioning, and MD (Prigerson, 1995). Other researchers, who worked with Western grief populations, reported that the majority of mourners were able to return to a pre-loss functioning during the first year. Only a minority (usually 10% to 15%) suffered from prolonged grief reactions (Bonanno, 2004), (Bonanno, 2002), (Lichtenthal, 2004), (Bonanno, 2007).

In the present study, 81% of participants experienced the grief symptoms for more than six months following the worst loss and over half of the participants in the sample felt functionally impaired, but only 7.9% of the mourners fulfilled the PGD criteria. Participants experienced cognitive, emotional, and behavioral symptoms on a moderate and irregular level. Thus they rarely fulfilled five of the required symptoms. Conclusively, we found a lower PGD prevalence than authors reported for comparable populations in the literature. Momartin conducted the only grief study with victims of organized violence and found 31% PGD (Momartin, 2004b). In a violent context, 34% of a clinical population in Pakistan fulfilled the grief criteria (Prigerson, 2002). Studies with persons bereaved on September 11, 2001, assessed 2.5 to 3.5 years later, also reported clearly higher PGD rates of 43% (Neria, 2007), (Bonanno, 2007). Prigerson found 6.3 years after loss a PGD prevalence of 20% in friends of suicide victims (Prigerson, 1999a). Contextual and cultural factors might explain this difference. It remains to be investigated whether in regions of chronic human disaster the grief response can be compared to the response in a Western setting. In Africa, about six million people die each year because of AIDS, tuberculosis, and malaria (Global Fund to Fight AIDS, Tuberculosis, and Malaria, 2005) and thus death is present in the daily life of most people (Chochinov, 2005). Furthermore, in Rwanda as low-income country, the meaning of relationship and loss might also be different, as relations are closely connected to economic standing. The loss of a caretaker (husband or parent) forced participants to maintain their life on their own or in CHHs. In the interviews, the genocide survivors often replied to the grief symptom questions with situations of economic struggles. One participant mentioned, for instance: "when I have to pay school fees for my child, I have big sorrow and wish that my husband would be here to help me". This might represent a rather pragmatic, instead of emotional, approach to relationships. More studies on grief reactions are needed to find

appropriate measures and interventions for post-conflict and low-income countries (Chochinov, 2005)

Several studies reported cultural effects on grief symptoms. In 2005, Bonanno and colleagues assessed loss reactions among US (N = 68) and Chinese (N = 74) citizens four and 18 months after bereavement for two loss types (spouse and child). In China, bereaved participants showed a more acute pattern of grieving in the early months and a more rapid recovery than bereaved US participants. US respondents with a child loss showed chronic distress and poor health. The death of a spouse was associated with recovery over time in this sample. In contrast, Chinese participants reacted in similar patterns both to the loss of a spouse and a child (Bonanno, 2005). In the present study, respondents hardly named child loss as their worst loss. One gave the explanation "children, I can have others, but I will not find another husband", as widows are rarely able to remarry in the Rwandan society. Prigerson also observed cultural effects in a Pakistani sample, where spouses met grief criteria more often than others. She assumed that implications of widowhood for surviving spouses in the cultural context would account for these differences (Prigerson, 2002).

In our study, the PG severity-scores of widows and orphans were on a comparable level and were unrelated to age or gender. Yet, only female participants fulfilled the PGD diagnosis. Equally, Prigerson found women to be more likely than men to meet grief criteria (Prigerson, 2002).

The PGD severity-score differed significantly by sector, education was not related, but the economic situation was negatively related to the grief symptom severity. The number of loss types showed a statistically significant but small building block effect on grief symptomatology, as had also been shown in previous studies for depressive symptoms (Harrison, 2001). The importance of religion was not related to PGD, comparable to a study by Bonanno et al. (Bonanno, 2002). Denomination, however, was crucial, as Muslim participants had the lowest PG scores. The Muslim sample also had experienced less PDS event types related to the genocide. This might explain the difference in grief severity, as the number of experienced traumatic event types was the best predictor of grief symptomatology in the present study. These findings support the close relation of trauma and grief, as also described by Bonanno (Bonanno, 2007).

Researchers debate if the PGD diagnosis makes a substantial contribution to the understanding of grief reactions following bereavement. Reasons for the inclusion into the DSM-V could be a more effective diagnosis, case conceptualization, as well as better planning, monitoring, and evaluation of treatment (Hunsley, 2003). In this study, the grief diagnosis might help to identify factors that predict mental suffering. The PGD diagnosis was significantly more frequent in violently bereaved. Especially the loss related to the genocide led to grief reactions (91.3% of participants who fulfilled the PGD diagnosis). Similarly, the severity-score also was highest for genocide losses, and lowest for natural death by age. Our results fit the findings of studies by Bonanno and Boelen, where the grief scores of victims of violent losses were significantly higher than those of victims of non-violent losses (Boelen, 2005), (Bonanno, 2002), (Zisook, 1998). Contrary, in a study in Pakistan, Prigerson found no difference between violent and non-violent losses (Prigerson, 2002). Furthermore, the length of time since the worst loss was relevant for PG symptom severity, as described by Prigerson (Prigerson, 1995).

3.8.5. Depression

Several authors described elevated depression scores in the context of loss and trauma exposure (Bornstein, 1973), (Bleich, 1997), (Harrison, 2001). In Western samples with mourners, depression was found with a prevalence of 10% to 36% (Bonanno, 2007), (Prigerson, 1996b), (Neria, 2007). Among victims of organized violence, dependent on sample and measurement method, they reported an MD prevalence of 10% to 88.2% (e.g., Mollica (1999), Blair (2000), Marshall (2005), Lavik (1996), Somasundaram (1994), Scholte (2004a), Basoglu (2005), Ovuga (2008)). In Rwanda, studies documented MD rates between 9% and 15% shortly after the genocide (Bolton, 2002), (Sydor, 1996), and 35.6% – 53% a decade later (Boris, 2008), (Schaal, 2006). The present study supports the findings of high depression prevalence. In this study, 49% of widows and 34% of orphans expressed a significant level of depressive symptoms (HSCL cut-off criterion 1.75). According to the Bolton algorithm, we classified 34% of widows and 23.3% of orphans with a DSM-IV diagnosis. In cross-cultural research with war-affected populations, Ichikawa showed the cut-off point approach to have low specificity but positive predictive value (Ichikawa, 2006). Thus, in the current study, the Bolton algorithm estimation should be seen as the more valid prevalence estimation of MD.

Recent studies supported the assumption that the extensive exposure to traumatic experiences and loss explain high depression prevalence (Ovuga, 2008), (Allden, 1996), (Shrestha, 1998). In our sample, the stigmatization of widows and orphans (Boris, 2008) and rejection by the Rwandan society may also be crucial factors for the development of MD. Thurman found in CHH that 51% felt isolated from the community and 47% had the impression that no one cared about them (Thurman, 2006). Additionally, the nature of the Rwandan genocide might be important for the development of depressive symptoms. The confidence and worldview of the victims had been destroyed, as neighbors, friends, and family members inflicted death and suffering (DesForges, 2002). Green has shown before that victims of a physical assault had the highest depression scores when the perpetrator was related or known to them, as this represented a violation or a betrayal of the relationship (Green, 2001).

3.8.6. Anxiety

Researches reported elevated anxiety scores in refugee populations using the HSCL (between 6% and 88% over the cut-off point) (Lavik, 1996), (Silove, 1997), (Turner, 2003), (Bernstein Carlson, 1994), (Hermansson, 2002), (Scholte, 2004a), (Soskolne, 1996), (Hotz, 1998). Consistently, in this sample, 59.1% of the widows, and 42% of the orphan sample reported anxiety symptoms over the HSCL cut-off point. As in the case of HSCL depression, low specificity and thus an overestimation of AD can be assumed (Ichikawa, 2006).

3.8.7. Suicide tendency

In the present study, more than every third widow (37%) and orphan (39%) expressed suicidal thoughts in the previous month, mostly the wish to be dead. Every tenth genocide survivor had serious plans or had even attempted to end their life. These numbers are consistent with Schaal’s orphan study in Kigali (37.3%) (Schaal, 2007) and reports of a Rwandan clinical population (34.3%) (Mugabo, 2004). In Boris’ study with CHH members, only 7% reported suicidal thoughts (Boris, 2008).

Thus, suicide is common among Rwandan genocide survivors. Depressed, widowed, and divorced patients in particular expressed suicidal ideas in Mugabo’s study. As reasons, participants named human and material loss caused by the genocide, HIV infection, strong psychological suffering, difficult reintegration for stigmatized rape victims, and loneliness

(Mugabo, 2004). Similarly, in the interviews for the present study, participants reported economic and psychological suffering, as well as social marginalization to be overwhelming.

3.8.8. Co-Morbidity

The present study found a high co-morbidity of the assessed clinical diagnoses. Consistent with recent literature, co-morbidity of PGD was associated with greater mental health symptom severity (Beutel, 1995), (Kim, 1991), (Pasternak, 1993), (Shalev, 1998). The strongest relations we found between anxiety and depression ($r = .73$), followed by PTSD and PGD ($r = .72$). Bonanno and Boelen reported comparable inter-correlations in violently bereaved participants (Bonanno, 2007), (Boelen, 2007b).

Only one genocide survivor suffered exclusively from PGD, all others had one (6.25%), two (18.75%), or three co-morbid clinical diagnoses (71.88%). Several authors reported an extensive overlap of PGD with other mental health diagnoses (Neria, 2007), (Pfefferbaum, 2006), (Bonanno, 2007), (Boelen, 2005), (Boelen, 2007a), (Horowitz, 1997). In a sample of widows in the US, Silverman and colleagues found that 37% of PGD patients also suffered from PTSD and 50% from MD. One-fourth fulfilled all three assessed diagnoses (Silverman, 2000). Kim and Jacobs diagnosed 94% of grievers also with a co-morbid MD (Kim, 1991). Consequently, grief as an independent concept was controversially debated. Schaal conducted a principal axis factoring analysis to determine the distinctness of the clinical constructs in this sample. Results indicated four different factors. The symptoms of depression, along with the symptoms of the *cognitive, emotional, and behavioral* sub-scale of the PG-13, loaded on the first factor. Symptoms of anxiety loaded on the second factor and symptoms of PTSD on the third factor. The *separation distress* cluster of the PG-13 (B criterion) loaded on the fourth factor (Schaal, in preparation). Equally, earlier factor analytic studies found better solutions with grief as a separate factor (Boelen, 2003), (Chen, 1999), (Prigerson, 1996a).

3.8.9. Clinical symptoms and associated features

In this study, we found clinical symptoms to be significantly related to physical problems and economic status. Participants with a diagnosis of PTSD, PGD, MD, or AD had significantly more physical problems. This supports findings of several studies with survivors of organized violence (De Jong, 2001), (Lopes Cardozo, 2000), (Boris, 2008). Comparable to other studies, we found that lower economic wealth was associated with stronger mental health symptoms

(Karunakara, 2004), (Boris, 2008), (Somasundaram, 1994). While a cross sectional design cannot determine the causality of the effects, our findings highlight the influence of mental health on daily functioning.

3.9. Conclusion

Overall, the findings confirm orphans and especially widows to be vulnerable groups in armed conflicts, being exposed to violence and loss. In Rwanda, 13 years after the genocide, resulting mental health problems, namely PTSD, depression, and anxiety, are chronic and highly prevalent.

Grief only played a minor role in this sample even though all participants had experienced multiple and traumatic losses. We found a high level of co-morbidity for different psychiatric diagnoses. Co-morbidity was associated with a greater symptom severity. Grief and other diagnoses extensively overlapped. In addition, factor analysis only distinguished *separation distress* from depressive symptoms. The PG-13 symptoms also correlated with all other clinical concepts on a high level, especially with PTSD. Thus, the epidemiological study cannot conclusively answer current research questions about grief as a distinct mental health concept, but it highlights the need for further investigations of cultural appropriateness of the concept for survivors of organized violence in low-income countries.

This epidemiological study supports the theory of a building block effect of traumatic event types on clinical symptomatology. The more the victims were exposed to traumatic event types, the more mental health problems were present. Higher age was associated with more mental health problems, thus the widow population in Rwanda proofed to be particularly vulnerable. Clinical suffering caused interference with daily life and the health status of the participants. Despite their great needs, only a minority of genocide survivors received psychological support (5.4% in this sample). This underlines the importance of the inclusion of mental health components in post-conflict intervention programs.

4. Mental health approaches for the treatment of trauma-spectrum disorders

In Europe, mental disorders affect about 27% of the population every year, only 26% of who receive treatment (Wittchen, 2005). In the US, mental disorders affect 31% of the population, 33% of who are treated (Kessler, 2005). In poor countries, coverage of mental health services is even lower (WHO, 2001). In a global survey, Wang et al. reported that in low and middle-income countries only a small minority of people received treatment, with the lowest rate among countries studied at 10.4% in Nigeria (Wang, 2007). Most affected people had to cope without assistance, while often experiencing victimization, stigmatization, and discrimination for their illness (Kohn, 2004), (WHO, 2001), (Vikram Patel, 2007), (De-Graft Aikins, 2007). During the 1990s, the international relief community recognized the need for programmatic attention of mental health, especially for vulnerable returnee populations and post-conflict societies (Neugebauer, 1997), (Mooren, 2003). Trauma-spectrum disorders were a major problem in these populations (De Jong, 2001). Therefore, in this chapter I focus on the treatment of PTSD and co-morbid disorders. I present existing and tested psychotherapeutic approaches, their evaluation, and the possibility of their dissemination.

4.1. Psychotherapy

In this chapter, I present a literature review for the treatment of trauma-spectrum disorders. The cited studies all follow on Foa and Meadows gold standards for treatment outcome research: a clearly defined and significant trauma-related psychopathology, reliable and valid measures for the targeted symptoms, independent and trained evaluators, manualized, replicable, and specific treatment programs, treatment adherence, and unbiased assignment to treatment condition (Foa, 1997).

4.1.1. PTSD

Over the previous decade, empirical knowledge of effective psychotherapeutic treatment for PTSD has rapidly increased, in particular for victims of traumatic events that live in industrialized countries (Foa, 2000). I present the different approaches that therapists

predominantly have used for the treatment of trauma-spectrum disorders in clinical practice. I focus on the techniques relevant for the empirical part of this thesis.

Insight-oriented therapies

Psychodynamic treatment is based on information overload. The therapist integrates the traumatic event with the meaning of life, self-concept, and world image (Solomon, 2002). Advocates of this approach emphasize concepts of denial, abreaction, catharsis, and stages of recovery from trauma (Foa, 1997). Consequently, the treatment involves introspection, self-analysis, and the exploration of the meaning of the trauma (Krupnick, 2002), (Schnyder, 2005). For political refugees, the psychodynamic orientation describes giving testimony as an eligible treatment for PTSD. Agger defines it as a form of catharsis and healing ritual. Furthermore, he interprets giving testimony as an integration of meaning and reframing of the pain to regain dignity. This is conform to the practice in many cultures (Agger, 1990).

Despite its long history and a wide use, there is limited empirical support for standard psychodynamic approaches. Advocators rarely conducted controlled outcome studies due to an approach of non-standardization and non-reductionism. Few studies showed positive effects of psychodynamic therapy (Brom, 1989). In comparison to other treatments, researchers found a great disadvantage of therapeutic benefit for the patient, although methodological problems do not allow for clear conclusions (Foa, 1997), (Hollon, 2002).

Cognitive-Behavioral Therapy (CBT)

CBT is a flexible combination of several techniques, such as psycho-education, cognitive therapy (CT), Anxiety Management Techniques, and exposure (Paunovic, 2001), (Schnyder, 2005).

Cognitive Therapy

Agents of CT assume that traumatic experiences change basic assumptions of an individual's cognitive schemata about oneself and the word. Consequently, trauma may lead to a dysfunctional thinking pattern and cause mental health problems. The therapist explores the personal meaning of the event, and tries to identify false beliefs and automatic thoughts. He introduces Socratic questions regarding alternative positive models to achieve a more adaptive functioning (Ehlers, 2005), (Robertson, 2004), (Resick, 2002).

Anxiety Management Techniques

According to Anxiety Management Techniques, the therapist trains the client in behavioral and cognitive strategies to reduce and control occurring anxiety. These stress-management techniques include psycho-education and training in relaxation, stress-inoculation, biofeedback, cognitive restructuring, breathing, muscle-relaxation, social-skills, guided self-dialogue, affect-management, and distraction such as thought stop (Keane, 2006).

Exposure Therapy

Exposure therapy is the prolonged confrontation with traumatic events in sensu. It encourages the patient to integrate fearful memories in an overall context and to habituate emotional reactions. Further, exposure promotes mastery and reduces avoidance – dysfunctional behaviors and cognitive strategies that prevent memory elaboration (Keane, 2006), (Cahill, 2006), (Gillespie, 2002). The influential model of Ehlers and Clark (2000) suggests that PTSD treatment needs to elaborate the trauma memory and integrate it with the context of an individual's preceding and subsequent experiences. These methods reduce intrusive re-experiencing, as well as problematic appraisals of the trauma that maintain a sense of current threat.

Therapists use variations such as *Systematic Desensitization* (graded Imaginal Exposure combined with relaxation techniques) and *Intensive Exposure Therapy* (flooding). In combination with CT, these techniques are known as *Prolonged Exposure* (PE) (Foa, 2005), *Cognitive Processing Therapy* (Resick, 1993), and *Eye-Movement Desensitization and Reprocessing* (EMDR), which adds motor activity (Shapiro, 1989), (Solomon, 2002).

Evaluation

Recent reviews and meta-analyses of PTSD treatment provide strong support for the efficacy of CBT (Bradley, 2005), (Van Etten, 1998), (Sherman, 1998). Therefore, treatment guidelines of the APA and the National Institute of Clinical Excellence include trauma-focused psychological treatment on an individual outpatient basis regardless of the elapsed time since the trauma (National Collaborating Centre for Mental Health, 2005). In meta-analyses, authors found a mean ES of 1.43 from pre- to post-treatment, and 1.11 for active versus passive control treatments (Bisson, 2007), (Cloitre, 2009). Across all treatment studies, 67%

of CBT patients who completed treatment no longer met diagnostic criteria for PTSD post treatment (Bradley, 2005). The most effective programs focused on a patient's memory of the traumatic event and its meaning (Ehlers, 2005). Trauma-focused CBT, such as PE and CT, were superior to anxiety management and other therapies such as supportive counseling (SC) or hypnotherapy (Bisson, 2007), (Cloitre, 2009).

Research on CBT programs for PTSD treatment with women who had been sexually assaulted (Foa, 1999), (Foa, 1991), (Foa, 2005), (Resick, 2002), (Rothbaum, 2005), survivors of terrorist attacks (Gillespie, 2002), (Brewin, 2008), mixed-trauma populations (Marks, 1998), (Bryant, 2003), military personnel (Schnurr, 2007), (Creamer, 2006), (Carlson, 1998), (Keane, 1989), survivors of motor vehicle accidents (Blanchard, 2004), women who had been beaten (Kubany, 2004), victims of childhood sexual abuse (Cloitre, 2002), (Foa, 2005), (Resick, 2003), refugees in Western countries (Hensel-Dittmann, 2007), (Paunovic, 2001), (Otto, 2003), and survivors of organized violence (Neuner, 2004b), (Schaal, 2009) showed that treatment could be generalized for a range of traumata. Some studies included long-term outcomes that also demonstrated stable effects of CBT interventions for PTSD symptom reduction (Blanchard, 2004), (Foa, 2005).

Despite strong scientific support for exposure treatments, clinicians have underused it. As reasons, they named concerns such as high dropout rates and an exacerbation of PTSD symptoms, interpreted as a re-traumatization of the patient (Ehlers, 2008), (Lyons, 1989). Levis and Hare (1977) argued against this viewpoint earlier. They emphasized that it was ethical and appropriate to present a conditioned stimulus (traumatic memory), no matter how distressing, because the traumatic cues themselves had no inherent power to harm the patient. Furthermore, the therapist exposed the same stressful memories a PTSD patient regularly suffered during intrusive re-experience. In exposure treatment, the therapist presents traumatic cues systematically so that extinction occurs (Lyons, 1989). The available evidence supported this practice. Numerous studies indicated that exposure therapy had low dropout rates and was safe to administer (Van Etten, 1998), (Cahill, 2006). In a meta-analysis, Hembree and colleagues analyzed 25 studies on PTSD treatment. They found an average dropout rate of 20.5% in CBT treatments that contained exposure (Hembree, 2003). Blanchard reported in a meta-analyses that 75.9% of PTSD patients completed PE, 67% EMDR, and 82.2% CBT plus CT (Blanchard, 2003).

4.1.2. Other trauma-spectrum disorders

CBT therapists describe learned beliefs and behaviors as cause for mood disorders, and thus base interventions on learning principles. More cognitively based interventions emphasize the role of maladaptive information processing strategies. These manifest in a negative view of the person, the world, and the future (Hecht, 2008). Administered intervention techniques include contingency management, relaxation training, activation, social skills training, problem-solving therapy, and training in self-control strategies (Hollon, 2002). A number of randomized controlled studies demonstrated the effectiveness of structured psychological interventions, particularly CBT or IPT, for the treatment of depression (Wong, 2001), (Hecht, 2008). IPT is discussed in more detail in section 4.3.4.

In CBT grief models, the therapist provides psycho-education about normal and complicated grieving (Jordan, 2003). Practitioner and patient discuss loss and personal life goals. The therapist uses procedures for retelling the story of the death and confronts the patient with situations related to the loss that he avoids. The clinician assesses distress using techniques of imaginal communication with the lost person. Further, he works through positive and negative memories of the deceased. In the last treatment stage, therapist and client discuss plans for the future and feelings about the end of the treatment (Shear, 2005).

Studies that designed interventions particularly for complicated grief support the usefulness of grief treatment (Shear, 2005). In contrast, studies that offered grief intervention to bereaved with complicated and simple grief found weak evidence for its effectiveness. The symptom amelioration seemed to be a natural grieving process and bereaved respondents only subjectively profited from treatment (Jordan, 2003).

In numerous studies, CBT for PTSD also improved co-morbid depressive and general anxiety symptoms (Blanchard, 2003), (Taylor, 2003), (Creamer, 2006), (Resick, 2003), (Gillespie, 2002), (Bryant, 2003), (Rothbaum, 2005), (Resick, 2002), (Kubany, 2004), (Ehlers, 2003), (Keane, 1989), (Brewin, 2008). In a meta-analysis of PTSD treatment studies, van Etten and Taylor found a CBT ES of .99 for co-morbid anxiety and .93 for co-morbid depression (Van Etten, 1998). Furthermore, several authors reported a reduction in guilt, anger, and shame feelings (Resick, 2002), (Taylor, 2003), (Kubany, 2004), (Marks, 1998).

Foa et al. presented a more exact analysis of therapy effects on trauma-spectrum disorders. The researcher group compared the treatment outcome of 45 rape victims with PTSD randomly assigned to Anxiety Management Techniques (stress inoculation training – SIT), PE, SC, or WL. The superiority of SIT and PE over the two control conditions could only be shown for PTSD symptoms. For other measures such as depression and anxiety, no significant group differences emerged. Foa concluded that the mere contact with a therapist was sufficient to ameliorate non-specific distress (Foa, 1991).

4.2. Mental health programs in refugee populations and resource-poor post-conflict societies

There has been growing evidence of the disastrous effects of war and organized violence on mental health (e.g., Schaal (2006), De Jong (2001)). Most of those in need do not receive effective mental health care. Consequences are disability, human suffering, and economic loss (Saxena, 2007). Low-income and post-conflict societies have extremely limited mental health resources (Zoellner, 2006). Additionally, most care is institutionally based and thus not available for large parts of the community. Scarcity of available resources, inequities in their distribution, and inefficiency in their use pose the three main obstacles to a better mental health support (Saraceno, 2007). Numerous authors pointed out the urgent need of effective and evidence-based interventions. But to date, little scientific research about the development and systematic study of psychotherapeutic interventions has been done (Cloitre, 2009), (Minas, 2009), (Mollica, 2004), (Raphael, 2006), (Patel, 2000), (Ventevogel, 2006), (Neuner, 2007), (Schauer, 2009), (Raphael, 2006).
Specialist mental health staff training, assistance, and continued supervision proved to be the best way to extend mental health care for the population (Saxena, 2007). Consequently, authors called on international aid agencies to recognize and mobilize non-formal resources in the community and integrate them into their relief efforts (Zoellner, 2006), (Saraceno, 2007).

4.2.1. Considerations about mental health programs

Post-war reconstruction consists of the interrelated tasks of economic, political, and social reconstruction. Psychosocial interventions have been a small but essential part of post-war reconstruction to support national reconciliation and to revive of civil society (Wessells,

2001), (De Jong, 2007). Different stages of a crisis imply different needs and consequently require different program activities appropriate to circumstances and culture (Scholte, 2004b), (Prewitt Diaz, 2006). Experts have called for clear definitions and guidelines to increase the pace of implementation, and to improve structured management and accountability of intervention programs (Scholte, 2004b). They emphasized the need of a coordinated psychosocial response to a disaster with the provision of immediate practical help, mental health experts, evidence-based assessment, and treatment service (National Collaborating Centre for Mental Health, 2005). In the *Guidelines for International Training in Mental Health and Psychosocial Interventions for Trauma Exposed Populations in Clinical and Community Settings* experts tried to formulate such standards. As core curriculum training elements, they defined competences such as active listening, assessment, distress interventions, understanding the local context, problem-solving strategies, ongoing supervision structure, and self-care (Weine, 2002).

Mollica and colleagues emphasized the need for strong and centralized coordination of all mental health activities, assessment and monitoring of an affected population, a psychological first aid in the early intervention phase, and in the long run, a culturally validated and scientifically established mental health intervention, training and education of mental health personnel, as well as regular supervision for mental health providers. They particularly highlighted the need for scientific investigations including population studies and randomized controlled trials for the control of quality and cost-effectiveness (Mollica, 2004)

Schauer and Schauer concretized these proposals in a model of war and disaster intervention. An epidemiological data-collection identifies the problems of a specific population, followed by a community-based, multi-tiered, public mental health approach in a hierarchical model. Subsequently, local capacities should be trained to build sustainable intervention programs, ideally building upon structures that already exist. Appropriate mental-health education and public awareness-raising supports well-evaluated psychotherapy for individuals in need. Finally, they proposed a rigid form of project-evaluation with long-term follow-up tests as standard (Schauer, 2009).

4.2.2. Controversies about mental health programs

The validity, adequacy, and effectiveness of the trauma concept and intervention approaches in different cultural contexts have become a major subject of debate (Summerfield, 1999),

(Bracken, 1993), (Bracken, 1995), (Scholte, 2004b), (Summerfield, 2000), (Strang, 2003), (Watters, 2001).

Several authors argued against Western interference and for a respect of existing cultural traditions, norms, and beliefs. They emphasized that signs of trauma may have a different meaning in other societies. They claimed that Western 'medicalization' of problems destroyed resilience, social structures, local practices, and traditional healing mechanisms (Summerfield, 1999), (Bracken, 1993), (Bracken, 1995), (Patel, 2000). Watters stated that the Western approach for the treatment of survivors of violence minimized the reality of their story into a clinical context that ignored their cultural and political background. Further, he criticized the standardization of interventions (Watters, 2001). Therefore, the cited authors advised professionals that worked in other cultural backgrounds to use traditional medical concepts (Summerfield, 1999), (Bracken, 1993), (Bracken, 1995), (Patel, 2000). Yet there is no empirical evidence for these theories.

Researchers working with refugees and survivors of organized violence contradicted these theories. They referred to epidemiological and neurobiological studies that demonstrated the presence and treatment of trauma spectrum disorders in a variety of contexts and cultures (De Jong, 2005), (Bolton, 2001), (Karunakara, 2004), (Ertl, 2008), (Schauer, 2008). Dyregrov, Gupta, Gjestad, and Raundalen assumed that the denial of trauma was a mechanism to protect the international community from guilt and responsibility. They argued that individuals experienced PTSD symptoms as a universal biological response to trauma. The cultural context may only influence trauma and grief reactions. They also argued that no culture had healing or coping mechanisms for such extreme circumstances like the Rwandan genocide. They interpreted Western trauma concepts as a supplement to the cultural healing mechanisms, not as a substitute. Dyregrov et al. called on clinicians to integrate and adopt new helpful strategies. They asked practitioners to explain reactions following traumatic experiences, while maintaining that the affected society was free to interpret and understand the wider meaning according to their own cultural background. Furthermore, Dyregrov and colleagues emphasized that culture was not always morally right as numerous violent conflicts, female genital mutilation, and denial of sexual abuse sometimes were part of it (Dyregrov, 2002). Schauer and Schauer pointed out that from a humanitarian perspective, a call for non-interference was ethnically doubtful. They emphasized that modern progress, knowledge, and skills would be withheld from communities that were urgently in need of

assistance (Schauer, 2009). De Jong and collaborators also argued strongly in favor of the applicability of Western mental health programs. In resource-poor countries, the treatment of psychiatric patients mostly consists of hospitalization and drug treatment. Consequently, the *no intervention*-policy resulted in a purely psychiatric approach to mental health (De Jong, 2002).

Another controversial subject was the prioritization of mental health interventions in post-conflict situations (Ventevogel, 2006), (Raphael, 2006). For the meaningful rehabilitation of refugee populations and post-conflict societies, Summerfield, Fernando, and Maslow gave priority to social, occupational, and economic issues (Summerfield, 1999), (Fernando, 2004), (Maslow, 1943). Fernando claimed that as first step survivors had to meet their basic needs: shelter, sanitary facilities, and sufficient nutrition (Fernando, 2004). These statements were also not supported by empirical evidence.
In contrast, more recent findings showed the importance of psychological programs designed to enhance the sense of control for survivors of violence. Such interventions helped to reduce traumatic stress responses even when the socio-political circumstances associated with impunity remained unchanged (Basoglu, 2005), (Schauer, submitted for publication). Neuner et al. provided evidence that psychological interventions were helpful to reconstruct the life of traumatized refugees. In their mental health project, refugees in the treatment condition resettled significantly more often outside the camps than in the control condition (Neuner, 2008b). The international community increasingly recognized mental health issues as essential for the rehabilitation of refugees and post-war populations (Scherg, 2003).

A further point of contention was the question of individual versus community mental health programs. Individual treatment proved to reduce clinical symptoms. Community programs reconstructed social ties, socio-economic infrastructure, and primary health care infrastructure, and thus helped the recovery of civil society (Neugebauer, 1997). The *Inter-Agency Standing Committee Task Force on Mental Health and Psychosocial Support in Emergency Settings* recently emphasized an integration of these two complementary approaches (Inter-Agency Standing Committee Task Force on mental health and psychosocial support in emergency settings, 2007). *Doctors Without Borders* also supports a joint approach of individual care and community support as mental health problems often affect an entire

community. The *psycho* component provides support on an individual level to reduce the psychological consequences of violence. The *socio* element creates the environment to facilitate the reintegration of victims into the community (Medecins Sans Frontieres, 2005). In consequence, authors and aid organizations called for psychosocial interventions including psychiatric and counseling components, as well as community education, practical support, community mobilization, and advocacy (Medecins Sans Frontieres, 2005), (De Jong, 2007).

4.2.3. Implemented psychosocial intervention programs

Experiences of psychosocial programs from different emergencies confirmed a general acceptance by affected communities (Prewitt Diaz, 2006), (Inter-Agency Standing Committee Task Force on mental health and psychosocial support in emergency settings, 2007). But international organizations mainly implemented unspecific and ad-hoc developed community-based interventions such as playgroups, art therapy, or stabilization (Weine, 2002), (Scherg, 2003). Counseling projects in war-affected societies comprised problem-solving procedures, psycho-education, group discussions, and individual assistance. In most programs, psychosocial intervention did not follow any standardized protocol, which made an evaluation impossible (Neuner, 2007). Consequently, little knowledge about the effect of counseling in post-conflict settings exists. This underlines the need for the development of effective and evidence-based interventions as numerous researchers call for (e.g., Minas (2009), Mollica (2004), Patel (2000), Neuner (2007), Schauer (2009)). They criticize implemented intervention programs for their lack of planning, conclusive methods, outcome evaluations, expertise, and sustainability (Weine, 2002), (Scherg, 2003), (Murthy, 2007), (Neuner, 2007). Despite poor methodology and limited validity, I present some psychosocial projects in resource-poor or post-conflict societies from the literature to map the range of existing programs.

Psychosocial programs without evaluation

In the Kenyan refugee camp Kakuma, the United Nations (UN) refugee agency UNHCR founded 1997 a mental health center under the direction of an experienced psychiatric nurse. One per cent of the 90.000 refugees from Sudan, Somalia, and Ethiopia attended the established community mental health service per year, with an increase in referrals over three

years. The community accepted and appreciated the center, indicating the feasibility of a community mental health service in refugee camps in low-income countries (Kamau, 2004).
Leskes et al. offered psychosocial interventions that targeted female victims of war-related and sexual violence in Liberia. Authors did not define inclusion criteria for the study. They provided participants with counseling or skills training. After counseling some participants were additionally recommended for skills training. They concluded from qualitative interviews that there was a positive effect in both intervention groups. The authors tried to conduct a program evaluation with the HTQ but the response rate was only 50%. Results indicated that PTSD symptoms of the counseling group improved at follow-up but participants reported many socioeconomic problems that continued to cause severe distress (Leskes, 2007).
Stark examined traditional cleansing during the reintegration of formally abducted girls in Sierra Leone. She used a selective community sample, intervened with a conglomeration of physical, social, spiritual, and economic programs, and presented self-reports with translators from within the community, but did not use a control group. On this basis, Stark deduced the efficiency of traditional psychosocial methods (Stark, 2006).

Van de Weem-de Jong described a training program for traumatized refugees in the Netherlands. They reinforced self-observation to prevent flashbacks and cognitive skills for better coping. They included interventions such as breathing exercises, muscle relaxation, and behavioral components better to deal with daily PTSD symptoms (Van de Weem-deJong, 2004). Van der Velden and Koops described a program for victims of war in the Netherlands. Their eight months therapy program included open groups for task-orientation, psychomotor therapy, social skill training, and the combination of story telling and art therapy (Van der Velden, 2005).
Medeiros implemented therapeutic means for the rehabilitation of former child soldiers in Sierra Leone and Liberia. She used drama, interviews, and outreach, as well as community groups of traditional women and healers (Medeiros, 2007).
Cox et al. treated war-exposed Bosnian youth in semi-structured focus groups. They offered psycho-education, skill building for mood regulation and coping, trauma and grief processing. Overall, teachers and students responded positively to the intervention. The participants reported an improvement in coping skills, interpersonal relationships, and attitudes as well as

a willingness to advocate for peers. Problems were the felt stigmatization of the participants included in the project (Cox, 2007).
Saltzman et al. developed the *UCLA Trauma Psychiatry Program* to implement in school-based trauma and grief focused group psychotherapy. This program consisted of 16 to 20 weekly sessions including psycho-education, anxiety management skills, trauma narrative construction, exposure, grief work, and the resumption of developmental progression. They implemented the program in Armenia, Bosnia-Herzegovina, and Southern California. Anecdotal reports showed a positive effect (Saltzman, 2001).

In the Democratic Republic of the Congo (DRC), the NGO Medair noted false beliefs and misunderstanding about psychological problems, as well as the isolation of many trauma patients. They consequently organized a sensitization campaign about trauma. They evaluated the knowledge of the population two weeks before and after the intervention and found a significant knowledge increase concerning PTSD symptoms, advice, and the general knowledge about traumatic stress including for illiterate participants from rural areas. They concluded that psycho-education was very helpful for the broad population but highlighted the need for specialized mental health care for those severely affected (Joosse, 2007).
Hamdani implemented a psycho-education program about mental health problems in Kashmir. She aimed to help people to understand their problems, discuss them with other people, and transmit coping strategies such as muscle relaxation exercises, reinforcing good communication in the family, and activation. People received the program very well (Hamdani, 2003).

Psychosocial programs with outcome evaluation

Scientific evaluation of the methods mentioned above such as stabilization and general interventions, found no effect on PTSD and co-morbid symptomatology (Neuner, in press), (Foa, 2000). In post-conflict contexts, Neuner and collaborators examined general approaches for adult traumatized refugees. They found no stable effect of general counseling over time (Neuner, 2004b), (Neuner, 2007).
War Child Holland evaluated creative play (CP) for war-affected youth using standardized cultural measures. They developed the intervention under the premise that verbal and nonverbal expression of thoughts and feelings through creative activities (songs, art, music,

sports, etc.) strengthened the young people's resilience. In a four-months intervention with depressed youth in Northern Uganda, CP was not superior to a passive WL control group in reducing depression and anxiety symptoms (Bolton, 2007).

Thabet, Vostanis, and Karim evaluated a general group crisis intervention for children during the ongoing war in Gaza. They allocated children (9 to 15 years) with moderate to severe posttraumatic stress reactions into an intervention, psycho-education, or passive control group. In the intervention group, they conducted seven sessions with discussions, drawing, writing, storytelling, games, and role-plays related to the conflict. Thabet et al. used standardized measures for PTSD and depression and did not find any improvement of the mental health problems. Thus, this study did not confirm the hypothesis of positive outcomes of general interventions (Thabet, 2005).

4.3. Psychotherapy of trauma-spectrum disorders in refugee populations and resource-poor post-conflict societies

Authors found CBT, including exposure-based interventions, to be effective in reducing PTSD symptoms in a variety of trauma populations and thus described it as the treatment of choice for PTSD (Foa, 1999), (Foa, 1991), (Tarrier, 1999), (Foa, 2005).

I give a short overview about studies in refugee and post-conflict populations. I include research about NET and IPT in some detail. Complete summaries and treatment manuals can be found in (Schauer, 2005), (Neuner, 2008a), (Mueller, 2009), (Klerman, 1984), (Schramm, 1998), (Huchzermeier, 2002), (vivo, 2008), and (Clougherty, 2002). Researchers demonstrated these empirically based approaches to be effective interventions in post-conflict situations. Additionally, working groups around Neuner and Bolton demonstrated the feasibility of dissemination to local health personnel (Neuner, 2008b), (Onyut, 2004), (Bolton, 2003).

4.3.1. Cognitive-Behavioral Therapy

Paunovic and Öst compared a variety of CBT techniques to PE in 16 outpatient refugees who suffered from PTSD due to torture, combat, murder, assaults, accidents, or sexual assault. They conducted individual treatment in 16 to 20 weekly sessions. Both treatments resulted in large improvements on PTSD, generalized anxiety, depression, and quality of life. CBT and

PE were equally effective, with a reduction success of 48% and 53% on PTSD, 49% and 50% on generalized anxiety, and 54% and 57% on depression symptoms, respectively. Among CBT participants, the Clinician-Administered PTSD Scale for DSM-IV (CAPS) score declined from 95.1 (25.7) to 52.9 (28.2) with an ES of 1.56. In the PE participants, CAPS scores decreased from 98.4 (SD = 14.2) to 50.5 (SD = 23.4) at a six-month follow-up test (ES = 2.47) (Paunovic, 2001).

In a randomized controlled trial of CBT with Cambodian refugees, Hinton et al. administered a 12-session treatment that combined psycho-education, AMT, CR, exposure, and cognitive flexibility techniques. They recruited participants in a community-based outpatient clinic and randomly assigned them to WL or CBT. The WL participants received treatment in a second phase of the study. CBT treatment focusing on trauma-spectrum disorders was effective as patients improved on the measures of PTSD, anxiety, and depression. From pre- to three-month post-test, CAPS scores declined from 74.85 (SD = 14.67) to 44.59 (SD = 14.58) in the first treatment group (ES = 2.07), and from 75.91 (SD = 11.5) to 43.56 (SD = 10.22) in the second group (ES = 2.97) (Hinton, 2005).

Otto et al. conducted a pilot study to compare the effect of seratralin (a selective serotonin re-uptake inhibitor which is used as anti-depressant but also as PTSD medication) combined with ten sessions of CBT (psycho-education, PE, and CR) to the effect of seratralin alone among Cambodian refugees who suffered from PTSD. The combined treatment offered an additional large ES for PTSD and a medium ES for associated anxiety symptoms (Otto, 2003).

In a study with depressed outpatients in Mexico, Lopez Rodriguez et al. administered an eclectic psychotherapy approach on a weekly basis over three months. The treatment condition was compared to the effect of anti-depressive medication only, a combination of medication and therapy, and a placebo. All interventions except the placebo equally reduced depressive symptoms at a significant level (Lopez Rodriguez, 2004).

Conclusively, it is important to emphasize that war, assault, organized violence, and disaster were prevalent and often resulted in mental health problems in survivors. Trauma-spectrum disorders are debilitating conditions that affect individuals, families, communities, and entire nations. Victims may ultimately become perpetrators and contribute to a cycle of violence (Keane, 2006). The researchers demonstrated that modified CBT modules resulted in

substantial gains for refugees (Otto, 2003). Achieved values were comparable to CBT programs in non-refugee populations. Therefore, the presented studies supported the applicability of CBT for PTSD treatment in other cultural groups (Hinton, 2005), (Paunovic, 2001) and a high level of continuing stress (Gillespie, 2002). Empirical studies consistently disproved risks and concerns about the confrontation with traumatic experiences (Van Etten, 1998), (Cahill, 2006), (Blanchard, 2003).

Thus, clinicians should give priority to adequate and highly effective CBT elements for the treatment of trauma survivors (Keane, 2006).

4.3.2. Testimony Therapy

In post-conflict contexts with a severely affected population, Cienfuegos and Monelli developed Testimony Therapy (TT) to deal with all traumatic experiences in a psychosocial and a political context (Cienfuegos, 1983). TT constructs a detailed and coherent report of a survivor's biography including the explicit description of all traumatic experiences. The written testimony can be used for documentary and political purposes (Neuner, 2002). Narrating one's story can be seen as catharsis, re-establishing a connection with other persons contrasting the loneliness and isolation during and after the traumatic experience, and reconnection with their political commitment. Testifying one's experience in a safe and holding environment addresses the fragmentation caused by the traumatization. Behavioral approaches explain the mechanism of TT as habituation to repeatedly exposed memories. The patient learns to resolve inadequate cognition and that he can tolerate memories leading to less avoidance (Van Dijk, 2003). The narration can help the victim to gain a new understanding and identity to support peace and social trust (Weine, 1998). The historical and political context further helps to better understand the past. The signature of the written testimony is a ritual to close the therapy and the life-chapter associated with the trauma. The method offers a structured way to tell one's complete life story, and is feasible with people who have little education (Van Dijk, 2003).

In 1983, Cienfuegos and Monelli administered TT to help victims of political persecution in Chile. They found TT to be an effective therapeutic instrument with psychiatric patients (N = 39). Especially those who experienced persecution, torture, and imprisonment profited from the therapy. No participant refused to give his testimony (Cienfuegos, 1983).

Igreja et al. evaluated TT with Mozambican civil war survivors. They compared a survivor group with PTSD symptoms who received one session of TT (N = 66) to a WL group (N = 71) and to a non-PTSD group (N = 69). Post-test and 11 months follow-up demonstrated a significant HTQ symptom reduction in both PTSD groups. The authors explained the improvement with a domino effect: although the intervention focused on the individual, it may have influenced the whole community (Igreja, 2004).
Weine and colleagues administered TT to refugees from Bosnia-Herzegovina (N = 20). After four to eight sessions (90 minutes each), PTSD, depression, and functional impairment decreased at a significant level. Only 53% of participants fulfilled the PTSD diagnosis at a six-month follow-up test. All participants completed TT (Weine, 1998).

These researchers proved TT to be an effective treatment for PTSD, especially in the context of political violence (Igreja, 2004), (Cienfuegos, 1983). Igreja emphasized the implementation of TT also in poor African populations. Like any other community, they deserved programs of psychiatric interventions based on sound evidence of effectiveness and feasibility, tested in each cultural context (Igreja, 2004).

4.3.3. Narrative Exposure Therapy

Neuner, Schauer, and Elbert developed NET as a standardized short-term approach (Schauer, 2005). NET represents a combination of TT (Cienfuegos, 1983), (Weine, 1998), CBT (Ehlers, 2005), and classical exposure therapy (Foa, 1992) based on neuro-scientific findings. Neuner et al. designed NET to meet the needs of traumatized survivors of war and torture with multiple and complex traumata. The patient narrates his whole life from birth to present. The therapist focuses on a repeated and detailed report of all experienced traumatic life events in chronological order, while he re-activates all associated emotions. The clinician writes down the client’s past and together they correct the report in the subsequent sessions. In this process, patients restructure their fear network and habituate their emotional responses to the traumatic memory. Moreover, the consistent narration helps to reconstruct the distorted explicit autobiographic memory of traumatic events. In the final session, all persons involved in the therapy ritually sign the narration, which is then handed over to the client (Schauer, 2005). NET repeatedly includes a strong trauma educational component (Neuner, 2002). The procedure is applicable in all cultures, as traditional story telling is used around the world.

NET is culturally sensitive as every survivor tells his own story, in his own fashion, and with his own cultural expressions (Schauer, 2009).

At the time of writing, the working group had published a training manual of NET (Schauer, 2005), two case reports (Neuner, 2002), (Schauer, 2004), an uncontrolled study with refugees in Uganda (Onyut, 2005a), two randomized controlled trials in Uganda (Neuner, 2004b), (Ertl, 2008), one in Romania (Bichescu, 2007), two with refugees in Germany (Hensel-Dittmann, 2007), (Ruf, 2008), one in Sri Lanka (Schauer, submitted for publication), and one in Rwanda (Schaal, 2009). Overall, the researchers showed NET to be an effective method in the treatment of war- and torture related mental health problems for children, adolescents, and adults. In the different studies, the ES of NET on PTSD symptomatology varied between 1.1 (Hensel-Dittmann, 2007) and 3.15 (Bichescu, 2007). These results were comparable to other highly effective CBT treatments for PTSD (Bisson, 2007), (Cloitre, 2009). In the following section, I present the expert conducted trials. The NET dissemination trials are summarized in chapter 4.4.4.

Onyut et al. conducted an uncontrolled pilot-trial with eight NET participants in an Ugandan refugee camp. They found a statistically significant reduction in symptoms over time (CIDI). All participants completed treatment. Nine months later, six patients no longer met the PTSD criteria. Depression also declined over time. No patient fulfilled the MD diagnosis at post-test or at nine-month follow-up. The pilot study therefore suggested the effectiveness and feasibility of NET even in an unsafe situation (Onyut, 2005a).

Bichescu and colleagues evaluated NET with chronic PTSD and depression related to political imprisonment in Romania (N = 18). They compared five sessions of NET to one session of psycho-education. Six months after treatment, NET participants experienced a significant reduction in PTSD symptoms (CIDI, ES = 3.15) and depression scores (BDI, ES = .97). In the psycho-education group, the PTSD and depression symptoms improved with an ES of .31 and .21 respectively. At a six-month post-test 44% of NET and 89% of psycho-education participants still met PTSD criteria. Authors concluded that sustained and empathic attention already produced some relief in the psycho-education group, but that spontaneous recovery from chronic PTSD was unlikely (Bichescu, 2007).

Hensel-Dittmann et al. conducted a randomized controlled study with refugees living in Germany (N = 28). They compared NET to SIT in 10 individual sessions at an outpatient

clinic. Authors reported a statistically significant PTSD symptom reduction from pre-test to six-month follow-up in NET (ES = 1.43) and SIT (ES = .12) participants. Depressive symptoms reduced at a non-significant level in both interventions. The dropout rate was 17.9% (Hensel-Dittmann, 2007).

Among Rwandan orphans that survived the genocide (N = 27), Schaal and collaborators evaluated the efficacy of NET for trauma-spectrum disorders. They offered four sessions of individual NET (including the IPT grief module in the last session) to four sessions of group IPT. At a three-month post-test, they found a significant reduction of PTSD and depression symptoms in both therapy groups. Fifty-eight per cent of NET participants fulfilled PTSD criteria at three-month post-test and 25% at six-month follow-up. Depression and guilt scores also declined among the NET participants. Sixty-seven per cent of the respondents fulfilled a MD diagnosis at pre-test. At a three-month post-test, the interviewers found the diagnosis in 50% and after six months in 16.7% of the genocide survivors. All participants completed treatment. Authors concluded that even a small number of NET sessions in combination with the IPT grief module led to a significant reduction in trauma-spectrum disorders (Schaal, 2009).

Ruf et al. demonstrated feasibility and effectiveness of NET for refugee children in Germany (N = 26). They compared eight sessions of NET to a passive WL. From pre-test to six-month follow-up PTSD symptoms reduced at a statistically significant level with an ES of 1.5. Only one child did not complete the treatment (Ruf, 2008).

4.3.4. Interpersonal Therapy

IPT is an eclectic approach that combines effective treatment elements in a structured and pragmatic manual (Huchzermeier, 2002). It is a short-term approach for the treatment of depressed outpatients (Klerman, 1984). Interpersonal therapists claim that life events after early childhood influence subsequent psychopathology. Based on the vulnerability stress model, they note the emergence of depressive symptoms in relation to current social and interpersonal problems. Consequently, depression is the failure of adaptation to psychosocial stress due to insufficient coping competence (Huchzermeier, 2002). The therapist takes an active role during the treatment and focuses on the interactions of the individual with the environment. He defines depression as a medical illness, and a common but treatable condition that is not the patient’s fault. Even though the etiology of depression is assumed to

be complex and multi-factorial, the clinician can use the connection between current life events and the onset of depressive symptoms as an organizing framework for a better understanding of the illness in order to overcome it. He uses depression-specific knowledge for therapeutic focusing, integrating the psychotherapeutic principles of problem actualization, active guidance for problem-solving, motivational clarification, and resource activation. After a thorough diagnosis, psycho-education, and symptom management, the therapist conducts a relation inventory. At the beginning of the therapy, he connects the depressive symptoms to life events. Patient and therapist associate the current problems with one of four interpersonal problem areas: complicated bereavement (grief), role disputes, role transitions, and interpersonal deficits. In the grief-focused intervention, the grieving process facilitates and helps the patient to re-establish new interests. For the role disputes, the clinician explores relationships and relevant disputes. For role transitions, the therapist supports mourning for the old and management of the new role. He treats interpersonal deficits with the development of new relationships and interpersonal skills. Finally, the therapist reinforces the patient’s independence, competence, and self-esteem (Klerman, 1984), (Huchzermeier, 2002), (Schramm, 1998), (Hollon, 2002).

Reviewers demonstrated the efficiency of IPT in numerous studies with individual settings for the treatment of MD, by itself, and as a component of combined treatments (Hollon, 2002), (Wong, 2001). IPT was effective in depressed patients with postpartum MD, sexual abuse history, recent bereavement (Prigerson, 1996b), (Shear, 2005), and depressed elders and adolescents. In a systematic review on the efficacy of IPT for depression, de Mello and colleagues found IPT to be superior to placebo drugs and to be similar to medication in reducing depressive symptoms (De Mello, 2005). For adolescents, David-Feron and Kaslow judged IPT to be a well-established and promising intervention approach for the effective treatment of depression according to the guidelines of the *Task Force on the Promotion and Dissemination of Psychological Procedures* (David-Ferdon, 2008).

Further, authors demonstrated the success of IPT for the treatment of primary insomnia, PTSD, binge eating disorder, bulimia nervosa, and dysthymia in combination with drug therapy (Huchzermeier, 2002), (Bolton, 2003). Also in group interventions IPT had positive effects for participants with social phobia and depressed HIV patients (Huchzermeier, 2002). But Krupnick et al., however reported a low attrition rate and big challenge to organize the groups. They offered IPT to low-income women that suffered from PTSD. The authors

conducted 16 two-hour IPT sessions with 24 women. Overall, they observed a symptom decrease over time across all groups with a greater improvement for IPT participants. The CAPS score improved from pre- to four months post-test in the IPT group by an ES of 1.28 and in the passive control group by an ES of 1.09. Six IPT (23%) and five WL (50%) participants still met PTSD criteria. The study also found significant changes for depression scores at termination. At follow-up, 10 IPT (38%) and seven control (70%) participants met MD criteria (Krupnick, 2008).

In an African context, Schaal and collaborators evaluated the efficacy of IPT for trauma-spectrum disorders. They offered group IPT (four sessions) to Rwandan orphans suffering from PTSD. At three and six-month post-tests, 71.4% of the IPT participants still fulfilled the PTSD criteria. Their MD diagnosis significantly decreased from 92.9% at pre- to 50% at post-test and follow-up. Schaal, Elbert, and Neuner concluded that even a small number of psychotherapy sessions reduced trauma-spectrum disorders at a statistically significant level (Schaal, 2009). For the treatment of depression in Uganda, Bolton and colleagues evaluated IPT in dissemination trials, which I present in chapter 4.4.5. (Bolton, 2003), (Bolton, 2007).

4.4. Dissemination

Cucciare defined dissemination as the process of an agency or investigator to distribute information to the public (Cucciare, 2008). In clinical practice this means the act of scattering information or enhancement of the utilization of evidence-based practice (EBP) (Cucciare, 2008), (Addis, 2002). In mental health care, EBP refers to those treatments that integrate the best available research with clinical expertise in the context of patient characteristics, culture, and preferences (APA Presidential Task Force on Evidence-Based Practices, 2006).

Several clinical researchers have developed and evaluated EBP for individuals with chronic mental health problems as a result of trauma (e.g., Bradley (2005), Weathers (2001)). But the establishment of EBP is only the first step. Researchers then have to find the best methods for the dissemination and implementation of these treatments in care settings to increase the benefits to the public (Cohen, 2008), (Zoellner, 2006), (Crits-Christoph, 1996), (Wilson, 1997).

Despite the publication of EBP guidelines and the great advantage of dissemination, the transfer rate of innovative treatments from research clinics to community practice is very slow

(Wiltsey Striman, 2004), (Wilson, 1997), (Becker, 2004), (Persons, 1997), (Frueh, 2009), (Barlow, 1999). A gap remains between research and practice (Friedberg, 2009), (Backer, 2003). Only recently have authors begun to explore the broader effectiveness and feasibility of EBP dissemination in wider contexts beyond well-controlled randomized trials in Western countries (Zoellner, 2006).

4.4.1. Models of dissemination

Rogers presented the most influential dissemination model (Rogers, 2002), (Wiltsey Striman, 2004). He described the diffusion theory as the decision process to adopt therapeutic innovation and key factors for dissemination. As first factor he defined *perceived advantage*. Did the EBP improve treatment outcomes and enhanced recipient's satisfaction? As second factor, Rogers named the *consistency or compatibility with existing procedures.* The less accommodation clinicians needed for the integration into the existing practice, the more they accepted the innovation. Third, Rogers described the *innovation complexity* as crucial. Therapists more readily accommodated simple alterations in extant procedures. Fourth, he described a better acceptance of *gradual implementation* in small steps and stages. Finally, an *observable presence* of the innovation increased adoption by therapist. Thus, peer communication easily spread EBP (Rogers, 2002).

Other dissemination models like the social marketing model and the community organization model based on Rogers' model and have not yet been applied the dissemination of psychotherapy (Wiltsey Striman, 2004). All researchers emphasized the importance of intensive planning and preparation, interpersonal contact, ongoing support, evaluation of effectiveness, and careful maintenance or follow-up (Wiltsey Striman, 2004), (Backer, 2003), (Addis, 2002), (Durlak, 2008), (Fixsen, 1993), (Martin, 1998), (Backer, 2000), (Backer, 1986), (Frueh, 2009).

Ruzek and Rosen presented a model considering four major sets of variables relevant for trauma treatment dissemination (Ruzek, 2009). First, authors described *practitioner factors* as crucial. These consisted of the appraisal (need for a given practice, benefits of the intervention, and practitioner self-efficacy) and skill competence, and consequently the readiness to adopt a particular change in practice (Ruzek, 2009). Gray, Elhai, and Schmidt (2007) asked psychotherapists specialized on traumatic stress about their attitudes. Of the

respondents, 15 to 20% expressed negative opinions about EBP. As major barriers, the practitioners noted the access to training (lack of time and finance) and the generalization of research findings to their specific client populations (Gray, 2007).

Second, they named *innovation factors* – the perceived attributes of assessment and treatment practices – as a relevant factor (Ruzek, 2009). Najavits investigated clinicians' preference for interventions focused on the present (coping skills) versus those focused on the past (exposure). In a convenience sample of participants in a mental health workshop, they found a strong preference for present-focused interventions (Najavits, 2006). Devilly and Huther tried to study the perception of trauma interventions from a patient perspective in an analog study. Undergraduate students received a written description of treatment of PTSD following sexual abuse and rated the level of treatment distress. Participants rated exposure treatment consistently more distressing than cognitive processing therapy (Devilly, 2008). Zoellner, Feeny, Cochran, and Pruitt (2003) similarly presented a trauma scenario and consequent PTSD symptoms to female undergraduate students. They asked participants for their treatment choice and offered two effective PTSD interventions (PE or medication) or no treatment. Results indicated that participants clearly preferred PE (87%) to medication (7%) and no treatment (6%). As reasons, the women named the effectiveness of CBT treatment and the risk of side-effects from medication (Zoellner, 2003). Becker, Darius, and Schaumberg also investigated patient preferences. In an analog study with undergraduate students, participants imagined the experience of a traumatic incident, the development of PTSD, and how to seek treatment. Participants read seven different treatment descriptions and rated the preferred intervention. Most students chose exposure therapy (50.6%), followed by CBT (21.9%), other psychological treatment (15.6%), and medication (8.8%). Becker and colleagues thus argued that a patient's acceptance would be high and that therapist factors consequently had to be responsible for the under-utilization of EBP (Becker, 2007).

Third, Ruzek and Rosen identified *organization or system factors* to be important (Ruzek, 2009). Authors presented different strategies for the dissemination of psychotherapy in Western contexts, such as web-based learning, training and ongoing consultation models, as well as collaborative learning models (Cohen, 2008). Empirical evaluations have been pending (Cohen, 2008), (Grimshaw, 2006), but first reports seemed promising (National Crime Victims Research & Treatment Center, 2007). Cook et al. demonstrated the efficacy of an initial day training to clinicians and a co-therapist group practice model to follow-up. In

the pilot phase, the practitioners treated 18 veterans with manualized CBT. The authors found a statistically significant PTSD symptom reduction among patients and a general acceptance of the clinicians (Cook, 2006).

As a fourth factor, the authors included the mode of dissemination, or *training factors* (Ruzek, 2009). Reviews found that passive dissemination of educational materials was ineffective (Grimshaw, 2006). In contrast, reminders and educational outreach were largely effective (Gray, 2007). These findings were coherent with a study of Sholomskas and colleagues. They disseminated CBT to 78 community-based clinicians under three training conditions: review of a CBT manual, review of the manual plus access to a CBT training website, or review of the manual plus didactic seminar followed by supervised casework. After dissemination, clinicians from the training and supervision group demonstrated better CBT interventions in structured role-plays than therapists from the other conditions (Sholomskas, 2005). Furthermore, Crits-Christoph reported good therapist adherence and general skill improvement after a training with treatment manuals and supervision. Only 4% of the outcome variance was due to therapist differences (Crits-Christoph, 1996). Clinicians rated expert demonstrations as the most helpful and lectures as the least useful EBP training techniques (Cahill, 2006). Amsel et al. reported similar training preferences of practitioners. They rated demonstrations superior in changing beliefs compared to lectures and more successful for skill acquisition than role-play (Amsel, 2005). Other researchers emphasized the use of multiple methods and approaches to illustrate a set of skills (blended learning) (Cucciare, 2008), (Frueh, 2009). In a meta-analysis, Grol and Grimshaw found education with active participation such as discussion, peer performance feedback, and group planning to be successful (Grol, 2003). Durlak and DuPre further identified shared decision-making, encouragement of local involvement, and participation in dissemination to be associated with better and more sustained implementation (Durlak, 2008). Backer et al. noted that counselors judged an innovation more relevant when they discussed it, saw empirical support and demonstrations, and had concrete plans for adaption (Backer, 1986), (Backer, 2000). In summary, effective dissemination should include a training curricula with diverse methods and corresponding training materials, increase the use of demonstrations, and actively involve the participants (Cahill, 2006), (Amsel, 2005), (Cucciare, 2008), (Backer, 1986), (Frueh, 2009).

Dissemination research and practice are complex and require attention to a wide range of influence factors (Backer, 2003). Yet, to provide EBP for trauma treatment in a cost-effective manner is the ultimate goal of implementation efforts and should be a high priority in mental health (Ruzek, 2009).

4.4.2. Dissemination trials including training of manualized therapy and ongoing supervision for trauma-spectrum disorders

A pressing challenge today is the dissemination of EBP to mental health clinicians that provide service for trauma survivors (Ruzek, 2009). In this section, I give an overview of dissemination trials that used a workshop plus ongoing supervision and focused on EBP for trauma-spectrum disorders.

Schnurr and Friedman disseminated PE for the treatment of female veterans in the US. They randomly assigned 284 PTSD patients across 12 sites to PE or person-centered individual psychotherapy. The standard protocol consisted of 10 weekly 90-minute sessions. In both treatment groups, therapists effectively reduced PTSD, depression, and anxiety symptoms. Life quality improved only among PE participants. In the post-treatment assessment, 41% of the PE participants no longer met PTSD criteria. The CAPS score decreased in PE compared to person-centered treatment with an ES of .80. Effects were stable over time. The dropout rate was 38% in the PE group (Schnurr, 2005).

Similarly, Gillespie and colleagues adapted positive CBT findings to a general clinical setting. The CBT specialists provided a two-day CBT training and ongoing supervision to mental health staff that had previously had modest CBT skills. As patients, they included 91 survivors of the Omagh car bombing in Northern Ireland that suffered from PTSD. On average, therapy included eight treatment sessions. The authors found a highly significant and substantial improvement of PTSD symptoms with an ES of 2.47 (PDS) from pre- to post-treatment with a dropout rate of 14% (Gillespie, 2002).

Foa et al. conducted a randomized controlled trial with female assault survivors (N = 171, rape, non-sexual assault, or childhood sexual abuse) who suffered from chronic PTSD. They trained and supervised therapists at a community clinic for rape survivors. Foa and colleagues compared the treatment success of the disseminated group to the treatment success in their academic center. In both settings, they assigned participants to PE, PE/CR, or WL. Both treatment institutions were equally effective. After treatment in PE and PE/CR, participants suffered significantly less from PTSD and depression compared to the WL. ESs for PTSD

symptom reduction from pre- to post-treatment ranged from .86 for WL, 2.39 for PE/CR, to 3.31 for PE participants. Thirty-two per cent of the participants dropped out of the study (Foa, 2005).

Levitt and colleagues implemented EBP in a community mental health setting. They wanted to examine whether manualized trauma-focused treatments were effective in treating the deleterious mental health effects stemming from exposure to mass violence. The authors conducted a treatment effectiveness cohort study of manualized CBT for PTSD symptoms in survivors of the September 11, 2001 terrorist attack. Among therapists, the level of CBT training and experience ranged from none to extensive. Levitt et al. minimally trained 10 community-based counselors. All clinicians received weekly group supervision. Treatment delivery ranged from 12 to 25 sessions. Therapists tailored treatment and session content to the need of each patient. Treatment was effective with an ES on PTSD of 1.79 for the treatment completer sample and of 1.12 for the intent to treat sample. Depressive symptoms reduced with an ES of 1.23 in the completer and .73 in the intent to treat participants. The dropout rate was 19% (Levitt, 2007).

Equally, Kitchiner, Phillips, Robers, and Bisson briefly trained and supervised a group of mental health professionals to increase CBT for PTSD treatment. The clinicians treated eleven PTSD patients during a pilot phase. Depression and PTSD scores dropped significantly between pre- and post-test. None of the treatment completer continued to meet PTSD criteria after the treatment (Kitchiner, 2007).

For the treatment of traumatized children after the September 11, 2001 terrorist attack, the New York State Office of Mental Health successfully implemented a dissemination project. After an initial training with CBT, Cohen et al. provided ongoing consultation to the therapists. They secured support for the implementation of the new treatment and adopted the model to the specific settings, patients, and organizational structure of mental health. In total, 173 therapists worked in diverse community settings and treated 589 children with CBT or enhanced services for trauma-spectrum problems. Practitioners assigned children to a treatment group or administered individual treatment according to their symptomatology. The PTSD symptoms significantly declined among participants in both interventions. Thus, therapists were able to assign children to an appropriate treatment and treat them successfully. Dropout rates were low (Cohen, 2008).

Researchers judged exposure approaches for the treatment of PTSD simple to implement and disseminate to inexperienced individuals with good basic treatment skills (Gillespie, 2002), (Foa, 2005), (Foa, 1997). Thus, the dissemination appeared to have the potential to offer a clinically and cost-effective model of maximizing treatment availability for PTSD (Kitchiner, 2007). Therapist groups who had been trained achieved similar rates of recovery of PTSD patients to those treated by the traumatic stress specialists (Kitchiner, 2007), (Foa, 2005). Furthermore, briefly trained practitioners successfully administered treatment in a clinical context with non-selective samples. This showed the transfer of positive research findings to practitioners across a range of clinical settings (Schnurr, 2005), (Gillespie, 2002). Nevertheless, authors emphasized that ongoing support and supervision by experts may have been crucial (Foa, 2005), (Chu, 2008).

Despite the comparable success of different trauma-focus CBT techniques, Paunovic et al. stated that exposure therapy should be given priority in the treatment of PTSD. He argued that it was easier to learn and required less time to achieve similar effects as other CBT modules, even for inexperienced therapists (Paunovic, 2001).

4.4.3. Dissemination in intervention programs in resource-poor post-conflict societies for trauma-spectrum disorders

While the prevalence of mental health problems in post-conflict societies is high (e.g., De Jong (2000), Karunakara (2004)), little has been known about the planning and implementation of psychiatric services to cope with the consequences of organized violence (Henderson, 2005). The large number of traumatized victims and limited monetary resources required broad-scale treatment programs that were easy to disseminate. The *Guidelines of Primary Healthcare Providers for trauma-exposed population in conflict-affected countries* emphasized the need of scientific and clinical knowledge to implement effective and sustainable interventions (Eisenman, 2006). Furthermore, authors pointed out the need to transfer this knowledge to national staff that was able to act as cross-cultural translators and negotiators (Henderson, 2005), (De Jong, 2007). The implementation of intervention programs for refugees and war-affected populations required a longer-term commitment to local involvement. Training needed regular and systematic coaching on the job and case supervision (De Jong, 2007). Van der Veer described experiences of dissemination programs in areas of armed conflict. As war destroyed an entire society, he frequently observed a lack of

trust and a climate of suspicion. Consequently, he emphasized the need for straightforward communication, transparency, and involvement of local mental health staff. He noted that projects had to include concise, short-term, and practice-oriented training immediately followed by structured and supervised practice. Van der Veer pointed out the authoritarian learning style in many resource-poor countries that hindered independent thinking and problem-solving skills. Thus, he called on trainers to use a challenging and activating training style to support autonomy. Furthermore, he pronounced the need to support trainees' own traumatic experiences (Van der Veer, 2003).

Similarly to psychosocial programs in resource-poor and post-conflict societies, implemented dissemination programs were mostly general and anecdotal. Despite the methodological problems, I present a literature review.

Dissemination programs without outcome evaluation

Kieft and collaborators implemented a paraprofessional counseling system in the Netherlands. Over six months, they trained peer asylum seekers in basic counseling skills, practical placements, and extensive role-plays. Further, they provided long-term clinical supervision and emphasized cultural sensitivity. Despite the lack of a structural impact evaluation, the authors concluded that their approach was useful. The well-being of the beneficiaries and the counselors themselves improved subjectively (Kieft, 2008).

Uitterhaegen reported on a network of psycho-education, psychosocial support, and empowerment in the Netherlands. They trained refugees to run groups of peers. The aim was to increase awareness of self-help strategies, to prevent problem worsening, to enhance emotional control, and to set realistic life goals. The intervention was based on a cognitive framework and contained social support and physical relaxation exercises. The participants appreciated this approach (Uitterhaegen, 2005).

De Jong, Kleber, and Puratic evaluated a mental health program in Bosnia-Herzegovina. Over three months, they trained local counselors with case presentations, counseling techniques, and supervision. They focused on culturally appropriate support with a focus on individual responsibility, coping with extreme stress, and protective factors. Afterwards, the trainees conducted psycho-education about traumatic stress in vulnerable groups and the general public. Further they offered outreach for victims, crisis intervention, and treatment of trauma-related disorders (De Jong, 2002).

Staub and colleagues implemented a theory-based intervention in Rwanda to promote healing and reconciliation. They trained facilitators working in local organizations in psycho-education and empathic support. The aim was to understand the effects of trauma and victimization to normalize the experience of traumatic stress. From pre- to two months post-tests, Staub found a decrease in trauma symptoms (HTQ) and a more positive orientation of the participants towards members of other groups (Staub, 2005).

In a training with refugees from Iraq in Jordan, Salem-Pickartz trained 49 peer counselors for CARE International over three months. This was understood as a process of mutual support with components of community social work. The components were culturally sensitive and client-centered. The training increased the self-help skills in dealing with stress and trauma, developing self-awareness, communication skills, building of stress coping skills, awareness raising, psycho-education, organizing and leading of support groups, and dealing with mental health problems in the community. This project was exclusively evaluated using qualitative data. Authors concluded that the peer-counselors were able to provide important personal support to other community members in complex situations (Salem-Pickartz, 2007).

Henderson and colleagues trained 104 primary care practitioners across Cambodia following the end of the Pol Pot regime. They conducted training in seven one-week sessions over one year. Training compliance was almost 100%. They focused on the identification and treatment of serious mental illness in primary care with didactic lectures, group discussions, role-play, homework, examinations, evaluation, and treatment of patients under direct supervision. They measured the effect on the practitioners' self-perception. Authors concluded that the training improved the practitioners' skills and their confidence in caring for mentally ill and traumatized patients in a post-conflict society. Further they found at a two-year follow-up that additional supervision was crucial to maintain the confidence of practitioners (Henderson, 2005).

In a context of natural disaster, Murthy described challenges of an Indian dissemination program. He trained community members in psychosocial care following the devastation brought by cyclone Orissa. Trainees offered the community counseling, emotional support, encouragement, education, and guidance on daily skills. They also founded self-help groups. Encountered problems were a taboo on psychiatric illness, a non-acceptance of psychological help, an inhibition to talk to a non-family member, suspiciousness about the motivation for the

program, financial expectations, and a lack of infrastructure. Additionally, a psychosocial intervention of therapists of the opposite gender was difficult (Murthy, 2007).
Araya et al. aimed at improving existing care while using available resources in Santiago de Chile. They disseminated a depression treatment to primary care personnel of low-income women. The authors introduced a multi-component program with a psycho-education group, systematic monitoring, and structured pharmacotherapy. Despite little resources and marked deprivation, there was a good response to the care treatment program (Araya, 2003).

Wessells et al. implemented a community-based psychosocial intervention in Angola. Over three years, they trained experts for awareness-raising to improve the mental health situation of war-affected children. The five experts conducted one-week seminars for 20 to 25 adults each. The workshop included sessions on children's psychosocial development, the impact of war on children, rites of death and mourning, methods of healing, and non-violent conflict resolution. In qualitative group feedback the communities saw a positive outcome. They rated an improvement in relationships between children and adults, as well as in-between the children themselves. Further, the community members noted diminished isolation behavior, less war-related games, fewer concentration problems, decreased hypervigilance, and increased school attendance (Wessells, 2001).
In Nepal, Jordans et al. conducted a school intervention. They combined minimal classroom teaching with extensive supervised practice in their dissemination trial. The authors found cultural similarity, with basic communication skills and emotional support being compatible. They received largely positive feedback from project recipients. They emphasized the reinforcement of local agents for basic problems, but also required specialized mental health staff (Jordans, 2003).
Olij implemented a student program in Rwanda. They tried to intervene against regular *trauma crises* at secondary schools. The authors trained school staff in trauma awareness and basic counseling skills. The school staff, in turn, offered individual and group counseling to the students. Olij found an increase in trauma awareness, symptom understanding, and its consequences. Consequently, the general atmosphere at schools and performance improved on a subjective level. No more crises broke out at the schools (Olij, 2005).
Berger et al. implemented a school-based quasi-randomized controlled trial after terror-related distress in Israeli students. They aimed to treat PTSD symptoms, somatic complaints,

functional impairment, and anxiety. The authors compared eight treatment sessions (N = 70) to a WL control group (N = 72). They administered questionnaires one week before and two months after treatment. Authors trained teachers during 20 hours who then applied the program in their class. Intervention contained art therapy, body-oriented strategies, narrative approaches, and family homework. Two months after the intervention, students in the intervention group improved significantly on all measures. Berger et al. concluded that their school-based program was effective even in areas where terrorist attacks continued to occur (Berger, 2007).

4.4.4. Dissemination of NET

In a *vivo* project, Neuner et al. conducted a randomized controlled dissemination trial in Uganda. They compared NET with flexible trauma counseling and monitoring. *vivo* trained lay counselors in a refugee settlement to treat identified PTSD patients. The active intervention groups were statistically superior to the passive group on PTSD symptoms (PDS) and physical health. The ES of NET and TC from pre- to post-test were 1.4 and 1.5 respectively. At follow-up, 70% of NET, 65% of trauma counseling, and 37% of monitoring group participants did not meet the PTSD diagnosis anymore. Fewer participants dropped out of NET (4%) compared to TC (21%) (Neuner, 2008b).

vivo recently conducted another randomized controlled trial in Uganda. Ertl et al. included 86 former child soldiers who suffered from PTSD (expert CAPS diagnosis) into their study. Local trained counselors carried out eight sessions of treatment, comparing NET to an active control group (English lectures) and a passive WL. In a three-month post-test, they found a significant reduction of PTSD symptoms in both active treatment groups. NET was superior to the English control group. The ES of NET in the one-year follow-up was 1.42. In both control groups, Ertl and colleagues found an ES of .58 (Ertl, 2008).

Schauer and collaborators built up a large-scale mental health intervention for children in North-Eastern Sri Lanka. Over 12 months, *vivo* trained local teachers in counseling and NET. For evaluation, they undertook a randomized controlled cluster dissemination trial. Forty-seven children with PTSD received six manualized treatment sessions of NET or meditation. They assigned 14 therapists to a treatment procedure with three to four children each. Despite high levels of political and domestic violence, children profited from the psychosocial intervention. Schauer et al. found a highly significant reduction of trauma symptoms and

functional impairment in both groups at five months post-test. NET had an ES of 1.57 and meditation of 1.23. At 13-month follow-up, treatment gains stayed stable, six children remained with a PTSD diagnosis. Also co-morbid MD decreased from 29.5% at pre-test to 5% at 13-months follow-up. Suicide ideation decreased parallel to PTSD symptoms. Children that had received NET improved on Tamil and English school grades. All children completed treatment (Schauer, submitted for publication).

These *vivo* programs demonstrated that short-term trauma treatment and evaluation can be carried out. *vivo* implemented the studies in war-affected refugees at unstable Ugandan camps, in former Ugandan child soldiers, and in war-affected Tamil children. Even lay counselors with limited training as refugees, local students, or teachers successfully administered NET. Thus, *vivo* proved the feasibility of effective large-scale mental health service in resource-poor war-affected countries. Furthermore, they showed the applicability of Western short-term psychotherapeutic approaches in cross-cultural settings (Schauer, 2008), (Neuner, 2008b), (Ertl, 2008).

4.4.5. Dissemination of IPT

In rural Uganda, Bolton and colleagues trained community members. Each trainee had higher education or work experience with children. The two weeks training based on the manualized IPT (Verdeli, 2008). During treatment, the clinical expert group conducted weekly supervision via phone (Bolton, 2007). During four months, the trainees administered IPT to 107 depressed men and women in single gender groups (five to eight persons). Authors compared outcomes of IPT to matched villages that received treatment as usual. The dropout rate was 7.8% in the IPT group versus 18% in the control group (Verdeli, 2003). The mean reduction of depression severity (HSCL) was 17.47 points in IPT and 3.55 points in WL participants. Dysfunction reduced by 8.08 and 3.76, respectively. After intervention, 6.5% of the IPT group and 54.7% of the control participants still met the MD criteria (Bolton, 2003).

In another trial, Bolton and collaborators conducted a study with depressed adolescents (N = 314) in Northern Uganda. In camps for internally displaced people, local counselors administered group IPT. Bolton et al. compared IPT to a WL and a CP group. In the intervention groups, participants performed 16 weekly group meetings following a two-week training and using a treatment manual. They assessed outcome with locally developed

symptom scales. Symptoms of depression declined in all three conditions but only changed in the IPT group at a significant level. IPT was superior to the WL. IPT further showed a small but significant improvement in anxiety symptoms compared to the WL (Bolton, 2007).
The working group around Bolton concluded that IPT in the group format proved feasible and was highly accepted in the African context. The intervention was superior to active and passive control groups in reducing symptoms of depression, anxiety, and dysfunction. They suggested feasibility in poor, rural, and illiterate communities affected by war (Bolton, 2007).

4.4.6. Train the trainer model

Psychotherapy dissemination by training and supervision proved to be successful and highly effective. But it is costly, time intensive, and limited by the availability of experts to provide training and extended supervision on site (Cohen, 2008), (Martin, 1998), (Foa, 2006). Consequently, such programs were confined to regions where experts were readily available (Foa, 2006). An alternative model to overcome these shortcomings is the *train the trainer* model (Cahill, 2006). It aims at reducing the involvement of experts to enable training in regions that have limited access to local mental health expertise (Foa, 2006). Cahill proposed that clinical experts first provided an intensive training workshop for a local mental health expert group. The first group received weekly expert supervision for a series of training cases. After the local therapist successfully completed their treatment cases, they began to train the second batch of therapists followed by local supervision. Although the trainer-group continued to consult the experts, the level of involvement was substantially less, and knowledge spread sustainably. Edna Foa evaluated this model in Israel with PE for trauma victims. Preliminary results were extremely encouraging. Treatment by second generation therapists was effective in reducing PTSD and depression (Foa, 2006). They suggested that this model provided an efficient way to disseminate PE and maintain high-quality treatment without extensive involvement of outside experts (Foa, 2006), (Cahill, 2006).

5. Empirical study: Effectiveness of NET/IPT in first and second dissemination generation

In just three months, about one million people were massacred in the Rwandan genocide of 1994. Many of those who survived had to endure severe traumatic stress, developed mental health problems, especially PTSD and depression (UNICEF, 1996), (Sydor, 1996), (Schaal, 2006), (Dyregrov, 2000), (Pham, 2004). Researchers who investigated the prevalence rates called for large-scale intervention programs but also pointed to the formidable challenges for mental health services, given the lack of qualified personnel, the limited evidence for available treatment modules, and the struggle of post-war societies with the traumatic past (Neuner, 2007), (Strang, 2003). In a previous study, the *vivo* team demonstrated the feasibility and the usefulness of NET and IPT when applied through Western experts (Schaal, 2009). In the present study, which represents a next step, we wanted to test if Rwandan psychologists were able to offer effective treatment and at the same time, train a second generation of trauma therapists.

5.1. Questions and hypotheses of the study

In post-conflict contexts mental health care resources are scarce. Researchers showed that several variations of exposure therapies are valuable in such contexts as they were easy to master, took a short time to implement, and contained simple materials (Cienfuegos, 1983), (Weine, 1998), (Igreja, 2004). The two most evaluated forms of psychotherapy in resource-poor and post-conflict societies are NET and IPT. NET was developed for victims of organized violence who suffered from PTSD. *vivo* demonstrated the effectiveness in several randomized controlled studies (Bichescu, 2007), (Neuner, 2004b), (Neuner, 2008b), (Hensel-Dittmann, 2007), (Onyut, 2004), (Schaal, 2009), (Ertl, 2008). To provide therapy for depressive and grief symptoms, therapists developed IPT, which has also been evaluated for its effectiveness and feasibility (Bolton, 2007), (Bolton, 2003).

To ensure sustainable interventions in crisis and post-conflict societies, we designed the present therapy study. We aimed to investigate whether we can train educated local personal (a) to effectively offer psychotherapy and (b) to teach them to train their peers so that these can offer treatment. We operationalized the research questions as changes of the main

outcome measures PTSD, PGD, depression, and suicidal tendencies. Specifically, the research questions to be tested were as follows:

• NET/IPT can be disseminated to Rwandan psychologists: therapies of first-generation therapists are effective in reducing the severity of clinical symptoms (Neuner, 2008b), (Ertl, 2008).
• NET/IPT is more effective in reducing mental health problems than a six-month WL control group (Ruf, 2008), (Neuner, 2004b), (Ertl, 2008).
• Mental health improvements of NET/IPT stay stable in a long-term perspective, after six and 12 months (Ruf, 2008), (Schaal, 2009), (Ertl, 2008).
• NET/IPT is also effective in the treatment of other trauma-spectrum problems such as depression (Bichescu, 2007), (Schaal, 2009), PGD (Shear, 2005), anxiety symptoms, and suicidality (Schaal, 2009).
• It is possible to disseminate NET/IPT to a second generation of Rwandan therapists: therapies of second-generation therapists are effective in reducing the severity of clinical variables.

5.2. Training of therapists

Susanne Schaal (PhD., M.A. clinical psychologist) and I (M.A. clinical psychologist, PhD candidate) conducted the first training of Rwandan psychologists in NET/IPT in French. Both trainers had successfully completed NET therapies with refugees in the *Outpatient Clinic for Refugees at the University of Konstanz*, as well as NET and IPT therapies with genocide orphans in Kigali (Schaal, 2009). Both trainers are experienced facilitators of international NET workshops and were trained in IPT at the *Center for Integrative Psychiatry* in Kiel.
In November 2007, I recruited ten, B.A., clinical psychologists for the therapy training from the NUR. For NET/IPT 1, six Rwandan psychologist and two skilled psychology students in their last year were included for the three weeks of training, seven were chosen later as therapists. All trainees had studied for five years at the NUR, had completed six months of practical internships, and four of them had worked as interviewers in the epidemiological study of this project (Chapter 2). Before the training started, we interviewed the Rwandan psychologists to assess their needs. They had all lived through the 1994 genocide but none of

the students fulfilled the PTSD DSM-IV criteria. During the training, we worked daily from 9 a.m. till 6 p.m. (except Wednesday) in the *Institute of Education and Christianity* in Butare. The Rwandan psychologists received a sitting allowance.

In May 2008, Providence Akabeza, Charles Ingabire, and Therèse Uwitonze conducted the second round of training with seven Rwandan psychologists and three Congolese health workers. The Congolese participants were part of a *vivo* project in the DRC and returned after the training to their communities. We chose five of the Rwandan participants as NET/IPT 2 therapists. The training followed the same protocol as the first round and the Rwandan trainers conducted it again in French. At all times, one of the expert supervisors was present as observer but did not intervene in the training. In the evenings, the clinical expert and the trainers discussed the day.

The two expert trainers had prepared a field manual based on the NET (Schauer, 2005) and the IPT manual (Klerman, 1984), which guided both rounds of therapy training. In the second training, the Rwandan trainers drafted and realized autonomously the lesson plan and presentation methods.

The NET training lasted two weeks and started with the theoretical conceptualization of PTSD, the definition of a traumatic event, and the DSM-IV criteria for PTSD. It continued with basic concepts of physiological reactions during a traumatic event, memory organization, and PTSD symptomatology. Then, the trainers introduced objectives, basic rules, and therapeutic effects of NET. The trainers discussed therapeutic attitudes such as acceptance, respect, safe environment, empathy, active listening, interest in the patient, patience, honesty, confidentiality, rights and freedom of the participant, attentiveness, predictability of action, verbalization of emotions, rephrasing, psycho-education, and body contact rules. Afterwards, the facilitators introduced a structured therapy plan, which included the framework of each single session, what to prepare before each session, what to respect during therapy, and how to end it. Further, the trainers explained behavior between two sessions and the construction of narrations. The facilitators taught the framework of the whole NET, the content of the initial therapy phase (introduction, program presentation, psycho-education, and participation consent), and the concept of a lifeline. The trainers presented an exemplary initial phase followed by numerous role-plays in small groups under supervision. Each participant practiced each module as therapist and as patient. The facilitators introduced the work on traumatic events theoretically and practically. Then, the trainers conducted exercises on the

narration of positive events. After the groups reached a satisfactory therapist level, the trainers practiced with the participants' own traumatic experiences. Besides the practical work in small student groups, the facilitators invited two PTSD patients to conduct a model therapy (six sessions of NET). Three to four students accompanied each model therapy, responsible for translation and narration writing. Problem-solving strategies (dissociation, participant refusal, avoidance, lack of emotional activation, sorrow, physical pain, feelings of sadness, guilt, or shame, and false expectations) and two exemplary NET life narrations of Rwandan orphans completed the NET training.

During the second phase, the trainers spent one week to introduce IPT as grief and depression treatment. The facilitators explained depression according to the DSM-IV before we presented the basic principles, clinical relevance, aim, and therapeutic effects of IPT (Chapter 3). We split the IPT training into an initial phase (psycho-education, interpersonal evaluation, identification of the major problem area), a middle phase (problem areas *grief* and *role change*), and a final phase (end of therapeutic relationship, summary of changes, activation of personal resources, discussion of emotions, reinforcement of a patient's autonomy). The facilitators presented each phase theoretically, followed by a practical example, and group exercises. The Rwandan psychologists discussed IPT techniques such as exploration, affect expression, clarification, interpersonal communication analysis, therapeutic relationship, role-plays, and psycho-education for depression and grief. Finally, the participants exercised the middle IPT phase extensively in role-plays under expert supervision.

After the training, the experts evaluated the trainees on five different quality levels. The trainers based their evaluation on observations and written exams throughout the training. In the NET/IPT 1 group, each expert trainer independently judged the quality of each therapist on a scale from 0 (no skills) to 10 (excellent skills) and I took the mean of the two scores. In the NET/IPT 2 group, I calculated the mean rating of the three Rwandan trainers and the two German supervisors. As can be seen in Table 30, the two therapist groups did not differ in their qualification.

Table 30: Therapist qualification rating (mean) by therapist group

		NET	Theoretical background	Self-Presentation	Empathy	Acceptance	Total mean
NET/IPT 1 therapists (N = 7)	M	8.57	8.14	7.86	8.29	7.86	8.14
NET/IPT 2 therapists (N = 5)	M	7.4	8	8	7.2	7.8	7.68

During the therapy period, we offered constant supervision for therapies with a comparable supervisor-to-therapist ratio in both treatment groups. Once a week each therapist had one individual (one to two hours) and one group supervision (two to three hours). In the first round, I supervised all therapists myself. In the second round, the Rwandan trainer Providence Akabeza offered the clinical supervision and Agnes Nyaribizimana was responsible for problems that occurred during the treatment.

The four male and three female members of the NET/IPT 1 therapists conducted 23 and 14 treatments, respectively. The three male and two female therapists of the NET/IPT 2 group were responsible for 18 and 13 genocide survivors, respectively.

5.3. Recruitment of sample and therapy procedure

The *National Institute of Statistics of Rwanda* granted us a research permission for the entire project period, and the *Ethical Review Board of the University of Konstanz* approved the treatment trial.

During the epidemiological study in August and September 2007, Rwandan students of clinical psychology at NUR (N = 15) had interviewed 406 Rwandan genocide survivors (see Chapter 2). Of the 406 survivors, 141 participants fulfilled the DSM-IV criteria for PTSD. The Rwandan psychologists re-interviewed these participants in November 2007, except three participants who had moved. Five further participants could not be found as they were not known to the neighbors, the description of their home was insufficient, or the contact phone numbers dysfunctional. Thus, we included 133 participants in the assessment, of who 101 still fulfilled the PTSD diagnosis. Each interview took the Rwandan psychologists about two hours.

In succession, five PhD students and four post-graduate collaborators from the University of Konstanz or *vivo* conducted clinical expert interviews (pre-test). All were specialized in clinical psychology and had extensive experiences in working with refugees and survivors of organized violence. The interviewers worked with five trained interpreters, who studied to become English interpreters at NUR. The experts used different questionnaires for PTSD symptoms (N = 99, two participants were not found) and identified 76 persons with PTSD who were eligible for participation in the treatment trial. Each interview lasted about three hours.

We offered NET/IPT to all participants who suffered from PTSD at pre-test. We explained the procedure of the randomized controlled treatment study to the genocide survivors, and all were willing to take part. We assigned participants randomly into the treatment and six-month WL control group. All genocide survivors were free to seek treatment outside the study.

Experts interviewed the WL participants six months after the initial expert assessment and treatment completer three and 12 months after therapy. Rwandan psychologists interviewed therapy participants six months after treatment. An overview of the therapy study can be seen in Figure 8.

Expert and local interviewers were kept blind about the treatment condition of the individuals. The only exception was the six-month WL group, which I partly interviewed myself (N = 14). For each completed interview, the participants received 1.000 RFR (about €1.30) as compensation for the time they were unable to work.

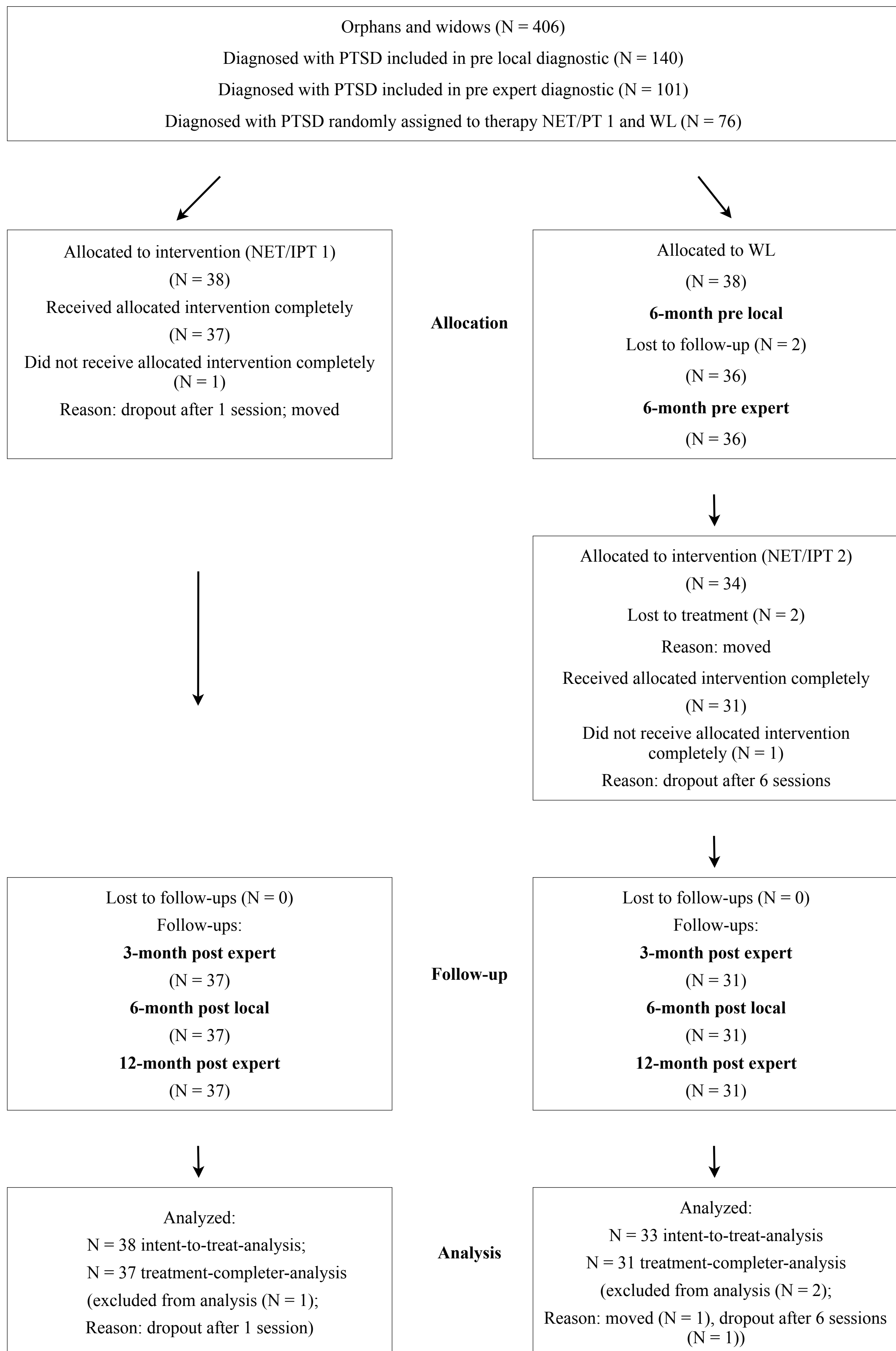

Figure 8: Flow of participants through the treatment trial

Each therapist took blindly questionnaires out of the pre-test questionnaire pile. Accordingly, I randomly assigned each therapist to his or her clients. In NET/IPT 1, seven therapists worked with 37 genocide survivors, in NET/IPT 2, five therapists worked with 31 participants. An overview of the therapist to client distribution is presented in Table 31.

Table 31: Therapist to client distribution (treatment completer) by therapy group (N)

	NET/IPT 1		NET/IPT 2	
	Therapist	Therapy	Therapist	Therapy
Distribution (N)	4	7	2	7
	1	6	2	6
	1	2	1	5
	1	1	-	-
Total (N)	7	37	5	31

Therapy procedure

I described the theoretical background of NET and IPT in Chapter 4.3. The formal therapy instructions were as follows: duration 90 to 150 minutes per session, eight sessions per person (six sessions NET followed by two sessions of IPT), once a week (ideally seven days between the sessions, but at least three days), during eight following weeks. On average, the duration of each therapy session was 126 minutes for the treatment completer in the NET/IPT 1 group (N = 37) and 116 minutes in the NET/IPT 2 group (N = 31). The exact numbers are shown in Table 32.

Table 32: Duration of therapy (minutes) by therapy group (treatment completer)

	NET/IPT 1	NET/IPT 2
N	37	31
M	1.012	924
SD	11.638	6.276
Minimum	740	810
Maximum	1.285	1.050

Therapies started three to 21 days after the expert pre-test interview. The patients frequently postponed their sessions because of accidents, employment, or other obligations. Nevertheless, all therapists in both trials completed the NET/IPT within 10 weeks. The first session contained extensive psycho-education about PTSD and clarification of informed consent. Next, the participants traced their lifeline, which was recorded by the therapist. In the following five sessions, the patient's life experiences were discussed and transcribed in detail, especially the most stressful events. The last two sessions were reserved for IPT and included psycho-education about MD and PGD. Therapists related the symptoms to an interpersonal context and the client chose the interpersonal problem he perceived as crucial for grief and depression symptoms (*grief* or *role change*). In total, 48 participants chose the IPT module *role change* (70.6%), and 20 bereaved decided to talk about *grief* (29.4%). There were no significant differences in the IPT module choice between NET/IPT 1 and NET/IPT 2 as can be seen in Table 33.

Table 33: IPT module choice of participants in % by therapy group

	NET/IPT 1 (N = 37)	NET/IPT 2 (N = 31)
Grief	32.4	25.8
Role change	67.7	74.2

During IPT, the therapist clarified the personal situation, reinforced feelings, analyzed the interpersonal communication, and discussed problem-solving strategies. The grief module intended to facilitate the grieving process, and the role change module targeted the acceptance of the new life circumstances. Both modules aimed to strengthen perceived self-efficacy, the development of new capacities, and the establishment of new social relations. If the client required social interventions, the therapist was free to support them within the prescribed time range. As social interventions, therapists visited a district administration, a *Gacaca* court, or gathered information from a bank, a school, or a local NGO. After the last session, each participant received a signed copy of her or his life story and the phone number of Agnes Nyabizimana as an emergency contact. Therapists were not supposed to visit or phone their clients. Finally therapists prepared the participants for the evaluation phase of the therapy after three, six, and 12 months.

The therapists offered treatment at the home of participants in privacy. Two orphans came to the institute for the treatment by motorbike-taxi (*vivo* covered the costs). One orphan was

living in a difficult family situation that did not allow for visitors, and one participant had moved too far out of town for the therapist to visit, just before the treatment started. No monetary compensation was given for therapy participation.

In my function as supervisor, I had to intervene in five therapies during the NET/IPT 1 phase with one visit to the home of each of the five participants. In three cases, I conducted an extensive psycho-education as the participants wanted to avoid talking about their worst event and were at risk of dropping out of therapy. With two orphans, problems with their partner arose. To gain acceptance, I explained the therapy procedure and the consequences of traumatic stress in length. In the NET/IPT 2 group, Agnes Nyabizimana had to intervene three times to conduct psycho-education with the participants to prevent their dropout. All interventions were successful and the therapists were able to continue the treatments.

Treatment adherence

Weekly supervision and a detailed account of each therapy were used to control the treatment adherence. The therapists filled out protocol sheets for every client with the main aspects of each therapy session, including problems, medication, and duration. During supervision, we discussed the progress of each therapy and the therapist read out of each client's narration. We did not observe major deviations from the treatment protocol.

5.4. Questionnaires

Experts and Rwandan psychology students both evaluated the treatment outcome over time. We used different questionnaires. The Rwandan, B.A., students conducted the baseline assessment with the clinical interviews they also had used in the epidemiological study (Chapter 2.4.). Baseline interviews before therapy, as well as the six-month follow-up contained PG-13, PDS, HSCL-25, and M.I.N.I. suicide section C.

Expert-interviews differed in the more detailed questionnaires for PTSD (CAPS) and depression (M.I.N.I.). An overview of the administered questionnaires is presented in Table 34. The expert tools differed from the epidemiological study in some points: the new elements that were not described in Chapter 2.4. are presented below.

Table 34: Administered questionnaires for interviews throughout the study

	Epidemiological Study	Baseline Pre	Expert Pre	Expert 3-month post	Local 6-month post	Expert 12-month post
Socio-demography	✓	-	-	-	✓	✓
PGD: PG-13	✓	✓	✓	✓	✓	✓
PTSD	PDS	PDS	CAPS	CAPS	PDS	CAPS
Depression	HSCL	HSCL	M.I.N.I.	M.I.N.I.	HSCL	M.I.N.I.
Anxiety: HSCL	✓	✓	-	-	✓	-
Suicidality: M.I.N.I.	✓	✓	✓	✓	✓	✓

CAPS

The clinical experts asked for the PTSD diagnosis using the *Clinician Administered PTSD Scale* (CAPS) developed by Blake et al. (Blake, 1995). With the structured diagnostic interview, we assessed DSM-IV criteria of PTSD for the previous month. The criteria require an objective and subjective traumatic event (A criterion), at least one *re-experience* symptom (B criterion), at least three *avoidance* symptoms (C criterion), and at least two *increased arousal* symptoms (D criterion). Further a clinically significant functioning impairment and a symptom duration of at least four weeks were required for a PTSD diagnosis (American Psychiatric Association, 2000). Additionally, feelings of guilt – *guilt over acts of commission or omission* and *survivor guilt* – were assessed. Each symptom includes a frequency and a severity rating from 0 to 4 with a maximum severity-score of 136. A symptom requires a minimum frequency score of 1 (once or twice in the previous month) and a minimum severity score of 2 (moderate intensity, distress clearly present) (Weathers, 1999). The CAPS has proven to be a solid measurement to assess PTSD-symptomatology, and has shown excellent predictive power in refugee populations (Weathers, 1999), (Renner, 2006). Weathers and colleagues classified the CAPS severity-score into mild (20 to 39), moderate (40 to 59), strong (60 to 79), and extreme PTSD (80 and more) (Weathers, 2001).

M.I.N.I.

The M.I.N.I. developed by Sheehan, et al. was used as an instrument to screen depression. All symptoms were assessed disregarding the diagnosis, in order to measure a sum-score. The M.I.N.I. is a short structured diagnostic interview to assess the DSM-IV psychiatric

diagnoses. A depression diagnosis requires at least one of the symptoms of *depressed mood* or *lost interest* and a total of at least five depressive symptoms experienced constantly over the previous two weeks. The psychometric properties have consistently showed very positive results (Sheehan, 1998).

5.5. Data Analysis

I present the sample characteristics in frequencies and per cent. All 68 participants who had completed eight sessions of NET/IPT were included in the treatment-completer analysis. There was little therapy dropout (N = 2, one per therapy group), which thus did not influence significance levels. Therefore, I do not present intent-to-treat analyses. Baseline characteristics were compared to control the effect of randomization. All analyses were performed with SPSS 16.0 for Macintosh.

Parametric analysis

For continuous outcome variables, I chose the dependent t-test for paired samples to calculate comparisons of two samples (NET/IPT 1 versus WL, NET/IPT 1 pre-test versus 12-month post-test). I used the Levene test (significance level $p < .05$) to analyze the homogeneity of variances. I calculated correlations according to the Pearson product-moment correlation coefficient. I assessed therapy effects in several ways. I compared the two groups regarding changes from pre-treatment scores of clinical variables to post-treatment and follow-up scores, using repeated measures ANOVAs and the Fisher's F-test. I calculated the within-group ESs for clinical significance of therapy success using Cohen's d (mean between pre-test and follow-up interview divided by the pooled standard deviation of the outcome variables).

Non-parametric analysis

I used the Mann-Whitney U-test for the comparison of two independent samples and Wilcoxon-test (Z) for dependent samples. I calculated the Kruskal-Wallis H-test to compare more than two independent samples, the Chi-square-test according to Pearson for dichotomous variables. I analyzed correlations according to Spearman's Rho for ordinal-

scaled variables. I compared the therapy groups in terms of number of patients who did no longer fulfill the clinical diagnoses according to DSM criteria.

Building of indices and scores

I calculated clinical symptom- and severity-scores for PTSD, PGD, depression, anxiety, and suicidality. I built clinical severity-scores for each concept by adding the frequency or severity points of each item. Additionally, I calculated symptom clusters scores of clinical concepts according to the DSM criteria structure. Thus, I built an *re-experience*, an *avoidance*, and an *arousal* severity-score for PTSD. I added associated features to PTSD, by combining the *guilt over acts of commission or omission*, and *survivor guilt* into a guilt-score. I built scores for the clusters *yearning*, and *cognitive, emotional, and behavioral symptoms* for PG. I derived a sum-score of the M.I.N.I. A and B criteria for depression used in the expert interviews. I built a severity-score of anxiety and depression from the HSCL in the local assessments. I added the M.I.N.I. suicide risk points into a suicide score. I derived a clinical symptom index out of the z-transformed CAPS (expert interview)/PDS (Rwandan psychologist interview), PGD, M.I.N.I. (expert interview)/HSCL severity-score for anxiety and depression (Rwandan psychologist interviews), and the sum of the M.I.N.I. suicide risk points. I present an overview of ranges in Table 35.

Table 35: Ranges of questionnaire scores

Concept	Questionnaire	Cluster/Score	Range
PTSD	Expert CAPS	B	0 – 40
		C	0 – 56
		D	0 – 40
		F	0 – 12
		Severity-score	0 – 136
		Guilt	0 – 8
		Severity	0 – 4
	Local PDS	B	0 – 15
		C	0 – 21
		D	0 – 15
		F	0 – 8
		Severity-score	0 – 51
PGD	PG-13	B	2 – 10
		C	9 – 45
		Severity-score	11 – 55
Depression	Expert CAPS	A	0 – 2
		B	0 – 7
		Sum-score	0 – 9
	Local HSCL	Anxiety	10 – 40
		Depression	15 – 60
Suicide	M.I.N.I.	Severity-score	0 – 33

5.6. Sample

The intent-to-treat group consisted of 76 participants. Thirty-eight participants were randomly assigned to the NET/IPT 1 group and 38 participants to the WL. One orphan dropped out in NET/IPT 1, as she moved after the first sessions and the therapist was unable to locate her. Two of the WL participants were absent at the six months interview, as they were students

living in a boarding school. Thus, 37 participants completed NET/IPT 1 and 36 participants WL.

The experts interviewed 36 participants from the WL at pre-test after six months. Two of them moved directly after the interview, two other participants did not fulfill the PTSD diagnosis any more. The intent-to-treat group for NET/IPT 2 thus contained 32 participants. One orphan dropped out of treatment at session six, as she was not willing to go through trauma exposure. Thirty-one participants completed NET/IPT 2.

Sort of loss, age, and gender

The treatment study sample consisted of 43 widows and 30 orphans (5 male, 25 female). The therapy samples were comparable in their proportion of widows and orphans (female and male) as can be seen in Table 36. The average age of widows was 48.29 in NET/IPT 1 (SD = 13.4, range 29 to 75), 46.86 in WL (SD = 11.73, range 31 to 87), and 46.85 in NET/IPT 2 (SD = 11.8, range 31 to 87). The age of orphans ranged from 18 to 31 with a mean of 25.38 in NET/IPT 1 (SD = 4.24), 24.79 in the WL (SD = 4.12), and 24.73 in NET/IPT 2 (SD = 4.05).

Table 36: Proportion of sort of loss, age, and gender by therapy group

	NET/IPT 1			WL			NET/IPT 2		
	Widow	Orphan	Total	Widow	Orphan	Total	Widow	Orphan	Total
N	21	16	37	22	14	36	20	11	31
Age	48.29	25.38		46.86	24.79		46.85	24.73	
Male gender	-	4		-	1		-	1	

Sector

The composition of the sample by participants from the different administrative sectors of Butare region is illustrated in Table 37. More than half of participants in both therapy conditions came from Mukura and Tumba sectors.

Table 37: Therapy group by sector (N)

Place interview	NET/IPT 1	WL	NET/IPT 2
Huyé	4	1	1
Mbazi	4	6	6
Tumba	7	10	7
Ngoma	5	5	5
Mukura	17	14	12

Socio-demographic characteristics

An overview of the number of children, level of education, housing and living situation (all economic information was summed into the economic index), religion, and general health of the treatment study participants is presented in Table 38. Widows and orphans were distributed equally to the WL and NET/IPT 1. Also socio-demographic characteristics did not differ significantly between the two intervention groups.

Table 38: Socio-demographic characteristics of the treatment completer by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)		NET/IPT 2 (N = 31)	
		Widow (N = 21)	Orphan (N = 16)	Widow (N = 22)	Orphan (N = 14)	Widow (N = 20)	Orphan (N = 11)
Children M (SD)		3.33 (1.74)	1.38 (1.5)	3.27 (2.14)	1.5 (1.79)	3.35 (2.23)	1.27 (1.35)
Years of formal education M (SD)		5.43 (4.17)	4.74 (3.34)	4.23 (3.19)	6.71 (4.16)	4.45 (3.27)	5.09 (2.12)
Number of household members M (SD)		4.67 (1.93)	6.44 (7.72)	4.64 (1.79)	5 (2.63)	4.65 (1.87)	4.09 (2.07)
Economic index M (SD)		-.033 (.34)	-.06 (.52)	-.21 (.42)	-.12 (.47)	-.16 (.41)	-.16 (.53)
Number of physical complaints in the previous month M (SD)		4.07 (1.34)	5.15 (.90)	5.54 (2.40)	4.18 (1.83)	4.45 (2.46)	3.63 (1.69)
Religion %	Catholic	85.7	43.8	86.4	50	90	63.6
	Protestant	-	18.8	9.1	28.6	10	18.2
	Other	9.5	25.1	4.5	7.1	-	-
	No religion	4.8	12.5	-	14.3	-	18.2
Psychological support % (yes)		4.8	18.8	9.1	21.4	10	18.2

Traumatic events

Most frequently, the participants rated *sexual abuse*, the *genocide* in general, and *witnessing the killing of a parent* as their worst life experience. As illustrated in Table 39, the participants had experienced the traumatic events mainly during the genocide. The treatment groups did not differ significantly in the number of potentially traumatic events they had experienced.

Table 39: Worst event and number of experienced event types of the treatment completer by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)		NET/IPT 2 (N = 31)	
		Widow (N = 21)	Orphan (N = 16)	Widow (N = 22)	Orphan (N = 14)	Widow (N = 20)	Orphan (N = 11)
Worst event (%)	Illness/injury	4.8	-	-	-	-	-
	Sexual abuse	19	18.8	22.7	28.6	20	27.3
	Genocide	14.3	18.8	27.3	7.1	30	9.1
	Physical attack	4.8	6.3	-	7.1	-	9.1
	Witness physical attack	-	-	-	-	-	-
	Witness serious injury	4.8	6.3	-	-	-	-
	Attacked with weapon	9.5	-	9.1	-	10	-
	Witness attack weapon	4.8	-	4.5	-	-	-
	See mutilated persons/ cadaver	4.8	-	13.6	7.1	15	9.1
	Witness killing of person	4.8	6.3	13.6	-	15	-
	Witness killing of parent	-	18.8	4.5	14.3	-	18.2
	Witness massacre	23.8	6.3	-	14.3	5	9.1
	Forced movement	-	6.3	-	-	5	-
	Expect dying	4.8	-	4.5	-	-	-
	Hiding under cadaver	-	-	-	14.3	-	9.1
	Other event	-	-	-	7.1	-	9.1
Number of experienced event types ever M (SD)		13.19 (4.17)	15.50 (4.21)	14.14 (2.95)	15.64 (3.57)	14.2 (3.05)	15.36 (3.91)
Number of experienced event types related to the genocide M (SD)		11.52 (4.56)	13.25 (4.30)	12.68 (3.47)	13.86 (4.49)	12.8 (3.53)	13.55 (5.01)
Number of experienced event types in the previous year M (SD)		.95 (1.32)	1.75 (2.27)	1.27 (1.49)	1.21 (1.63)	1.1 (1.29)	1.27 (1.79)

Loss

The worst loss for widows was most frequently their partner, for orphans a parent. Most of the participants had experienced their worst loss during the genocide (13 years back at the time of the epidemiological study). An overview is presented in Table 40. There were no significant differences between the treatment groups concerning the years since the worst loss and the sum of loss types.

Table 40: Worst loss, years since worst loss, and sum of loss types by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)		NET/IPT 2 (N = 31)	
		Widow (N = 21)	Orphan (N = 16)	Widow (N = 22)	Orphan (N = 14)	Widow (N = 20)	Orphan (N = 11)
Worst loss (%)	Partner	38.1	-	68.2	-	70	-
	Mother	4.8	18.8	18.2	57.1	15	63.6
	Father	9.5	75	4.5	35.7	5	36.4
	Child	19	-	-	-	-	-
	Sibling	14.3	-	9.1	-	10	-
	Other family member	4.8	6.3	-	7.1	-	-
	Other	9.5	-	-	-	-	-
Years since worst loss M (SD)		13.52 (2.58)	12.44 (1.41)	13 (0)	13.14 (.36)	13 (0)	13.18 (.40)
Sum loss types M (SD)		5.81 (1.25)	4.88 (.72)	6.18 (1.18)	4.79 (.89)	6.1 (1.21)	4.82 (.98)

5.7. Results randomized controlled trial: NET/IPT 1 versus six months WL

Expert clinical interviews assessed the changes of the mental health status of the participants from the pre-test (November 2007) to the six-month follow-up (May 2008 – about three to four months after the end of NET/IPT 1). The randomized controlled trial is presented for the clinical concepts.

5.7.1. PTSD

I used the CAPS to assess the effects in the NET/IPT 1 and the WL group on PTSD symptoms according to the DSM-IV criteria (American Psychiatric Association, 2000). Results are presented in the following section.

B Criterion: Persistent re-experience

The intrusion severity did not differ significantly between the therapy groups at pre-test. The re-experience symptom severity of the NET/IPT 1 group declined in the dependent t-test of the paired samples from 24.51 to 21.62 (T (36) = 2.00; p = .05). The B criterion symptoms of the WL reduced from 24.67 to 23.67 at a statistically non-significant level (T (35) = .87; p = . 39).

The ES of the NET/IPT 1 group was .35. The WL had an ES of .15. The re-experience symptoms of the PTSD diagnosis over six months are presented in Table 41.

Table 41: CAPS re-experience symptoms at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
B Criterion severity-score M (SD)	24.51 (7.05)	21.62 (9.27)	.35	24.67 (6.87)	23.67 (6.30)	.15

I conducted a one-way ANOVA on the severity-score over time (pre-test and six months) as dependent variable re-experience with the in-between factor therapy group. The factor time was statistically significant (F (1, 71) = 4.38, p < .05), the interaction of time and therapy group was not significant F (1, 71) = 1.04, p = .31). The symptom reduction by group is presented in Figure 9.

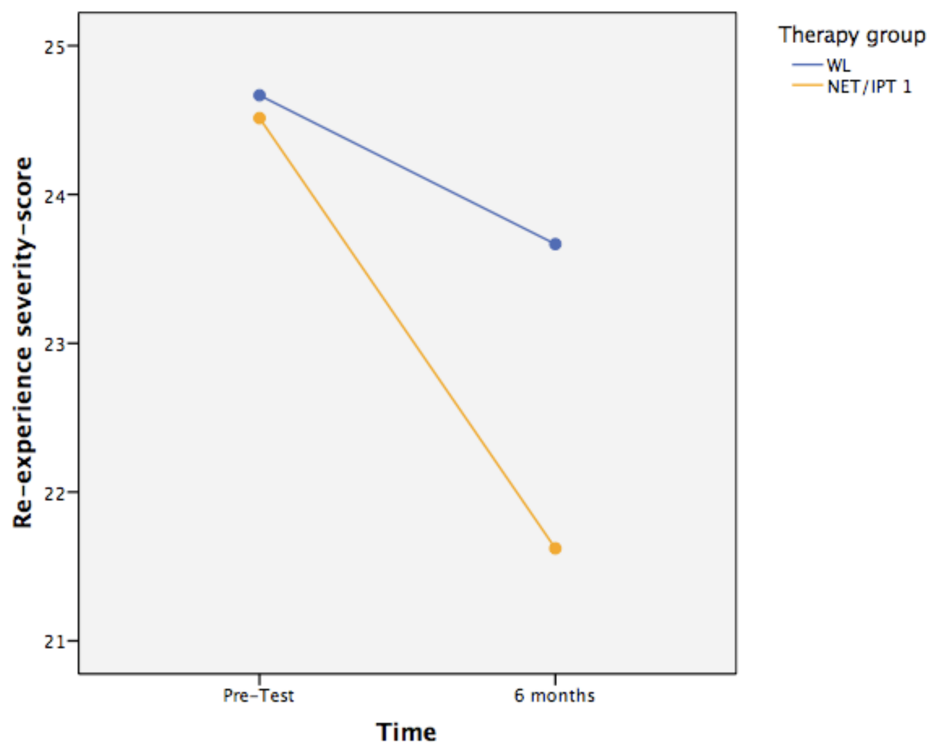

Figure 9: CAPS re-experience severity-score at pre-test and six months later by therapy group

C Criterion: Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness

The severity of avoidance and numbing symptoms did not differ significantly between the therapy groups at pre-test. The severity of the C criterion symptoms reduced significantly in the NET/IPT 1 group ($T(36) = 4.17$, $p < .001$), and in the WL participants ($T(35) = 2.07$, $p < .05$). After six months, the ES of the NET/IPT 1 was .72 and .43 for the WL. Results are presented in Table 42.

Table 42: CAPS avoidance symptoms at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
C Criterion severity-score M (SD)	27.22 (7.93)	20.76 (9.90)	.72	25.47 (7.19)	22.33 (7.54)	.43

I calculated a one-way ANOVA on the avoidance severity-score over time (pre-test and six months) as dependent variable with the in-between factor therapy group. The factor time was significant ($F(1, 71) = 19.56$, $p < .001$), the interaction of time and therapy was not

significant (F (1, 71) = 2.34, p = .13). The C criterion symptom reduction by group is presented in Figure 10.

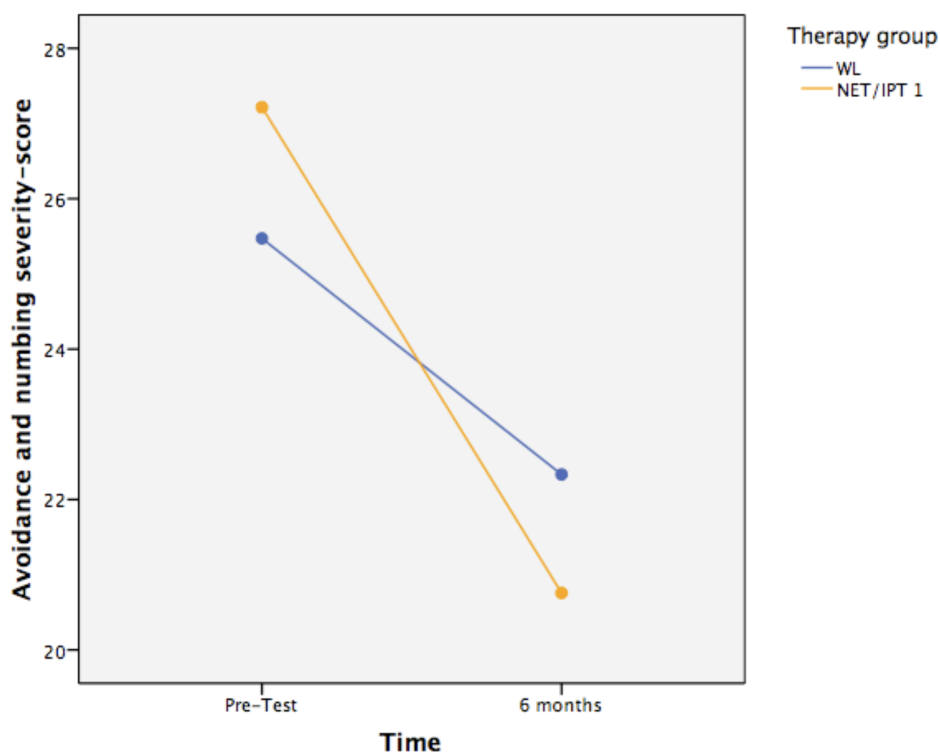

Figure 10: CAPS avoidance and numbing severity-score at pre-test and six months later by therapy group

D Criterion: Increased arousal

At pre-test, the two treatment groups had comparable arousal symptomatology. After six months, NET/IPT 1 participants had significantly fewer symptoms (T (36) = 3.76, p = .001). The WL participants did not differ significantly between the pre-test and a six-month follow-up (T (35) = 1.60, p = .12). The ES of NET/IPT 1 on the arousal cluster was .59 and .27 in WL participants. Exact numbers can be seen in Table 43.

Table 43: CAPS increased arousal symptoms at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
D Criterion severity-score M (SD)	23.89 (7.62)	19.19 (8.35)	.59	22.22 (6.50)	20.42 (7.01)	.27

I conducted a one-way ANOVA on the arousal severity-score over the time as dependent variable with the in-between factor therapy group. The factor time was highly significant (F

(1, 71) = 14.89, p < .001). The interaction of time and therapy group was not significant (F (1, 71) = 2.95, p = .09). The D criterion symptom reduction by treatment group is presented in Figure 11.

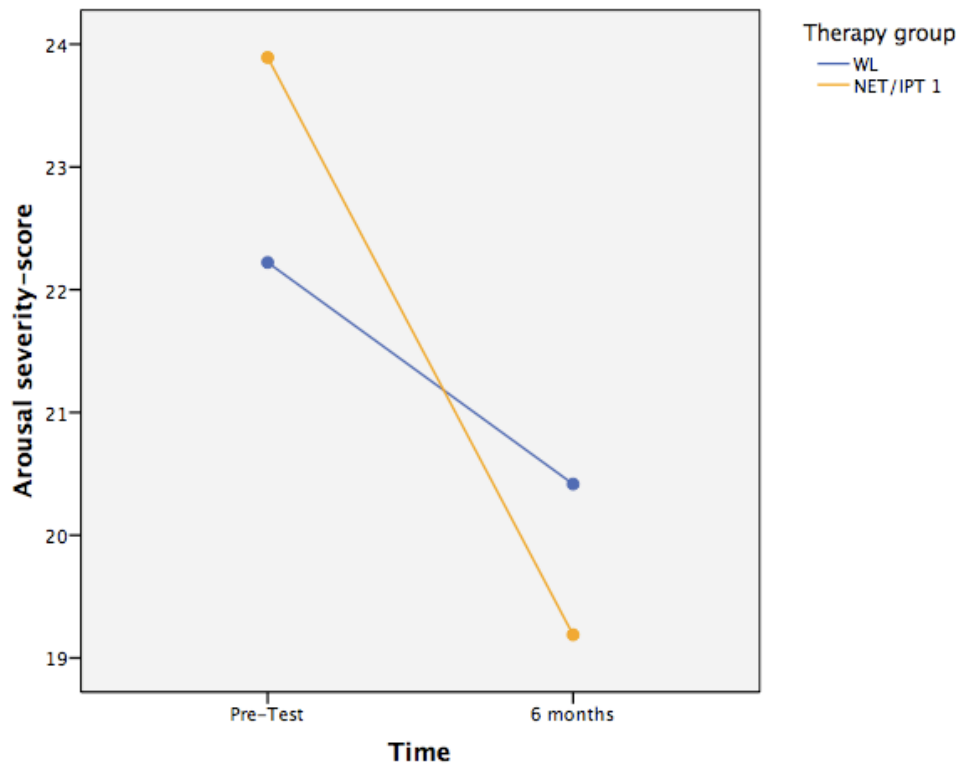

Figure 11: CAPS arousal severity-score at pre-test and six months later by therapy group

E Criterion: Symptom duration

All participants reported PTSD symptom duration of more than three months, whereby three WL participants (8.3%) had experienced an onset delayed by more than six months. All other participants experienced the reported PTSD symptoms within six months after their worst traumatic event.

F Criterion: Functional impairment

PTSD symptoms caused significantly less functional impairment in both therapy group at six-month follow-up (NET/IPT 1 T (36) = 2.14, p < .05) and WL T (35) = 3.46, p < .01). As can be seen in Table 44, all participating genocide survivors perceived less subjective distress, as well as less social and occupational impairment.

Table 44: CAPS functional impairment severity-score at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
F Criterion severity-score M (SD)	7.49 (2.71)	6.38 (3.23)	.37	7.31 (2.23)	5.92 (2.52)	.58

I calculated a one-way ANOVA on the re-experience severity-score over time (pre-test and six months later) as dependent variable with the in-between factor therapy group. The factor time was highly significant ($F(1, 71) = 14.42$, $p < .001$). The interaction of time and therapy was not significant ($F(1, 71) = .18$, $p = .67$).

CAPS Severity-Score

The overall symptom severity of the two treatment groups did not differ significantly at pre-test. The mean severity-score of the CAPS was slightly higher in the NET/IPT 1 group (M = 75.62, SD = 18.04) than in the WL group (M = 72.36, SD = 15.37).

After six months, the CAPS severity-score of NET/IPT 1 participants reduced highly at a highly significant level according to a dependent t-test of the paired samples, from 75.62 to 61.57 ($T(36) = 4.64$, $p < .001$). In the WL it declined from 72.36 to 66.42 ($T(35) = 2.27$, $p < .05$). The ES of NET/IPT 1 was .66, and .37 in the WL. The corrected ES for the comparison of the two groups was .43. The results are presented in Table 45.

Table 45: CAPS severity-score at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
CAPS severity-score M (SD)	75.62 (18.04)	61.57 (24.04)	.66	72.36 (15.37)	66.42 (16.86)	.37

I conducted a one-way ANOVA on the CAPS severity-score over the time as dependent variable with the in-between factor therapy group. The factor time was highly significant ($F(1, 71) = 24.79$, $p < .001$). The interaction of time and therapy group was significant ($F(1, 71) = 4.08$, $p < .05$). The symptom reduction by therapy group is presented in Figure 12.

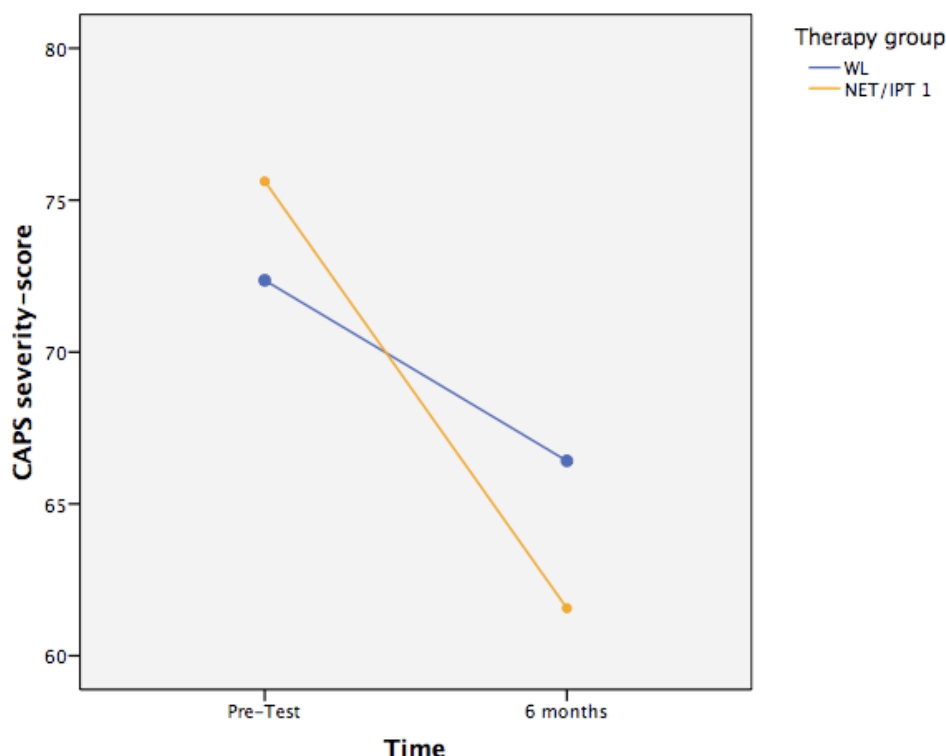

Figure 12: CAPS severity-score at pre-test and six months later by therapy group

Diagnosis

All therapy study participants fulfilled the PTSD diagnosis according to the DSM-IV before treatment. Six months after the pre-test, clinical experts re-interviewed the participants of NET/IPT 1 and the WL. As presented in Table 46, 73% of the NET/IPT 1 participants, and 94.4% of the WL participants still fulfilled the PTSD criteria. This is a significant group difference (χ^2 (1, N = 73) = 6.12, $p < .05$).

Table 46: PTSD diagnosis at pre-test and six months later by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)	
		Pre	3 months post	Pre	6 months
PTSD	N	37	27	36	34
	%	100	73	100	94.4

Guilt

The feelings of *guilt over acts of commission or omission* worsened (survivor guilt was stable) in both groups after six months at non-significant levels, according to a students t-test and one-way ANOVA. The exact figures of the guilt severity-score are presented in Table 47.

Table 47: CAPS guilt severity-score in pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
CAPS guilt severity-score M (SD)	1.81 (3.52)	2.50 (3.90)	-.19	1.36 (2.57)	1.69 (2.89)	-.12

Severity classification

The classification of PTSD severity of the participants at pre-test and six months later is presented in Table 48 (Weathers, 2001). In both conditions the PTSD severity decreased over time.

Table 48: CAPS severity classification at pre-test and six months later in % by therapy group

PTSD severity	NET/IPT 1 (N = 37)		WL (N = 36)	
	Pre	3 months post	Pre	6 months
No diagnosis	-	27.0	-	5.6
Mild	2.7	-	-	2.8
Moderate	13.5	16.2	22.2	25
Strong	45.9	29.7	44.4	47.2
Extreme	37.8	27.0	33.3	19.4

Clinician global ratings

In the global rating for the validity of responses, the clinical experts never rated substantial reduced validity. They were mostly satisfied with the interview quality. Results are presented in Table 49.

Table 49: CAPS clinician validity rating at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)		WL (N = 36)	
	Pre	3 months post	Pre	6 months
Excellent	24.3	13.5	25	30.6
Good	54.1	62.2	44.4	63.9
Fair	21.6	24.3	30.6	5.9

Clinicians rated the global severity of PTSD in both groups to be at a similar level at pre-test. After six months, the NET/IPT 1 group improved with an ES of .73, the WL with an ES of . 59. Exact numbers can be seen in Table 50.

Table 50: CAPS clinician PTSD severity rating at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
Severity rating M (SD)	2.78 (.89)	2.11 (.94)	.73	2.78 (.68)	2.39 (.65)	.59

NET/IPT1 participants rated their overall improvement of PTSD symptoms over the previous six months due to treatment. One judged herself as asymptomatic (2.7%), 11 as considerably improved (29.7%), 12 as moderately improved (32.4%), seven as slightly improved (18.9%), and six participants as unchanged (16.2%).

5.7.2. PGD

I used the PG-13 to measure the changes in the severity of the proposed DSM-V criteria of Prigerson. The results are presented in the following section (Prigerson, 2007).

B Criterion: Yearning

In the yearning cluster, the NET/IPT 1 did not differ significantly from the WL control group at pre-test. The severity changed at a non-significant level both in the NET/IPT 1 group (T (36) = 1.74, p = .09) and in the WL group (T (35) = -.24, p = .81). Numbers can be seen in Table 51. The ES was .29 for the NET/IPT 1, and -.05 for the WL.

Table 51: PG B Criterion severity-score at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
B Criterion severity-score M (SD)	6.24 (2.07)	5.57 (2.47)	.29	6.36 (1.66)	6.44 (1.88)	-.05

C Criterion: Cognitive, emotional, and behavioral symptoms

The C criterion severity-score was comparable in both therapy groups before treatment. After six months, the severity reduced at a significant level both in NET/IPT 1 (T (36) = 1.44, p = .16) and in WL participants (T (35) = 2.49, p < .05). The ES of intervention was .27 for NET/IPT 1 and .51 for WL participants. Results are illustrated in Table 52.

Table 52: PG C Criterion severity-score at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
C Criterion severity-score M (SD)	28.11 (6.74)	26.00 (8.58)	.27	26.44 (6.70)	23.11 (6.45)	.51

I conducted a one-way ANOVA on the PGD C criterion severity-score over time (pre-test and six months later) as dependent variable with the in-between factor therapy group. The factor time was significant (F (1, 71) = 7.48, p < .01). The interaction of time and therapy was not significant (F (1, 71) = .38, p = .54). The C criterion symptom reduction by group is presented in Figure 13.

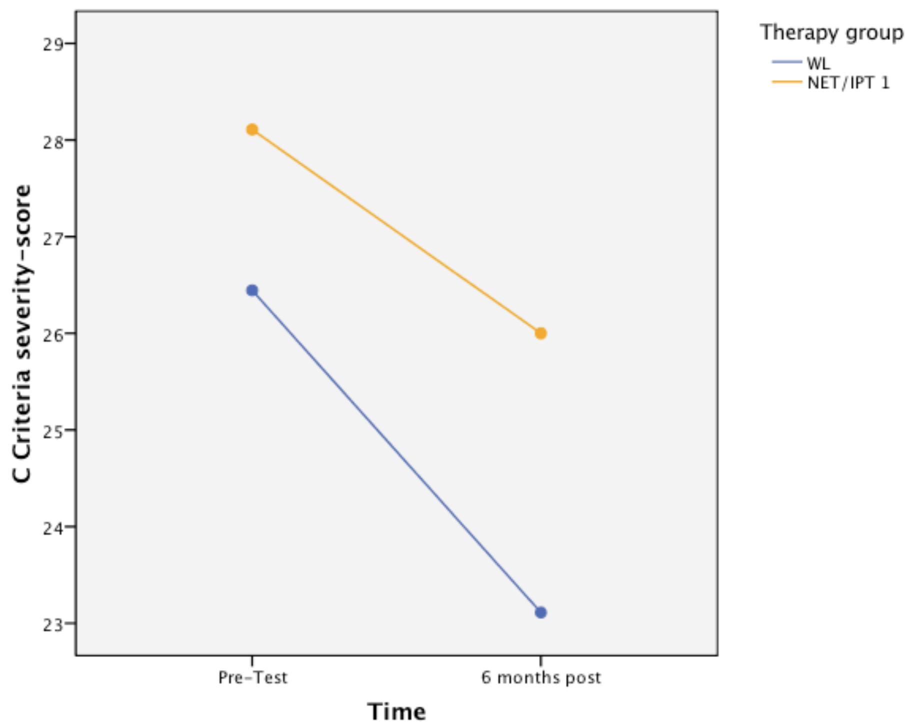

Figure 13: PG C Criterion severity-score at pre-test and six months later by therapy group

D Criterion: Symptom duration

The participants had all experienced symptoms of PGD for more than six months at pre-test.

E Criterion: Functional Impairment

Participants in both therapy groups reported grief symptoms that caused a significant reduction in the perceived ability with regard to social, occupational, or other important area of functioning. Functional impairment did not change significantly over time, as can be seen in Table 53.

Table 53: PG functional impairment caused by grief symptoms at pre-test and six months later by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)	
		Pre	3 months post	Pre	6 months
Functional impairment	N	32	31	29	29
	%	86.5	83.8	80.6	80.6

PG-13 severity-score

The PG severity-score was on the same level in both therapy groups before treatment. After six months, the severity reduced at a significant level both in NET/IPT 1 (T (36) = 1.67, p < .05) and in WL participants (T (35) = 2.27, p < .05). The ES was .31 for the NET/IPT 1 and .45 for the WL participants. Results are presented in Table 54.

Table 54: PG severity-score at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
PG severity-score M (SD)	34.35 (7.75)	31.57 (10.18)	.31	32.81 (7.31)	29.56 (7.19)	.45

I conducted a one-way ANOVA on the PG severity-score over time (pre-test and six months) as dependent variable with the in-between factor therapy group. The factor time was highly significant (F (1, 71) = 7.48, p < .01). The interaction of time and therapy group was not significant (F (1, 71) = .05, p = .83). The overall symptom reduction by group is presented in Figure 14.

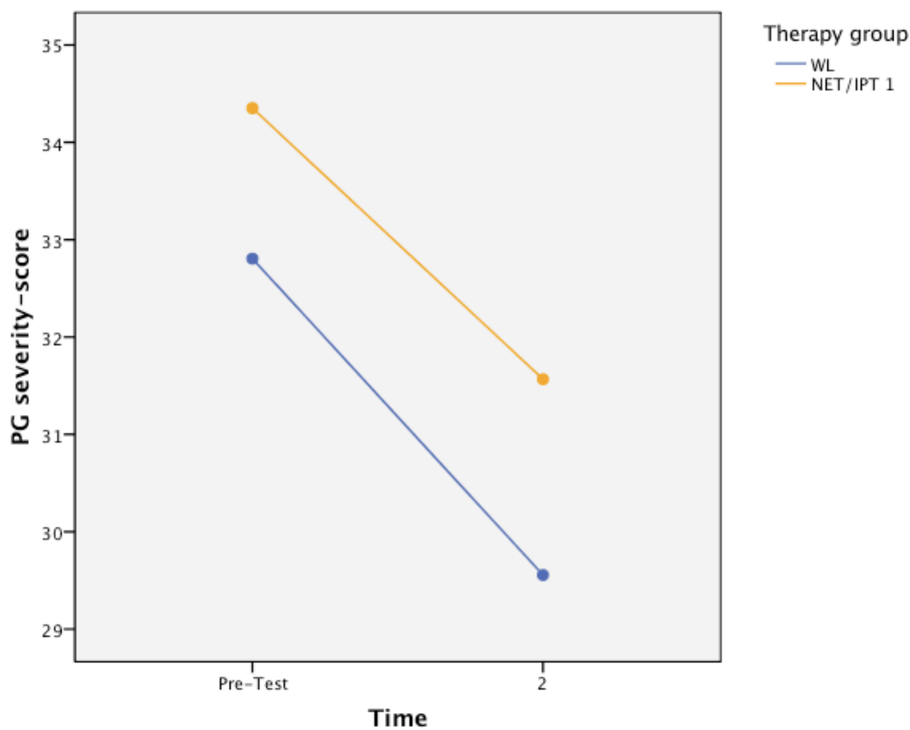

Figure 14: PG severity-score at pre-test and six months later by therapy group

Diagnosis

The treatment completer sample consisted of 14 participants who suffered from PGD at the pre-test (seven per treatment group). As can be seen in Table 55, the PGD diagnoses were stable over the following six months in both groups.

Table 55: PG diagnosis at pre-test and after six months by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)	
		Pre	3 months post	Pre	6 months
PGD	N	7	7	7	7
	%	18.9	18.9	19.4	19.4

5.7.3. Depression

I used the M.I.N.I. to assess depression symptoms according to the DSM-IV diagnostic system (American Psychiatric Association, 2000). Outcomes are presented in the following section.

A Criterion: Depressed mood or loss of interest/pleasure

According to the A criterion, the two treatment groups did not differ at pre-test. The depressive symptoms decreased from pre-test to the assessment six months later in both intervention groups. As illustrated in Table 56 the therapy groups seemed not to differ in the assessment six months later.

Table 56: M.I.N.I. depression A criterion fulfilled at pre-test and six months later by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)	
		Pre	3 months post	Pre	6 months
A Criterion fulfilled	N	26	20	27	12
	%	70.3	54.1	75	33.3

B Criterion: Five symptoms present during the previous two weeks that caused a functioning impairment

At pre-test, depressive symptoms were similar in the two treatment groups. The NET/IPT 1 and the WL groups both fulfilled the B criterion for depression six months later to a lesser

degree than at pre-test. There was no significant difference between the two therapy groups. The B criterion by therapy group is presented in Table 57.

Table 57: M.I.N.I. depression B Criterion fulfilled at pre-test and six months later by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)	
		Pre	3 months post	Pre	6 months
B Criterion fulfilled	N	24	14	25	10
	%	64.9	37.8	69.4	27.8

M.I.N.I. sum-score

At pre-test, there was no significant difference in the sum-score of the therapy groups. Over time, the sum-score reduced at a significant level both in the NET/IPT 1 ($T(36) = 3.33$, $p < .01$) and in the WL groups ($T(35) = 4.74$, $p < .001$). The ES for NET/IPT 1 was .53, and .82 for WL. Results can be seen in Table 58.

Table 58: M.I.N.I. depression sum-score at pre-test and six months later by therapy group

	NET/IPT 1 (N = 37)			WL (N = 36)		
	Pre	3 months post	ES	Pre	6 months	ES
M.I.N.I. sum-score M (SD)	5.27 (2.62)	3.84 (2.76)	.53	4.97 (2.36)	2.94 (2.60)	.82

I conducted a one-way ANOVA on the M.I.N.I. sum-score over time (pre-test and six months) as dependent variable with the in-between factor therapy group. The factor time was highly significant ($F(1, 71) = 32.45$, $p < .001$). The interaction of time and therapy group was not significant ($F(1, 71) = 3.23$, $p = .33$). The overall depressive symptom reduction by group is presented in Figure 15.

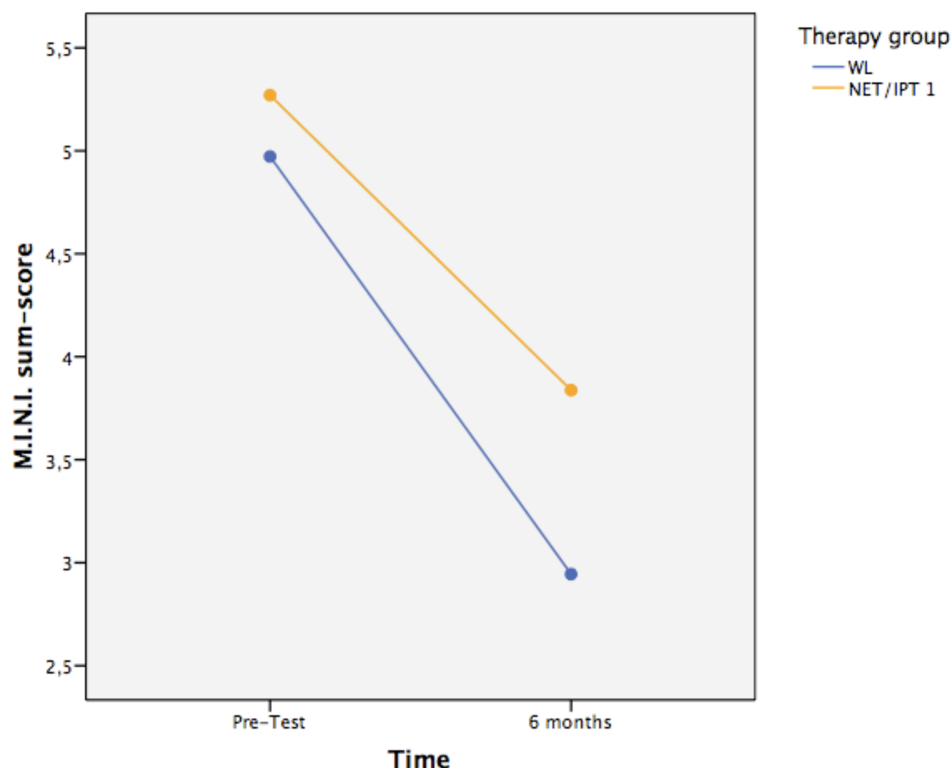

Figure 15: M.I.N.I. sum-score at pre-test and six months later by therapy group

Diagnosis

The two therapy groups had a comparable level of depression diagnosis before treatment, as presented in Table 59. The diagnosis decreased from pre-test to the six-month assessment in NET/IPT 1 and WL participants. There was no difference between the two therapy groups.

Table 59: M.I.N.I. depression diagnosis at pre-test and six months later by therapy group

		NET/IPT 1 (N = 37)		WL (N = 36)	
		Pre	3 months post	Pre	6 months
Depression	N	23	13	22	8
	%	62.2	35.1	61.1	22.2

5.7.4. Suicide tendency

Before treatment, the genocide survivors reported suicidal ideation in both treatment groups on a comparable level. As illustrated in Table 60, the suicidality decreased significantly for

participants of NET/IPT 1 (T (36) = 2.21, p < .05) and of the WL (T (35) = 2.05, p < .05) after six months.

Table 60: M.I.N.I. suicide risk at pre-test and six months later by therapy group

		NET/IPT 1 (N = 37)			WL (N = 36)		
		Pre	3 months post	ES	Pre	6 months	ES
M.I.N.I. suicide risk	Low (1 to 5 points)	21	19		15	19	
	Moderate (6 to 9 points)	3	1		4	-	
	High (>= 10 points)	4	2		6	2	
M.I.N.I. suicide risk M (SD)		4.14 (6.50)	2.08 (4.49)	.37	5.0 (7.40)	2.42 (6.07)	.38

I completed a one-way ANOVA on the M.I.N.I. suicide risk score over time (pre-test and six months later) as dependent variable with the in-between factor therapy group. The factor time was significant (F (1, 71) = 8.85, p < .01). The interaction of time and therapy was not significant (F (1, 71) = .12, p = .74). The overall reduction of suicidal tendencies by group is presented in Figure 16.

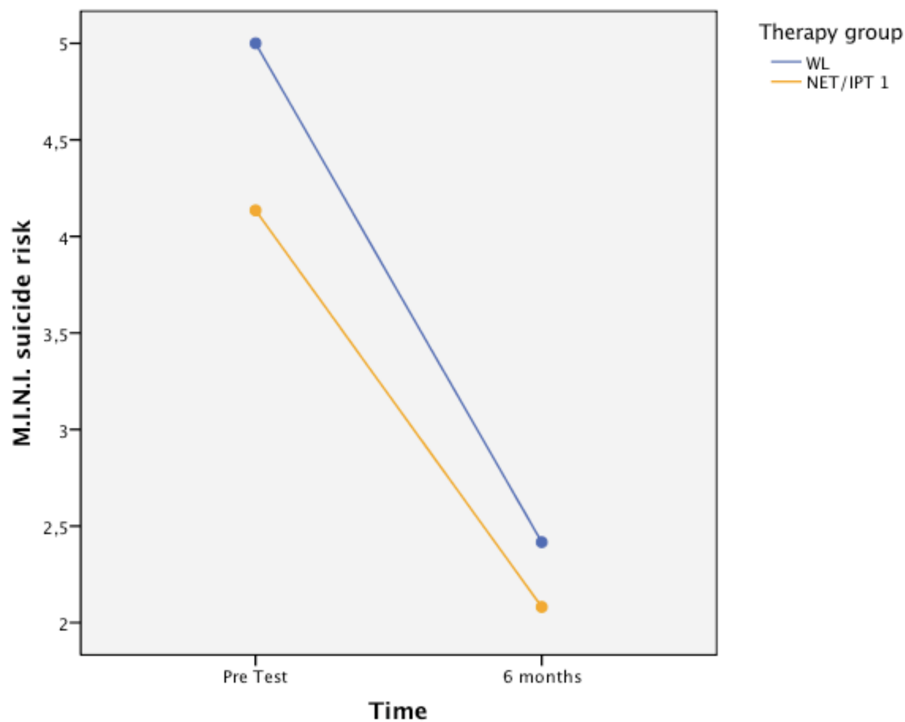

Figure 16: M.I.N.I. suicide risk sum-score at pre-test and six months later by therapy group

5.8. Results first dissemination generation NET/IPT 1 at three and 12-month post-tests

In this section, I present the effects of NET/IPT 1 at 12-month follow-up expert interviews. I include the symptom scores of the pre-, three-, and 12-month post-tests for a review of results. I presented the three-month post-test in greater detail in the previous section.

5.8.1. PTSD

B Criterion: Persistent re-experience

In NET/IPT 1 participants, the re-experience symptoms significantly reduced from pre-test to 12-month post-test (T (36) = 6.27, p < .001). The ES on the re-experience cluster was 1.02. Symptom changes are presented in Table 61.

Table 61: CAPS re-experience symptoms at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			Statistic	
	Pre	3 months post	12 months post	ES	F
B Criterion severity-score M (SD)	24.51 (7.05)	21.62 9.27)	15.38 (10.47)	1.02	20.39 p < .001

The analysis of variances with repeated measures for NET/IPT 1 showed a significant main effect of time (F (2, 72) = 20.39, p < .001). The symptom reduction is illustrated in Figure 17.

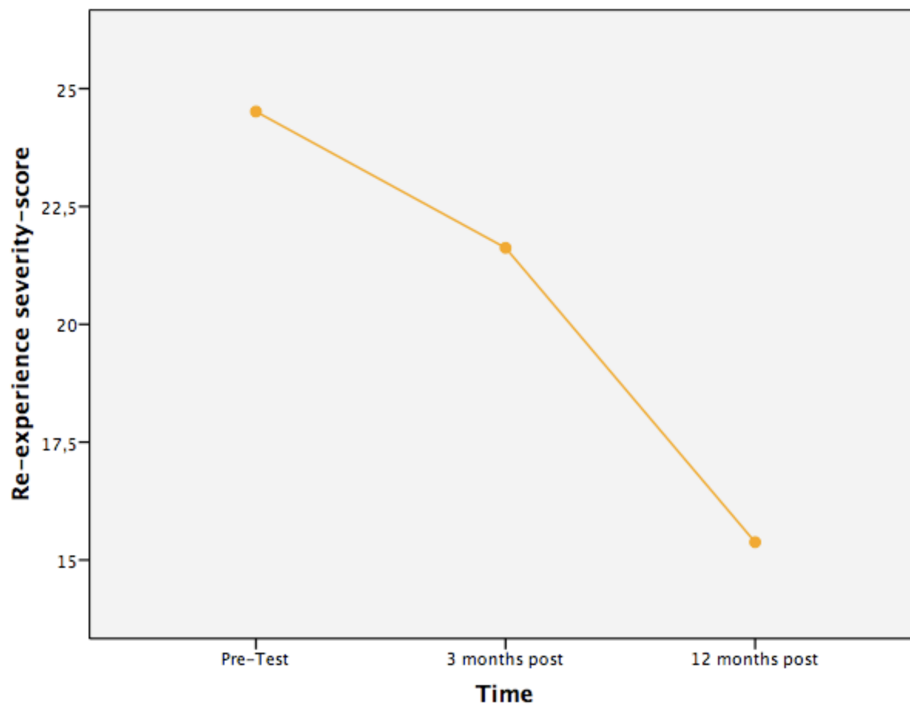

Figure 17: CAPS re-experience severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

C Criterion: Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness

The symptoms of avoidance were significantly lower at the 12-month post-test than at the pre-test (T (36) = 8.95, p < .001). The ES of NET/IPT 1 on the C cluster was 1.55. Table 62 illustrates exact severity-scores at pre-, three-, and 12-month post-tests of the NET/IPT 1 participants.

Table 62: CAPS avoidance symptoms at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			Statistic	
	Pre	3 months post	12 months post	ES	F
C Criterion severity-score M (SD)	27.22 (7.93)	20.76 (9.90)	13.00 (10.26)	1.55	45.35 p < .001

The analysis of variances with repeated measures for NET/IPT 1 resulted in a significant main effect of time (F (2, 72) = 45.35, p < .001), as can be seen in Figure 18.

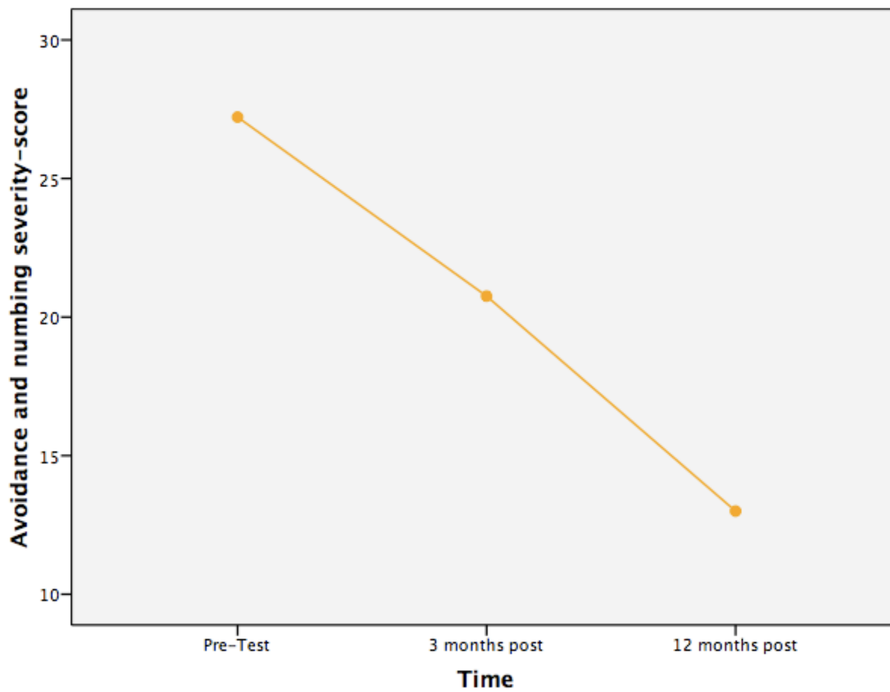

Figure 18: CAPS avoidance severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

D Criterion: Increased arousal

In NET/IPT 1 participants, the symptoms of increased arousal reduced at a significant level (T (36) = 7.80, p < .001), as illustrated in Table 63. The ES of NET/IPT 1 on the D cluster was 1.28.

Table 63: CAPS increased arousal symptoms at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			Statistic	
	Pre	3 months post	12 months post	ES	F
D Criterion severity-score M (SD)	23.89 (7.62)	19.19 (8.35)	13.19 (8.98)	1.28	31.61 p < .001

The analysis of variances with repeated measures for NET/IPT 1 resulted in a significant main effect of time (F (2, 72) = 31.61, p < .001) as illustrated in Figure 19.

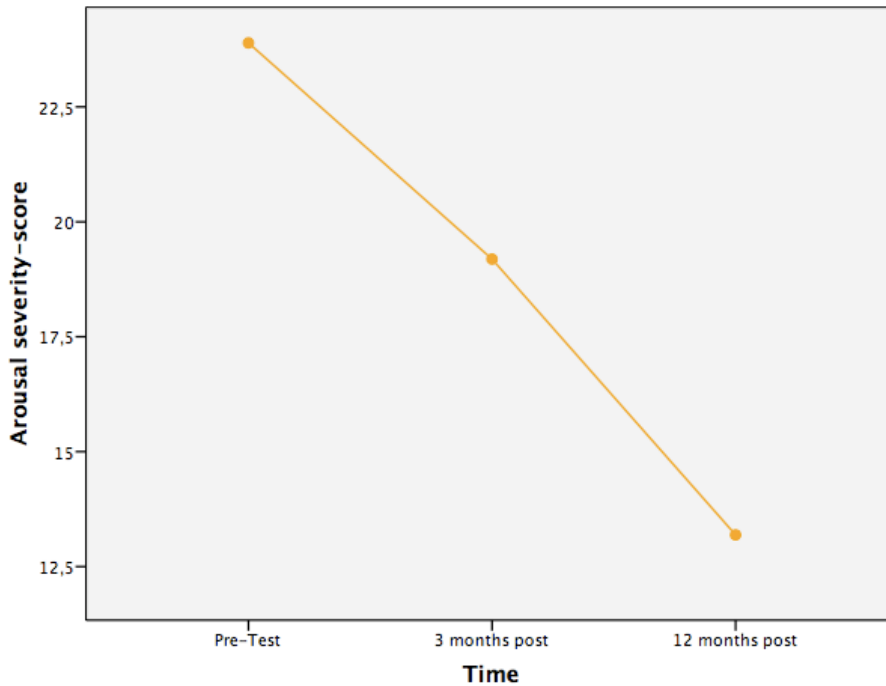

Figure 19: CAPS arousal severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

F Criterion: Functional impairment

The functional impairment of subjective distress, social life, and occupation lowered significantly over time (T (36) = 6.59, $p < .001$). The ES of NET/IPT 1 was 1.07. Table 64 presents the functional impairment over time.

Table 64: CAPS functional impairment at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			Statistic	
	Pre	3 months post	12 months post	ES	F
F Criterion severity-score M (SD)	7.49 (2.71)	6.37 (3.23)	4.30 (3.21)	1.07	23.49 $p < .001$

The analysis of variances with repeated measures for NET/IPT 1 showed a significant main effect of time (F (2, 72) = 23.49, $p < .001$). The functioning impairment severity-score over time can be seen in Figure 20.

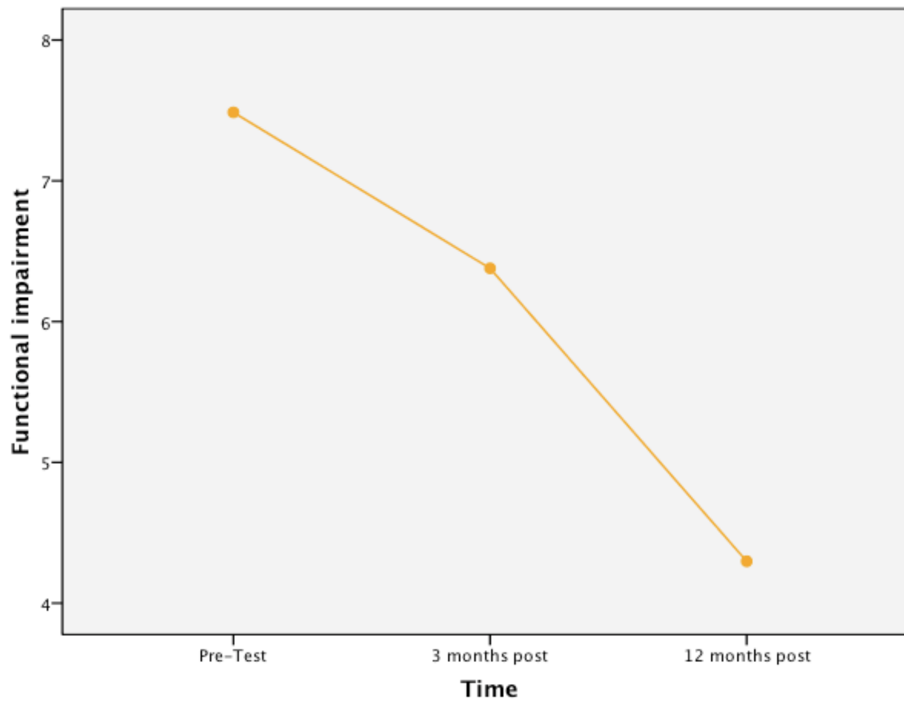

Figure 20: CAPS functional impairment severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

CAPS severity-score

Compared to the pre-test, the overall PTSD severity declined significantly at 12-month post-test (T (36) = 9.50, $p < .001$). The ES of NET/IPT 1 on the CAPS severity-score was 1.48 Results are shown in Table 65.

Table 65: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			Statistic	
	Pre	3 months post	12 months post	ES	F
CAPS severity-score M (SD)	75.62 (18.04)	61.57 (24.04)	41.57 (27.20)	1.48	52.79 p < .001

The analysis of variances with repeated measures for NET/IPT 1 on the CAPS severity-score showed a significant main effect of time (F (2, 72) = 52.79, $p < .001$). The PTSD symptom reduction is illustrated in Figure 21.

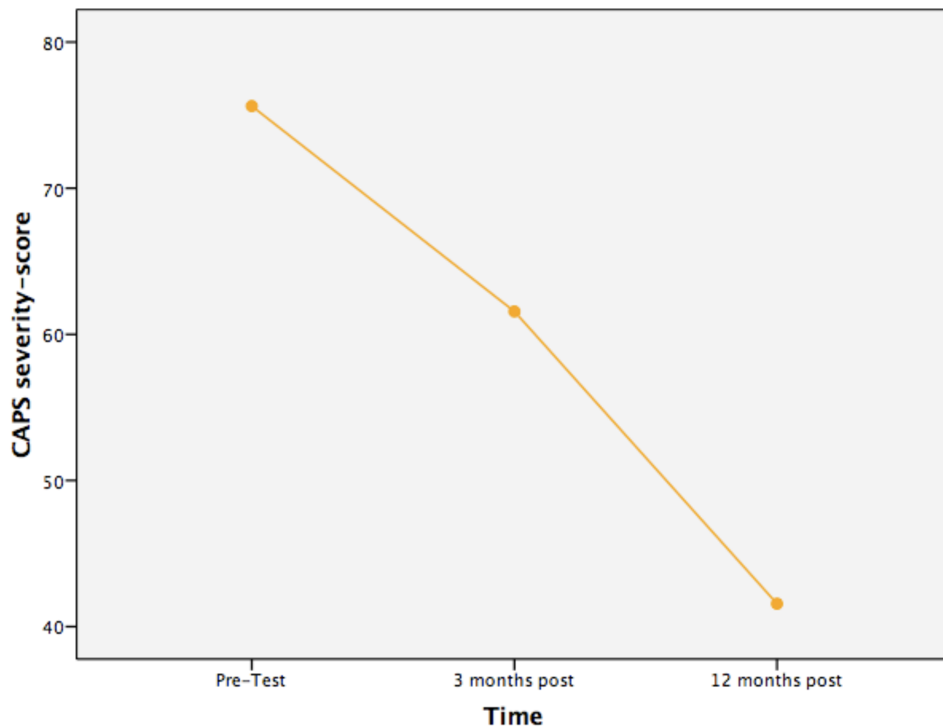

Figure 21: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

Diagnosis

All participants fulfilled the PTSD diagnosis at pre-test. At the three-month assessment, 73% of participants still fulfilled the diagnosis, and 40.5% at 12-month follow-up. Results are presented in Table 66.

Table 66: PTSD diagnosis at pre-, three-, and 12-month post-test of NET/IPT 1 participants

		NET/IPT 1 (N = 37)		
		Pre	3 months post	12 months post
PTSD	N	37	27	15
	%	100	73	40.5

Guilt

Compared to the pre-test, the guilt score worsened after three months. At 12-month post-test, the NET/IPT 1 participants had a significantly lower score than at pre-test (T (34) = 2.05, p < .001). The ES of intervention was .52. Results can be seen in Table 67.

Table 67: CAPS guilt severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			Statistic	
	Pre	3 months post	12 months post	ES	F
CAPS guilt severity-score M (SD)	1.81 (3.52)	2.50 (3.90)	.43 (1.38)	.52	4.92 $p < .05$

The analysis of variances with repeated measures for NET/IPT 1 on the guilt severity-score showed a significant main effect of time ($F(2, 34) = 4.92, p < .001$).

Severity classification

The classification of PTSD severity for NET/IPT 1 participants decreased from the pre-test to the 12-month post-test. The results of the CAPS can be seen in Table 68.

Table 68: CAPS severity classification at pre-, three-, and 12-month post-test in % of NET/IPT 1 participants

	NET/IPT 1 (N = 37)		
PTSD severity	Pre	3 months post	12 months post
No diagnosis	-	27.0	59.5
Mild	2.7	-	-
Moderate	13.5	16.2	13.5
Strong	45.9	29.7	16.2
Extreme	37.8	27.0	10.8

Clinician global ratings

In the global validity rating of responses, the clinical experts had the impression of substantially reduced validity in two cases because of concentration problems. Otherwise, they were satisfied with the interview quality. The results are presented in Table 69.

Table 69: CAPS clinician validity rating in % of the 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37) 12 months post
Excellent	5.4
Good	70.3
Fair	18.9
Poor	5.4

Clinicians' rating of the global severity of PTSD decreased over time at a significant level (Wilcoxon Z = -3.59, $p < .001$) with an ES of 1.23. Exact numbers are presented in Table 70.

Table 70: CAPS clinician PTSD severity rating at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			
	Pre	3 months post	12 months post	ES
Severity rating M (SD)	2.78 (.89)	2.11 (.94)	1.57 (1.07)	1.23

At 12-month post-test, the NET/IPT1 participants rated the overall improvement of their PTSD symptoms due to treatment mostly positive. One genocide survivor rated herself as asymptomatic (2.7%), 9 reported considerable improvement (24.3%), 14 improved moderately (37.8%), 11 improved slightly (29.7%), and two participants did not see any change (5.4%).

Development of single cases

From pre- to 12-month post-test, the CAPS severity-scores increased in two participants. The PTSD severity-score of each NET/IPT 1 participants can be seen in Figure 22.

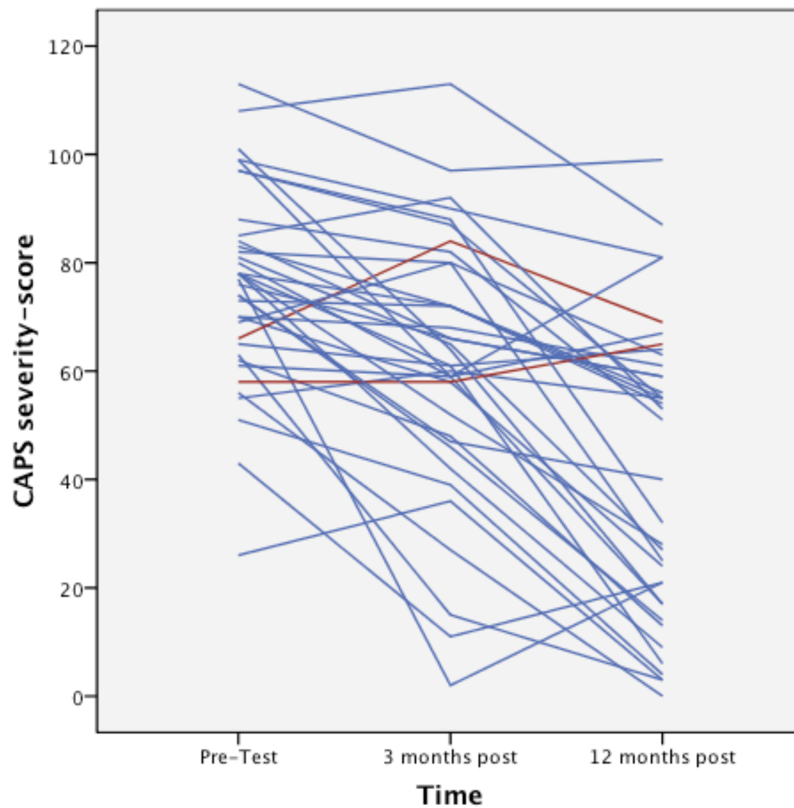

Figure 22: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants (N = 37); participants with more severe symptoms in the 12-month post-test are marked red

Case 1 was a widow who was accused at a *Gacaca* court of having being complicit in the killing of a child during the genocide of 1994. Thus, throughout the study she carried the burden of a potential sentence and was extremely distressed. Consequently, she reported an aggravation of PTSD symptoms. One week after the 12-month post-test she was acquitted of the charge.

Case 2 was a male orphan who we first interviewed at an orphanage for former street children. In November 2007, just before the beginning of NET/IPT 1, the orphanage reunited him with his uncle who lived outside Butare. The uncle had been seriously injured during the genocide and was handicapped. Therefore, he was unable to take care of the orphan. The boy had to make his own living and he went back to live on the street after the end of treatment. There, police physically attacked and arrested him. At three-month post-test, he had found a place to live but was unemployed. Further, the head of the household maltreated and neglected him. He had started to abuse drugs again and reported an aggravation of symptoms caused by his difficult living conditions. At 12-month follow-up, his situation was still the same.

Therapist effect

The treatment effects of NET/IPT 1 did not differ by therapist, as can be seen in Figure 23. One therapist (yellow line) only treated one client, who was accused by a *Gacaca* court. I described this client as case 1 in the previous section.

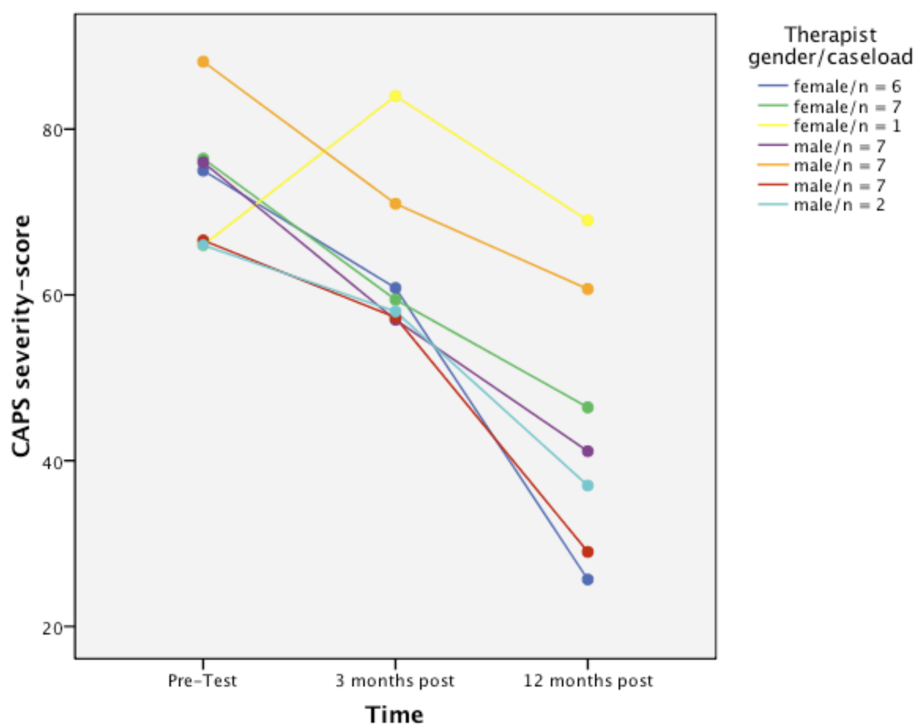

Figure 23: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants by therapist

Sort of loss

Orphans and widows profited equally from NET/IPT 1, as can be seen in Figure 24.

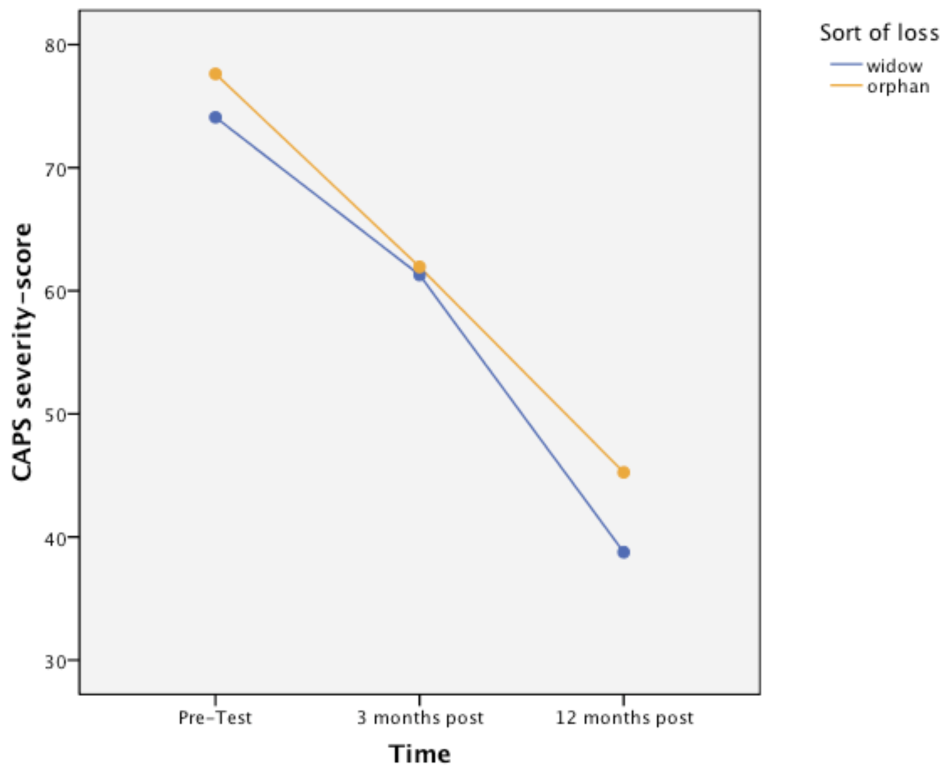

Figure 24: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants by sort of loss

5.8.2. PGD

I present the changes for the PG severity from pre-test to the 12-month follow-up for NET/IPT 1 participants. In one participant with serious concentration problems, the interviewer had not assessed the PG-13. Consequently, the treatment completer sample consisted of 36 participants.

B Criterion: Yearning

The yearning cluster of PGD improved significantly over time for the NET/IPT 1 group ($T(35) = 2.34$, $p < .05$). The ES was .53 for the 12 months completer sample. Exact numbers are presented in Table 71.

Table 71: PG B Criterion severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 36)			
	Pre	3 months post	12 months post	ES
B Criterion severity-score M (SD)	6.25 (2.10)	5.44 (2.38)	5.06 (2.38)	.53

C Criterion: Cognitive, emotional, and behavioral symptoms

The PGD C cluster of the NET/IPT 1 participants lowered significantly over time ($T(35) = 7.27$, $p < .001$), as can be seen in Table 72. After 12 months, the ES of NET/IPT 1 was 1.39.

Table 72: PG C Criterion severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 36)			
	Pre	3 months post	12 months post	ES
C Criterion severity-score M (SD)	27.81 (6.58)	25.58 (8.31)	17.53 (8.12)	1.39

The one-way ANOVA on the PG C criterion severity-score over time (pre-, three-, and 12-month post-test) as dependent variable was highly significant for the factor time ($F(2, 70) = 30.38$, $p < .001$). Figure 25 presents the mean severity-scores of the three interviews.

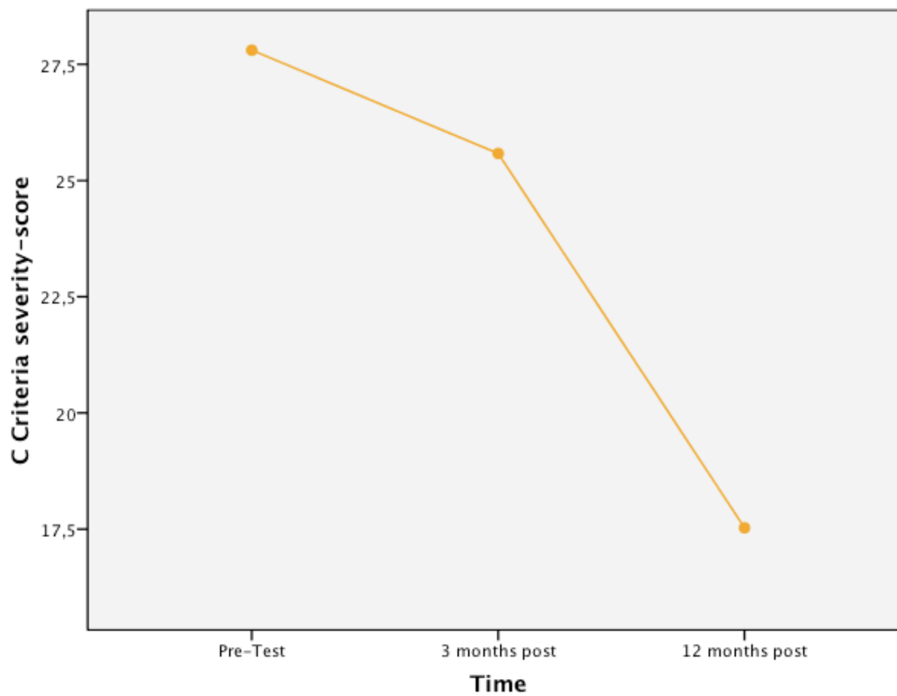

Figure 25: PG C Criterion severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

E Criterion: Functional impairment

Before treatment, 86.1% of the genocide survivors reported that PG symptoms reduced their functioning in social, occupational, or other important areas of life. One year after therapy, 44.4 % no longer felt functionally impaired. Exact numbers are presented in Table 73.

Table 73: PG functional impairment at pre-, three-, and 12-month post-test of the NET/IPT 1 completer sample

		NET/IPT 1 (N = 36)		
		Pre	3 months post	12 months post
Functional impairment	N	31	30	20
	%	86.1	83.3	55.6

PG-13 severity-score

The grief severity-score reduced at a highly significant level from pre- to the 12-month post-test ($T(35) = 6.66$, $p < .001$), as can be seen in Table 74. The ES was 1.31 for NET/IPT 1.

Table 74: *PG severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants*

	NET/IPT 1 (N = 36)			
	Pre	3 months post	12 months post	ES
PG severity-score M (SD)	34.06 (7.65)	31.03 (9.77)	22.58 (9.77)	1.31

A one-way ANOVA on the PG severity-score was highly significant for the factor time ($F(2, 70) = 26.74$, $p < .001$). The reduction of the mean PG severity-score is shown in Figure 26.

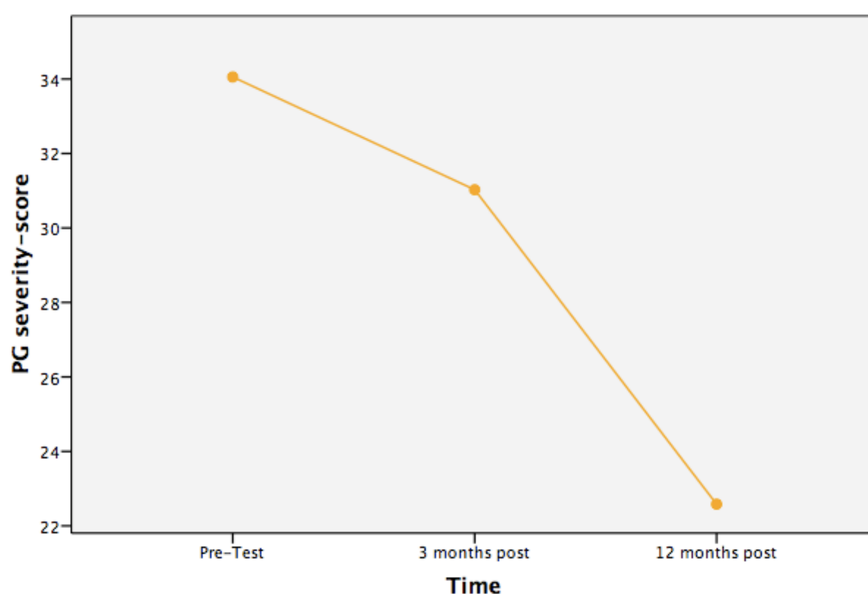

Figure 26: PG severity-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

Diagnosis

At the pre-test, the NET/IPT 1 completer sample consisted of seven persons (19.4%) with a PGD diagnosis. As illustrated in Table 75, four of those participants (11.1%) still fulfilled the diagnosis at 12-month post-test.

Table 75: PG diagnosis at pre-, three-, and 12-month post-test of NET/IPT 1 participants

		NET/IPT 1 (N = 36)		
		Pre	3 months post	12 months post
PGD	N	7	6	4
	%	19.4	16.7	11.1

5.8.3. Depression

A Criterion: Depressed mood or loss of interest/pleasure

Depression symptoms decreased over time. While 26 participants (70.3%) fulfilled the DSM-IV A criterion before therapy, 12 participants (32.4%) fulfilled it one year after NET/IPT 1. Results can be seen in Table 76.

Table 76: Depression A criterion fulfilled at pre-, three-, and 12-month post-test of NET/IPT 1 participants

		NET/IPT 1 (N = 37)		
		Pre	3 months post	12 months post
A Criterion fulfilled	N	26	20	12
	%	70.3	54.1	32.4

B Criterion: Five symptoms present during the previous two weeks that caused a functioning impairment

Before treatment, 24 participants (64.9%) fulfilled the DSM-IV B criterion of depression. Nine individuals (24.3%) in the NET/IPT 1 group fulfilled the diagnosis at the 12-month follow-up. Table 77 shows the exact numbers.

Table 77: Depression B Criterion fulfilled at pre-, three-, and 12-month post-test of NET/IPT 1 participants

		NET/IPT 1 (N = 37)		
		Pre	3 months post	12 months post
B Criterion fulfilled	N	24	14	9
	%	64.9	37.8	24.3

M.I.N.I. sum-score

The sum-score of the M.I.N.I. decreased over time in NET/IPT 1 participants as shown in Table 78. The difference between pre-test and 12-month follow-up was highly significant ($T(36) = 6.14$, $p < .001$). The ES of NET/IPT 1 on the depression sum-score was 1.05.

Table 78: M.I.N.I. sum-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

	NET/IPT 1 (N = 37)			
	Pre	3 months post	12 months post	ES
M.I.N.I. sum-score M (SD)	5.27 (2.62)	3.84 (2.76)	2.43 (2.81)	1.05

The ANOVA on the M.I.N.I. sum-score showed a significant main effect of time ($F(2, 72) = 20.71$, $p < .001$). The participants of NET/IPT 1 reported fewer symptoms at 12-month follow-up as can be seen in Figure 27.

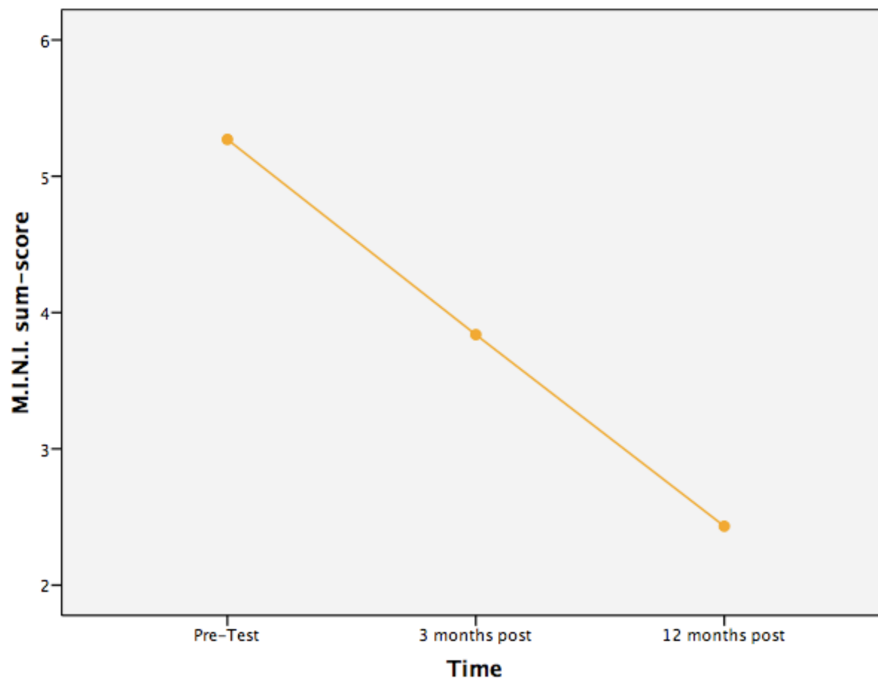

Figure 27: M.I.N.I sum-score at pre-, three-, and 12-month post-test of NET/IPT 1 participants

Diagnosis

According the DSM-IV, 23 participants (62.2%) of NET/IPT 1 fulfilled the depression diagnosis at pre-test. Twelve months after treatment, seven individuals still suffered from MD (18.9%), as is illustrated in Table 79.

Table 79: M.I.N.I. depression diagnosis at pre-, three-, and 12-month post-test of NET/IPT 1 participants

		NET/IPT 1 (N = 37)		
		Pre	3 months post	12 months post
Depression	N	23	13	7
	%	62.2	35.1	18.9

5.8.4. Suicide tendency

Twenty-eight of the NET/IPT 1 participants had reported suicide tendencies at the pre-test with a mean of 4.14 suicide risk points (SD = 6.50). After 12 months, 18 participants still reported suicide thoughts. The mean reduced at a non-significant level (T (36) = 1.81, p = .079) with an ES of .37. Exact figures are presented in Table 80.

Table 80: M.I.N.I. suicide risk at pre-, three-, and 12-month post-test of NET/IPT 1 participants

		NET/IPT 1 (N = 37)			
		Pre	3 months post	12 months post	ES
M.I.N.I. suicide risk	Low (1 to 5 points)	21	19	15	
	Moderate (6 to 9 points)	3	1	2	
	High (>= 10 points)	4	2	1	
M.I.N.I. suicide risk M (SD)		4.14 (6.50)	2.08 (4.49)	2.19 (3.79)	.37

A one-way ANOVA on the M.I.N.I. suicide risk score (pre-, three-, and 12-month post-test) as dependent variable was not significant for time (F (2, 72) = 3.06, p = .05). The overall reduction of suicidal thoughts for NET/IPT 1 is presented in Figure 28.

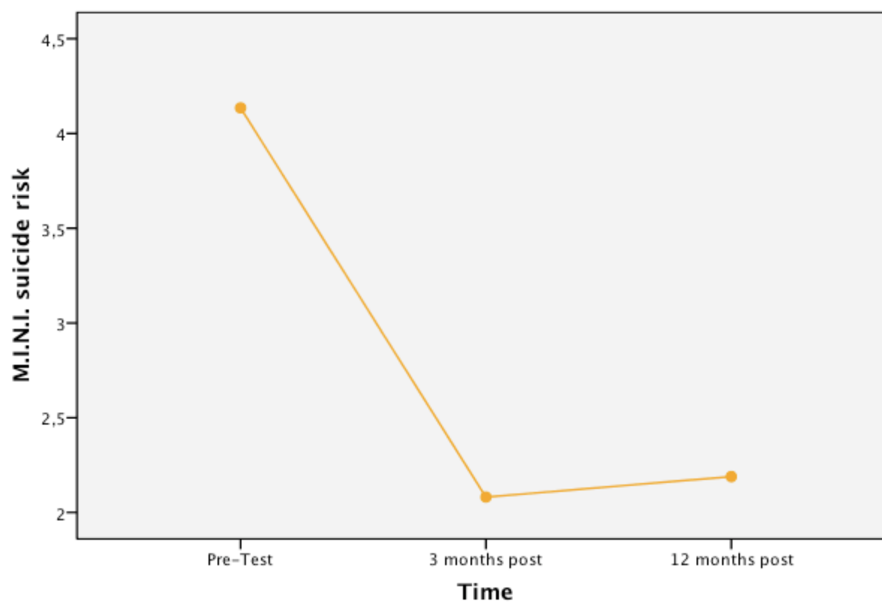

Figure 28: M.I.N.I. suicide risk at pre-, three-, and 12-month post-test of NET/IPT 1 participants

5.9. Results second dissemination generation at three and 12-month post-tests

Clinical experts conducted interviews before the assignment to the WL and immediately before treatment. We conducted therapy evaluations three and 12 months after NET/IPT 2. Rwandan students interviewed the genocide survivors before and six months after therapy. In the following section, each clinical variable is presented at the pre- and post-tests for the participants of the NET/IPT 2 group.

5.9.1. PTSD

The clinical experts administered the CAPS to measure therapy effects on PTSD symptoms. For NET/IPT 2, we conducted the first expert interviews (baseline) in November 2007. We assessed the pre-test in May 2008, the three-month post-test in October 2008, and the 12-month follow-up in August 2009. I present the effects on the NET/IPT 2 group at 12 months expert post-test compared to the pre-test in this section. I included the symptom scores of the baseline interview for the review of results. The baseline and the pre-test have been presented in Chapter 4.7. in more detail.

B Criterion: Persistent re-experience

In NET/IPT 2, the B cluster symptoms reduced significantly from pre- to 12-month post-test (T (30) = 7.22; p < .001) by an ES of 1.54. Exact numbers can be seen in Table 81.

Table 81: CAPS re-experience severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			Statistic	
	Pre	3 months post	12 months post	ES	F
B Criterion severity-score M (SD)	24.16 (6.32)	13.90 (7.94)	11.87 (9.32)	1.54	36.58 p < .001

A one-way ANOVA on the re-experience severity-score as dependent variable at pre-, three-, and 12-month post-test was significant for time (F (2, 60) = 36.58, p < .001). Figure 29 illustrates the results including the baseline measure.

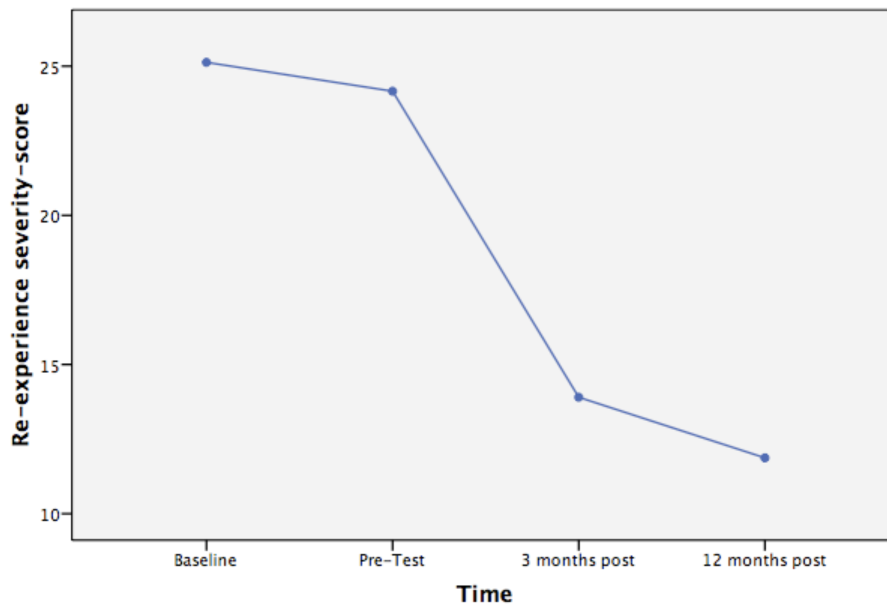

Figure 29: CAPS re-experience severity-score at baseline-, pre-, three-, and 12-month post-test of NET/IPT 2 participants

C Criterion: Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness

The avoidance symptoms significantly reduced from pre- to 12-month post-test in NET/IPT 2 participants (T (30) = 5.87, p < .001). The ES of NET/IPT 2 was 1.08. Detailed results are presented in Table 82.

Table 82: CAPS avoidance symptoms at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			Statistic	
	Pre	3 months post	12 months post	ES	F
C Criterion severity-score M (SD)	22.35 (7.85)	11.90 (9.85)	12.26 (10.64)	1.08	24.97 p < .001

A one-way ANOVA on the severity-score of the C criterion at pre-, three-, and 12-month post-test was significant for time (F (2, 60) = 24.97, p < .001). The C cluster symptom severity over time is presented in Figure 30.

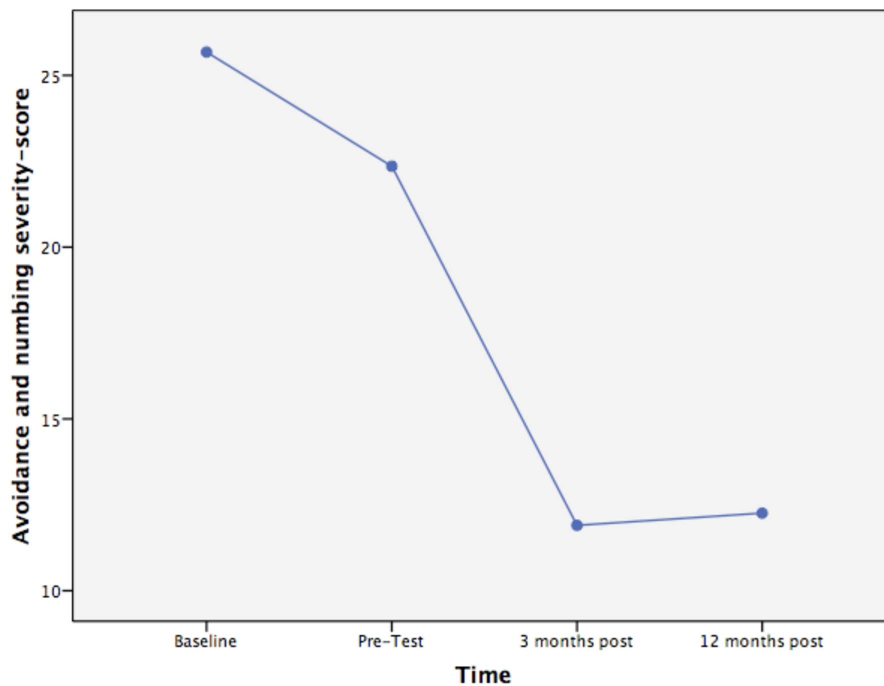

Figure 30: CAPS avoidance and numbing severity-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants

D Criterion: Increased arousal

In a dependent t-test with repeated measures at pre-test and 12 months after treatment, NET/IPT 2 participants had significantly fever symptoms than before (T (30) = 7.32, $p < .001$). The results can be seen in Table 83. The ES after 12 months was 1.57 for NET/IPT 2 participants.

Table 83: CAPS increased arousal symptoms at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			Statistic	
	Pre	3 months post	12 months post	ES	F
D Criterion severity-score M (SD)	21.06 (6.92)	12.61 (7.83)	9.81 (7.39)	1.57	28.88 $p < .001$

A one-way ANOVA on the arousal severity-score as dependent variable at pre-, three-, and 12-month post-test of NET/IPT 2 participants was highly significant for time (F (2, 60) = 28.88, $p < .001$). The D criterion symptom severity at baseline, pre-, three-, and 12-month post-test are presented in Figure 31.

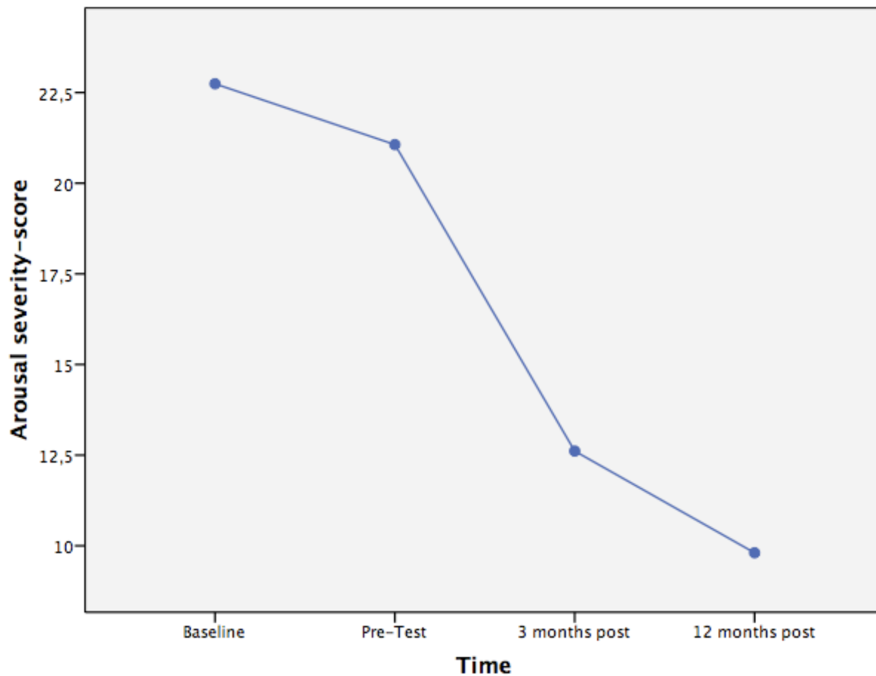

Figure 31: CAPS arousal severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

F Criterion: Functional impairment

For NET/IPT 2 participants, the functional impairment reduced at a statistically significant level from the pre-test to the 12-month post-test (T (30) = 4.90, p < .001). The ES was .85 on the functional impairment severity-score. Exact numbers can be seen in Table 84.

Table 84: CAPS functional impairment at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			Statistic	
	Pre	3 months post	12 months post	ES	F
F Criterion severity-score M (SD)	6.13 (2.43)	5.13 (3.13)	3.87 (2.87)	.85	10.76 p < .001

A one-way ANOVA on the functional impairment severity-score at pre-, three-, and 12-month post-test showed a significant main effect for time (F (2, 60) = 10.76, p < .001).

CAPS severity-score

The symptom severity of the NET/IPT 2 reduced significantly from pre- to 12-month post-test (T (31) = 8.46, p < .001), as can be seen in Table 85. The ES was 1.15 for NET/IPT 2 participants.

Table 85: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			Statistic	
	Pre	3 months post	12 months post	ES	F
CAPS severity-score M (SD)	67.58 (33.94)	38.42 (22.88)	33.94 (23.73)	1.15	46.69 p < .001

An ANOVA on the CAPS severity-score over time (pre-test, three and 12-month post-test) of NET/IPT 2 participants was highly significant (F (2, 60) = 46.69, p < .001). The symptom reduction in NET/IPT 2 participants is presented in Figure 32.

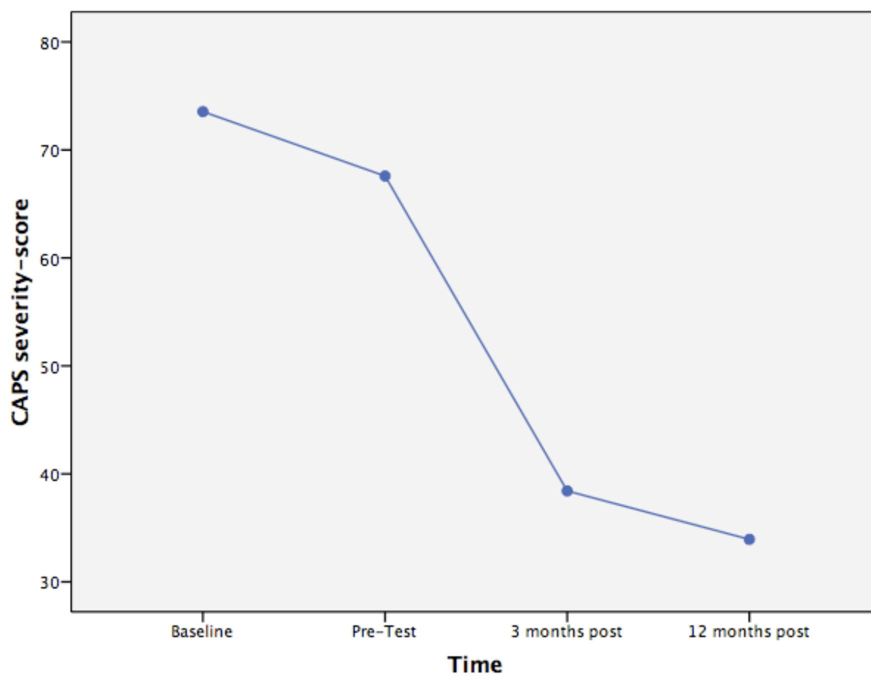

Figure 32: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

Diagnosis

All participants fulfilled the PTSD diagnosis at the pre-test, 41.9% (N = 13) of participants at the three-month post-test, and 25.8% (N = 8) at the 12-month post-test. Results are listed in Table 86.

Table 86: PTSD diagnosis at pre-, three-, and 12-month post-test by therapy group

		NET/IPT 2 (N = 31)		
		Pre	3 months post	12 months post
PTSD	N	31	13	8
	%	100	41.9	25.8

Guilt

The level of guilt feelings among NET/IPT 2 participants improved at a significant level from pre-test to 12-month post-test ($T\ (30) = 3.31$, $p < .01$) as presented in Table 87. The ES of NET/IPT 2 was .70.

Table 87: CAPS guilt severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			Statistic	
	Pre	3 months post	12 months post	ES	F
CAPS guilt severity-score M (SD)	1.74 (3.03)	1.16 (2.33)	.19 (.79)	.70	4.16 p < .05

The analysis of variances with repeated measures for NET/IPT 2 on the guilt severity-score showed a significant main effect of time ($F\ (2, 60) = 4.16$, $p < .05$).

CAPS severity classification

The classification of PTSD severity at pre-, three-, and 12-month post-test is presented in Table 88. PTSD severity decreased over time in NET/IPT 2 participants.

Table 88: CAPS PTSD severity classification in % at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)		
PTSD severity	Pre	3 months post	12 months post
No diagnosis	-	51.6	74.2
Mild	3.2	3.2	-
Moderate	25.8	32.3	9.7
Strong	48.4	9.7	12.9
Extreme	22.6	3.2	3.2

Clinician global ratings

The clinical experts rated the global interview validity in 25 participants (80.6%) as excellent or good. In six participants (19.4%) they suspected reduced validity because of concentration problems or lack of education. The results are presented in Table 89.

Table 89: Clinician validity rating in % at 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31) 12 months post
Excellent	22.6
Good	58.1
Fair	19.4

The clinical experts rated the global severity of PTSD. Results are presented in Table 90. They found a significant reduction in PTSD severity from pre- to 12-month post-test (Z (N = 31) = -4.39, p < .001).

Table 90: Clinician severity rating of PTSD symptoms at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			
	Pre	3 months post	12 months post	ES
Severity rating M (SD)	2.42 (.62)	1.90 (.98)	1.16 (.86)	1.68

NET/IPT2 participants rated their overall improvement of PTSD symptoms positively. Three genocide survivors judged themselves as asymptomatic (9.7%), eleven as considerably improved (35.5%), eight as moderately improved (25.8%), seven as slightly improved (22.6%), and two as not improved (6.4%).

Development of single cases

From the initial baseline assessment to the 12-month post-test, there was one participant whose CAPS severity-score increased in the NET/IPT 2 group (Figure 33).

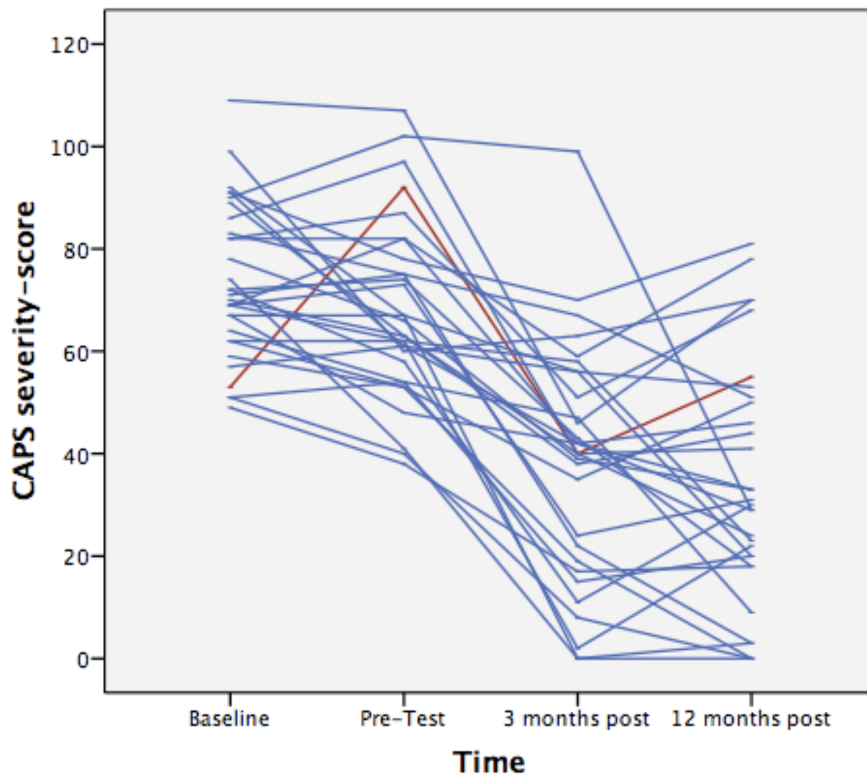

Figure 33: CAPS severity-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants (N = 31); the participant with more severe symptoms at 12-month post-test is marked red

This case was a widow who was living on her own and suffered from HIV/AIDS in an advanced state. At 12-month follow-up, she reported an aggravation of the symptoms of her infection and complained about loneliness. Contrary to the CAPS severity-score, she felt a moderate improvement of her PTSD symptoms due to therapy.

Therapist effect

The treatment effects in the NET/IPT 2 group seemed not to differ by therapist, as illustrated in Figure 34. The second generation of NET therapists was successful in treating PTSD symptoms.

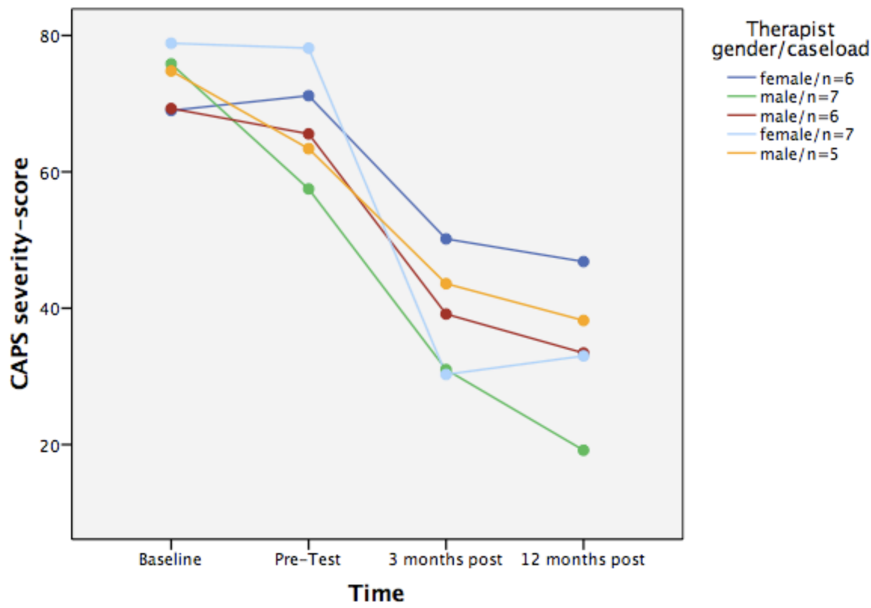

Figure 34: CAPS severity-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants by therapist

Sort of loss

Orphans and widows profited equally from NET/IPT 2. The CAPS symptom reduction over time can be seen in Figure 35.

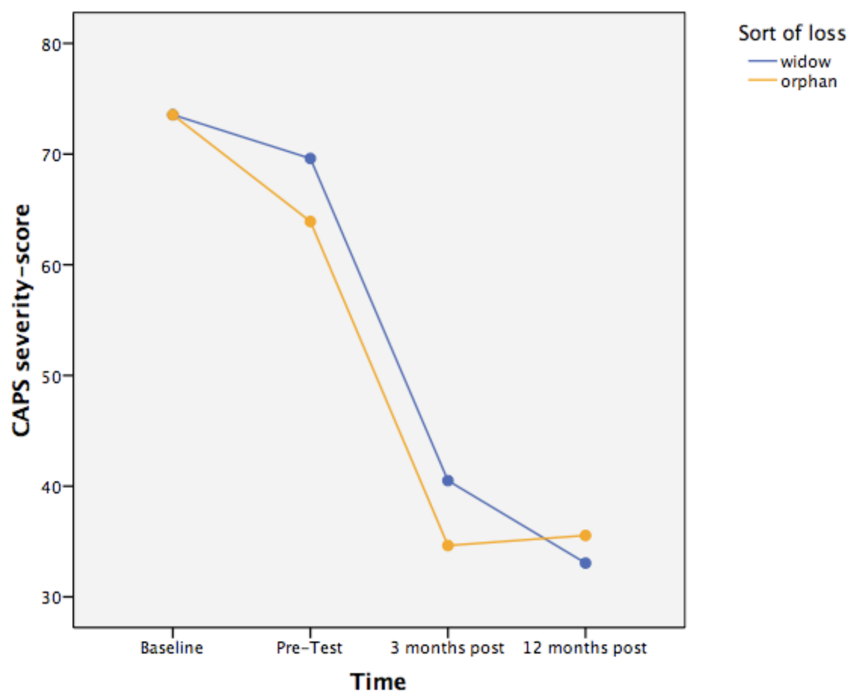

Figure 35: CAPS severity-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants by sort of loss

5.9.2. PGD

Changes in PG severity from the pre-test to the 12-month follow-up are presented for NET/IPT 2 participants in the following section. Baseline assessment and three-month post-tests are included for an overview of symptom changes.

B Criterion: Yearning

The PGD yearning cluster improved significantly from pre- to 12-month post-test for the NET/IPT 2 group (T (30) = 4.70, p < .001). The ES was 1.07 for the 12 months treatment completer sample. Exact numbers are presented in Table 91.

Table 91: PG B Criterion severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			
	Pre	3 months post	12 months post	ES
B Criterion severity-score M (SD)	6.68 (1.90)	5.23 (1.96)	4.48 (2.20)	1.07

C Criterion: Cognitive, emotional, and behavioral symptoms

The PGD C cluster of NET/IPT 2 participants lowered significantly from pre- to 12-month post-test (T (30) = 7.27, p < .001), as can be seen in Table 92. In the 12-month post-test, the ES of NET/IPT 2 was .90.

Table 92: PG C Criterion severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			
	Pre	3 months post	12 months post	ES
C Criterion severity-score M (SD)	23.52 (6.50)	17.94 (5.82)	17.61 (6.70)	.90

A one-way ANOVA on the PG C criterion severity-score over time (pre-, three-, and 12-month post-test) as dependent variable was highly significant for the factor time (F (2, 60) = 15.85, p < .001). Figure 36 presents the average severity-score for the four interviews.

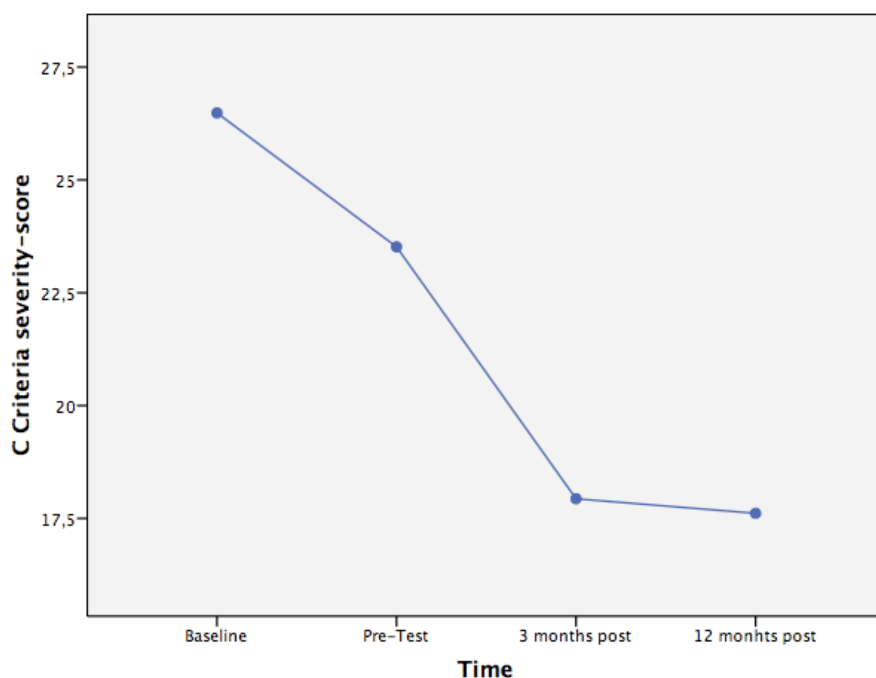

Figure 36: PG C Criterion severity-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants

E Criterion: Functional impairment

Before treatment, 80.6% of the genocide survivors reported that PG symptoms reduced their ability in social, occupational, or other important areas of life. One year after NET/IPT 2, 54.8% no longer felt functionally impaired. Exact numbers are presented in Table 93.

Table 93: Functional impairment by PG symptoms at pre-, three-, and 12-month post-test of NET/IPT 2 participants

		NET/IPT 2 (N = 31)		
		Pre	3 months post	12 months post
Functional impairment	N	25	18	14
	%	80.6	58.1	45.2

PG-13 severity-score

The grief severity-score of NET/IPT 2 participants reduced significantly from the pre- to the 12-month post-test ($T(30) = 5.88$, $p < .001$), as can be seen in Table 94. The ES was 1.08 for NET/IPT 2.

Table 94: PG severity-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			
	Pre	3 months post	12 months post	ES
PG severity-score M (SD)	30.19 (7.24)	23.16 (7.06)	22.10 (7.70)	1.08

A one-way ANOVA on the PG severity-score was highly significant for the factor time (F (2, 60) = 21.85, p < .001). The reduction in the mean PG severity-score is shown in Figure 37.

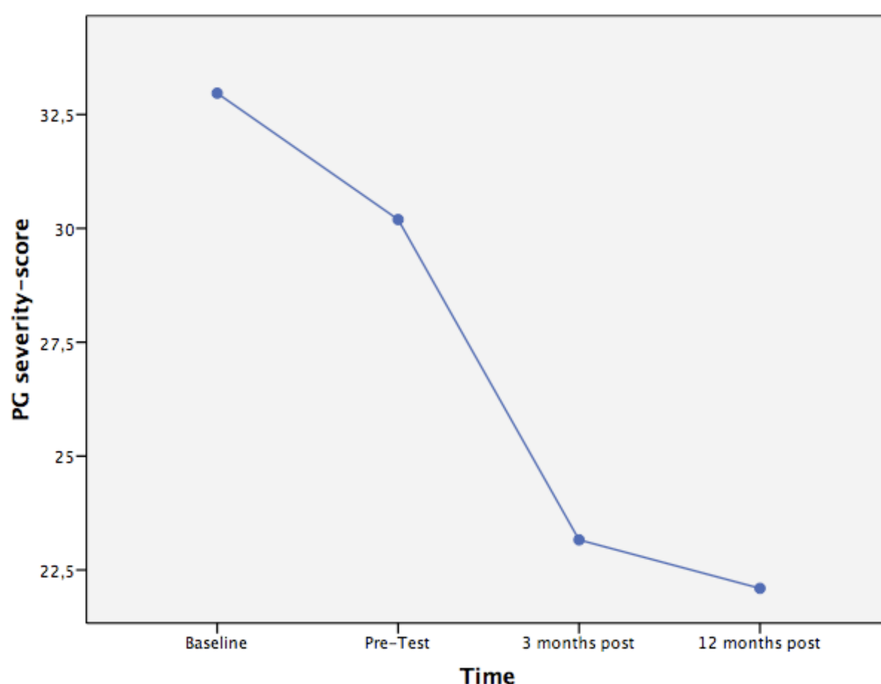

Figure 37: PG severity-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants

Diagnosis

The genocide survivors in the NET/IPT 2 group included seven persons (22.6%) with a PGD diagnosis at the pre-test. As illustrated in Table 95, no participants fulfilled the diagnosis after treatment.

Table 95: PG diagnosis at pre-, three-, and 12-month post-test of NET/IPT 2 participants

		NET/IPT 1 (N = 36)		
		Pre	3 months post	12 months post
PGD	N	7	0	0
	%	22.6	-	-

5.9.3. Depression

A Criterion: Depressed mood or loss of interest/pleasure

Depressed mood and *loss of interest or pleasure* changed over time. Thirty-six per cent of participants fulfilled the DSM-IV A criterion before, 54.8% three months after, and 25.8% 12 months after treatment. Results can be seen in Table 96.

Table 96: Depression A Criterion at pre-, three-, and 12-month post-test of NET/IPT 2 participants

		NET/IPT 2 (N = 31)		
		Pre	3 months post	12 months post
A Criterion fulfilled	N	11	17	8
	%	35.5	54.8	25.8

B Criterion: Five symptoms present during the previous two weeks that caused a change in functioning

Before the treatment, 9 participants (29%) fulfilled the DSM-IV depression B criterion. In the NET/IPT 2 group, 11 genocide survivors fulfilled the B criterion at the three-month post-test, and six individuals (19.4%) at the 12-month follow-up. Table 97 shows the exact numbers.

Table 97: Depression B Criterion at pre-, three-, and 12-month post-test of NET/IPT 2 participants

		NET/IPT 2 (N = 31)		
		Pre	3 months post	12 months post
B Criterion fulfilled	N	9	11	6
	%	29	35.5	19.4

M.I.N.I. sum-score

The sum-score of the M.I.N.I. decreased over time, as is shown in Table 98. The difference between the pre-test and the 12-month follow-up was significant in NET/IPT 2 participants (T (30) = 2.19, p < .05). The ES of NET/IPT 2 on the depression sum-score was .39.

Table 98: M.I.N.I. sum-score at pre-, three-, and 12-month post-test of NET/IPT 2 participants

	NET/IPT 2 (N = 31)			
	Pre	3 months post	12 months post	ES
M.I.N.I. sum-score M (SD)	3.16 (2.63)	3.06 (3.09)	2.16 (2.52)	.39

An ANOVA on the M.I.N.I. sum-score showed no significant main effect of time (F (2, 70) = 2.27, p = .11). The symptoms of NET/IPT 2 participants had already decreased strongly from the baseline assessment to the pre-test, as can be seen in Figure 38.

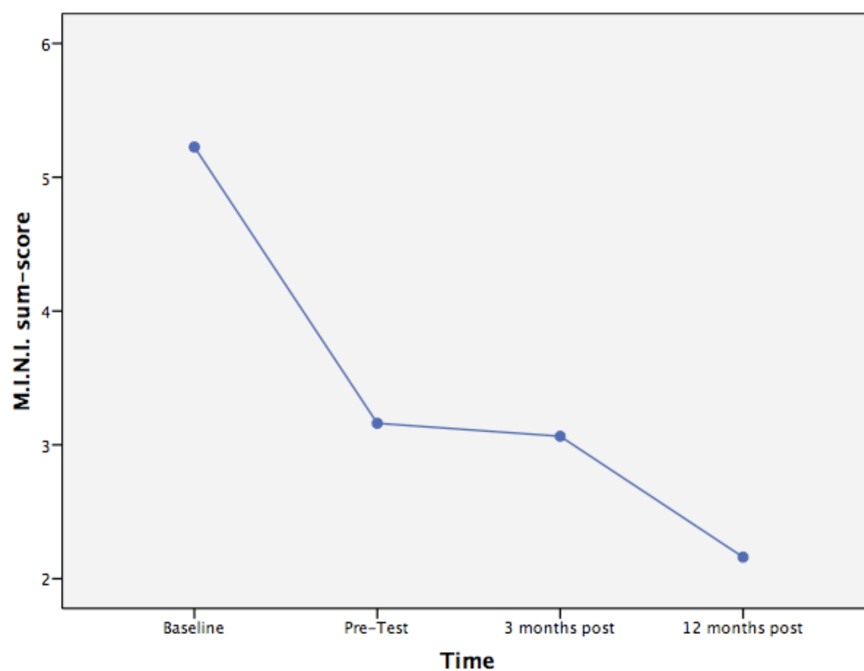

Figure 38: M.I.N.I sum-score at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants

Diagnosis

Twenty participants (64.5%) of the NET/IPT 2 group fulfilled the DSM-IV depression diagnosis during the baseline assessment, and eight (25.8%) at the pre-test. Eleven genocide survivors (35.5%) had an MD three months after treatment and six individuals (19.4%) at the 12-month post-test. The results are illustrated in Table 99.

Table 99: MD at pre-, three-, and 12-month post-test of NET/IPT 2 participants

		NET/IPT 2 (N = 30)		
		Pre	3 months post	12 months post
Depression	N	8	11	6
	%	25.8	35.1	19.4

5.9.4. Suicide tendency

Twenty NET/IPT 2 participants reported suicide thoughts at the pre-test. The mean was 2.77 (SD = 6.48). After 12 months, 15 participants still had suicide thoughts. The mean reduced at a non-significant level (T (30) = .53, p = .69) with an ES of .07. Exact figures are presented in Table 100.

Table 100: M.I.N.I. suicide risk at pre-, three-, and 12-month post-test of NET/IPT 2 participants

		NET/IPT 2 (N = 31)			
		Pre	3 months post	12 months post	ES
M.I.N.I. suicide risk	Low (1 to 5 points)	18	6	13	
	Moderate (6 to 9 points)	-	2	-	
	High (>= 10 points)	2	3	2	
M.I.N.I. suicide risk M (SD)		2.77 (6.48)	2.19 (4.96)	2.32 (6.25)	.07

A one-way ANOVA on the M.I.N.I. suicide risk score (pre-, three-, and 12-month post-test) as dependent variable was not significant for time (F (2, 60) = .34, p = .71). As presented in Figure 39, the suicide risk had already decreased from baseline to pre-test, and stayed stable afterwards.

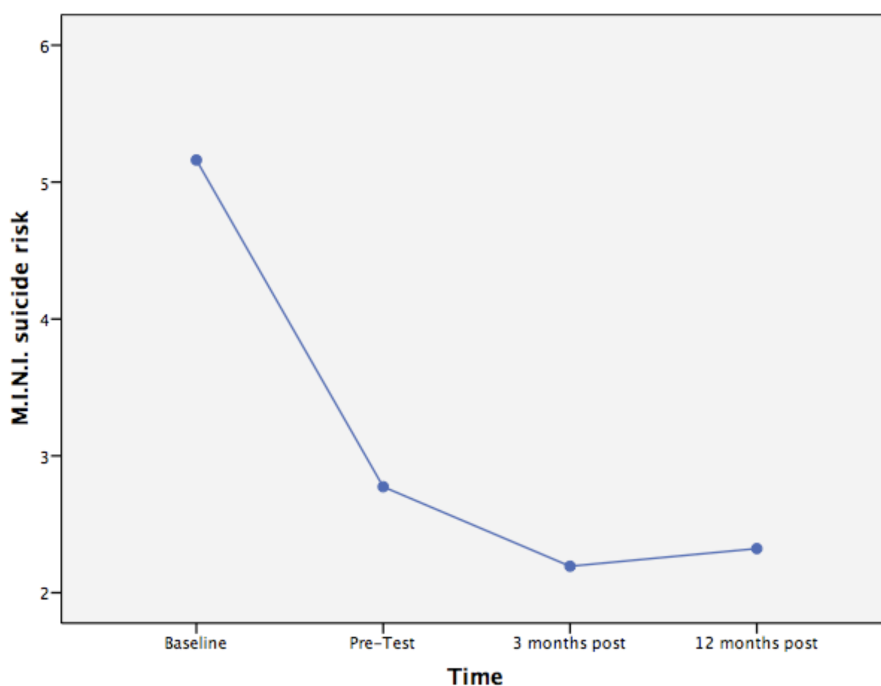

Figure 39: M.I.N.I. suicide risk at baseline, pre-, three-, and 12-month post-test of NET/IPT 2 participants

5.10. Results first and second dissemination generations at three and 12-month post-tests

The two groups of therapy participants differed in their pre-therapy level of clinical symptomatology. Therefore, I did not calculate direct comparisons. Instead Figure 40 illustrates the improvement of the genocide survivors in the first and second NET/IPT dissemination groups. NET/IPT 1 participants started with a higher mean CAPS severity compared to NET/IPT 2 participants. The NET/IPT 1 participants improved statistically significant at the three-month post-test although the improvement was modest. Between the three- and 12-month post-test, however, they reported a considerable improvement. Contrary, NET/IPT 2 participants experienced the greatest improvement in the first three months after the treatment, and only reported small long-term symptom reduction up to the 12-month post-test.

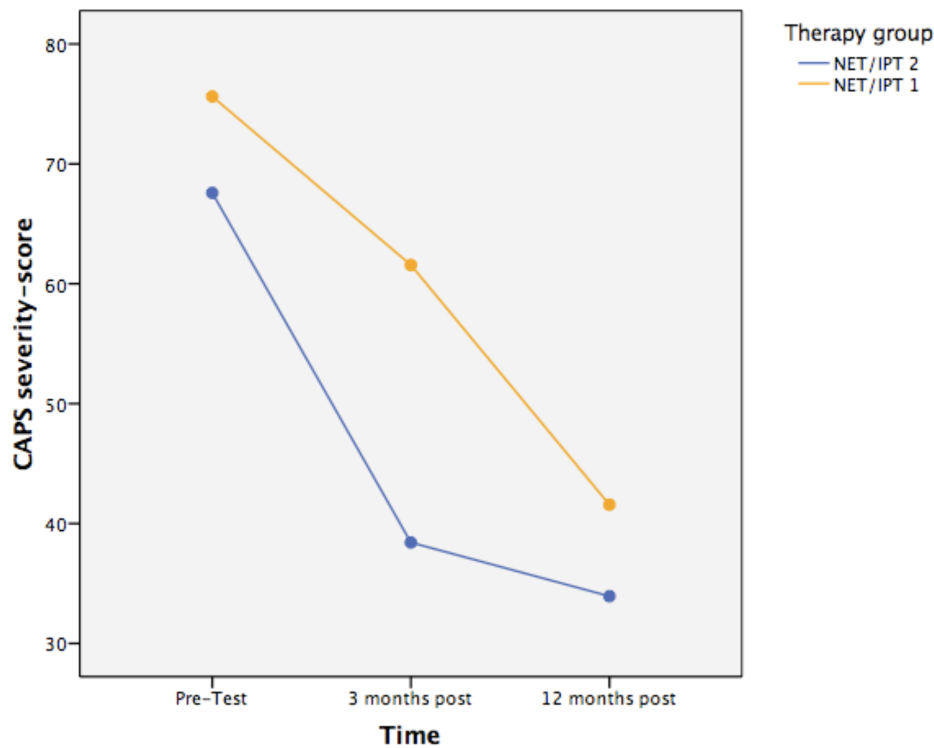

Figure 40: CAPS severity-score at pre-, three-, and 12-month post-test by therapy group

Only three participants of the two therapy groups (two in NET/IPT 1 and one in NET/IPT 2) experienced a worsening in their PTSD symptoms. According to them, the therapy did not cause these symptoms. Rather, they related them to health issues, a lawsuit, and their difficult life situation. All three genocide survivors reported a benefit from the therapy. Figure 41 illustrates the CAPS score of all 68 treatment completer from the pre- up to the 12-month post-test. The NET/IPT 1 group (marked in orange) started at a higher level, but profited from therapy to a similar extent as NET/IPT 2 (marked in blue).

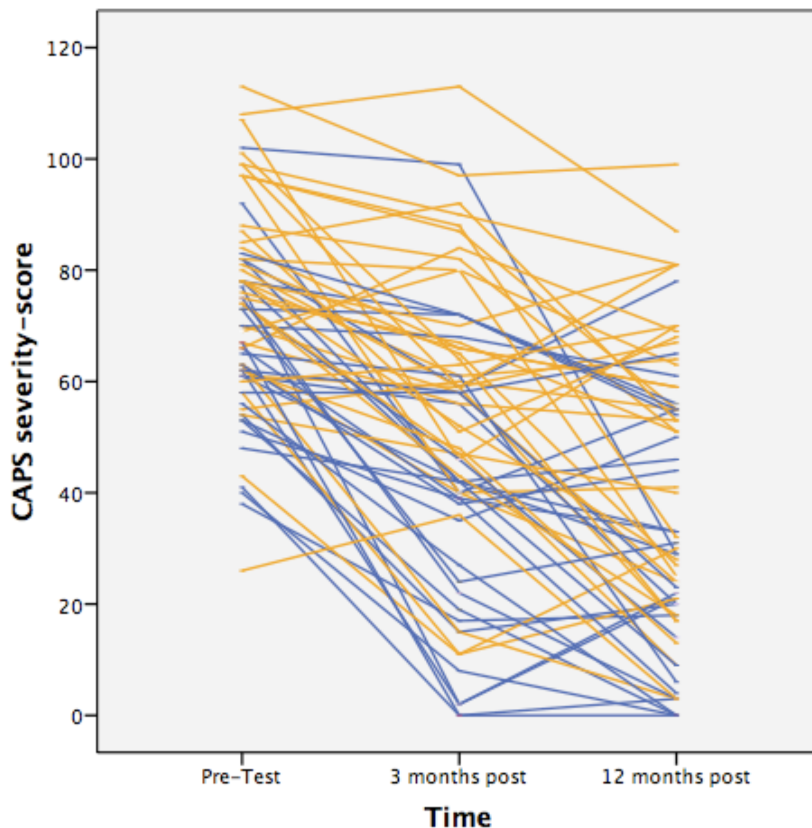

Figure 41: CAPS severity-score at pre-, three-, and 12-month post-test of NET/IPT participants; participants of NET/IPT 1 are marked in orange, NET/IPT 2 in blue

The therapists of the first and second dissemination generation had comparable success in reducing PTSD symptoms. One NET/IPT 1 therapist only conducted one therapy during the study. The patient was a special case (case 1, widow in *Gacaca* trial). All other therapists achieved a symptom reduction in a similar way with their clients, as illustrated in Figure 42. As seen before, NET/IPT 1 therapists (marked in orange) started with a higher average PTSD symptom severity, achieved modest success at three-month post-test, but further symptom reduction was observed at a significant level at 12-month post-test. NET/IPT 2 therapists were similarly successful. However, the strongest symptom reduction occurred during the first three months after therapy, while PTSD symptom reduction was modest afterwards.

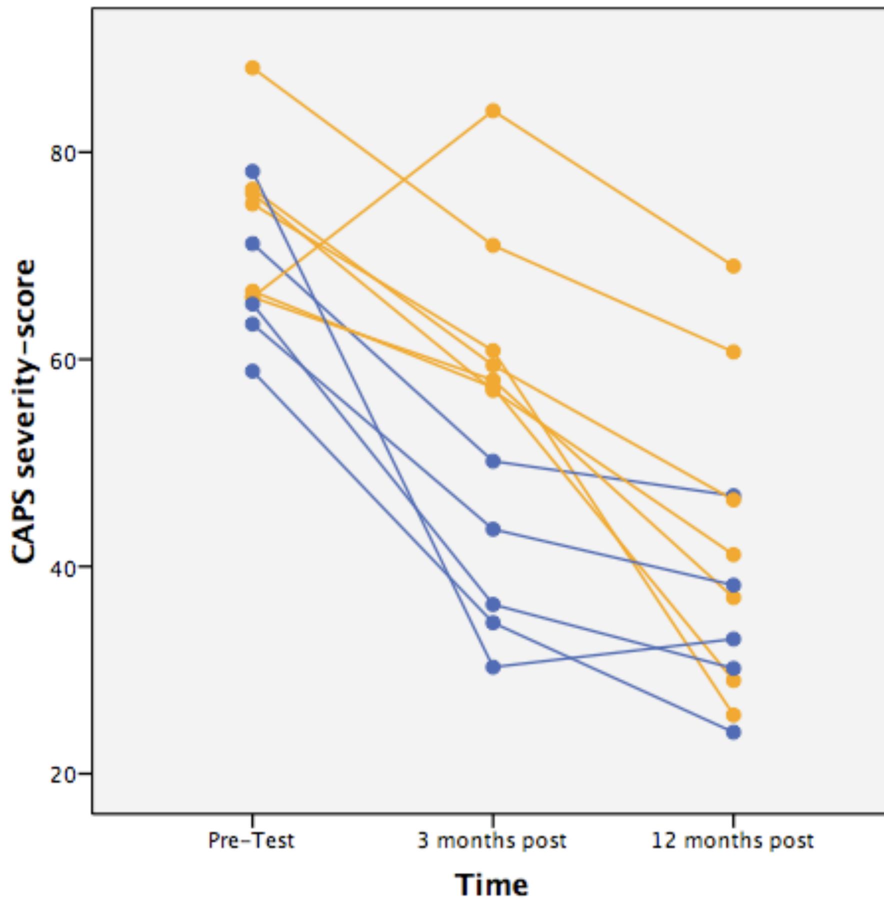

Figure 42: CAPS severity-score at pre-, three-, and 12-month post-test by therapist. NET/IPT 1 therapists marked orange, NET/IPT 2 therapists marked blue

5.11. Results physical health and economic status at 12-month post-tests

The economic situation of the treatment completer measured with the economic index improved from the first epidemiological assessment in August 2007 up to the 12-month post-tests in both groups from -.0921 to -.0054 at a statistically non-significant level (T (59) = -1.223, p = .23).

The physical health of the treatment completer decreased from the first assessment in August 2007 up to the 12-month post-tests from a mean of 4.41 illnesses in the previous month to 3.82. The difference for the 44 participants who responded to all health questions at both assessments was significant (T (43) = 2.20, p < .05).

5.12. Results first and second dissemination generations at six-month post-tests

The Rwandan psychology students used the PDS to assess PTSD symptoms. NET/IPT 1 assessment was carried out in November 2007, and the six-month follow-ups in August 2008. For the NET/IPT 2 group, the pre-test was conducted in May 2008 and the six-month follow-up in January 2009.

5.12.1. PTSD

PDS severity-scores of PTSD symptoms and functional impairment are presented in Table 101. In both groups, the PTSD severity and the impairment in daily life decreased six months after the intervention.

Table 101: PDS severity-score at pre- and six-month post-test by therapy group

		NET/IPT 1 (N = 37)			NET/IPT 2 (N = 31)		
		Pre	6 months post	ES	Pre	6 months post	ES
PDS severity-score	B	8.73 (3.17)	2.92 (2.80)	1.94	7.13 (3.40)	2.06 (2.34)	1.74
	C	10.30 (4.51)	3.73 (3.22)	1.68	8.45 (3.32)	3.87 (3.93)	1.26
	D	9.05 (2.86)	3.32 (3.15)	1.90	8.42 (2.94)	3.81 (3.55)	1.41
	Total	28.08 (8.34)	9.97 (8.18)	2.19	24.0 (8.43)	9.74 (9.14)	1.62
	Functional impairment sum-score	5.38 (1.40)	2.73 (2.38)	1.36	4.97 (1.96)	2.52 (2.23)	1.17

Diagnosis

All therapy participants fulfilled the PTSD criteria according to DSM-IV at pre-test. At six-month post-test, 26 participants of NET/IPT 1, and 17 of NET/IPT 2 no longer fulfilled the PTSD diagnosis. An overview is presented in Table 102.

Table 102: *PTSD diagnosis at pre- and six-month post-test by therapy group*

		NET/IPT 1 (N = 37)		NET/IPT 2 (N = 31)	
		Pre	6 months post	Pre	6 months post
PTSD	N	37	11	31	14
	%	100	29.7	100	45.2

5.12.2. PGD

The Rwandan psychologists assessed the PGD using Prigerson's PG-13. The grief symptoms, the severity-score, and the functional impairment are presented in Table 103.

Table 103: PG symptoms and functional impairment at pre- and six-month post-test by therapy group

		NET/IPT 1 (N = 37)			NET/IPT 2 (N = 31)		
		Pre	6 months post	ES	Pre	6 months post	ES
PGD severity-score M (SD)	B	9.35 (1.98)	6.73 (2.08)	1.29	7.03 (1.58)	4.45 (2.16)	1.36
	C	38.24 (7.46)	26.73 (5.61)	1.74	25.32 (5.51)	16.74 (6.41)	1.44
	Total	47.59 (8.41)	33.46 (7.31)	1.79	32.35 (6.02)	21.19 (8.20)	1.83
	Functional impairment %	97.3	73.0		77.4	58.1	

Diagnosis

At pre-test, 14 participants of NET/IPT 1, and seven of NET/IPT 2 fulfilled the PGD criteria. Six months after therapy, 11 of the 14 participants of the NET/IPT 1 group and all seven participants of the NET/IPT 2 group no longer fulfilled the PG diagnosis, as can be seen in Table 104.

Table 104: PG diagnosis at pre- and six-month post-test by treatment group

		NET/IPT 1 (N = 37)		NET/IPT 2 (N = 31)	
		Pre	6 months post	Pre	6 months post
PGD	N	14	3	7	-
	%	37.8	4.4	22.6	-

5.12.3. Depression

NET/IPT 1 and NET/IPT 2 participants suffered from significantly less depressive symptoms at six-month post-test compared to the pre-test (NET/IPT 1: T (36) = 8.57, p < .001; NET/IPT 2: T (30) = 5.63, p < .001). Results are presented in Table 105.

Table 105: HSCL depressive symptoms at pre- and six months post-test by therapy group

	NET/IPT 1 (N = 37)			NET/IPT 2 (N = 30)		
	Pre	6 months post	ES	Pre	6 months post	ES
HSCL depression severity-score M (SD)	39.27 (7.18)	26.05 (7.52)	1.80	36.77 (7.53)	22.53 (7.65)	1.88

5.12.4. Anxiety

Compared to the pre-test, the participants of both groups had significantly lower anxiety symptoms at post-tests (NET/IPT 1: T (36) = 8.25, p < .001; T (31) = 4.02, p < .001). Table 106 presents the exact results.

Table 106: HSCL anxiety symptoms at pre- and six-month post-test by therapy group

	NET/IPT 1 (N = 37)			NET/IPT 2 (N = 31)		
	Pre	6 months post	ES	Pre	6 months post	ES
HSCL anxiety severity-score M (SD)	29.22 (6.16)	19.03 (6.51)	1.61	26.10 (6.69)	19.32 (6.21)	1.05

5.12.5. Suicide tendency

At six-month post-test, NET/IPT 1 participants improved with regard to suicidality, while NET/IPT 2 participants did not change compared to the pre-test. Exact numbers for suicide risk according to the M.I.N.I. can be seen in Table 107.

Table 107: M.I.N.I. suicide risk at pre- and six-month post-test by treatment group

		NET/IPT 1 (N = 37)			NET/IPT 2 (N = 31)		
		Pre	6 months post	ES	Pre	6 months post	ES
M.I.N.I. suicide risk (N)	Low (1 to 5 points)	18	17		15	14	
	Moderate (6 to 9 points)	4	-		-	3	
	High (>= 10 points)	5	-		6	4	
M.I.N.I. suicide risk M (SD)		4.41 (7.38)	1.11 (1.70)	.61	4.65 (6.94)	4.74 (8.49)	-.01

5.13. Result overview

I conclude the results with a short overview of the main treatment outcome measures in Table 108. I present the mean severity- or sum-score, the fulfilled diagnosis in percent, and the ES. Further I include the F-value from the ANOVA on the score with the in-between factor therapy group at six-month assessment. For the other ANOVAs I illustrate the repeated measures from the pre-test.

Table 108: Overview of treatment study results

		PTSD				PGD				Depression				Suicide
		M *SD*	%	F *p*	ES	M *SD*	%	F *p*	ES	M *SD*	%	F *p*	ES	M *SD*
NET/IPT 1 N = 37	Pre	75.62 *18.04*	100			34.35 *7.75*	19			5.27 *2.62*	62			4.14 *6.5*
	3 mo post	61.57 *24.04*	73	4.1 *<.05*	.66	31.57 *10.18*	19	.1 *.83*	.31	3.84 *2.76*	35	3.2 *.33*	.53	2.08 *4.49*
	12 mo post	41.57 *27.2*	41	52.8 *<.001*	1.48	22.58 *9.77*	11	26.7 *<.001*	1.31	2.43 *2.81*	19	20.7 *<.001*	1.05	2.19 *3.79*
WL N = 36	Pre	72.36 *15.37*	100			32.81 *7.31*	19			4.97 *2.36*	61			5.0 *7.4*
	6 mo	66.42 *16.86*	94	4.1 *<.05*	.37	29.56 *7.19*	19	.1 *.83*	.45	2.94 *2.60*	22	3.2 *.33*	.82	2.42 *6.07*
NET/IPT 2 N = 31	Pre	67.58 *33.94*	100			30.19 *7.24*	23			3.16 *2.63*	26			2.77 *6.48*
	3 mo post	38.42 *22.88*	42		1.01	23.16 *7.06*	-		.98	3.06 *3.09*	35		.03	2.19 *4.96*
	12 mo post	33.94 *23.73*	26	46.7 *<.001*	1.15	22.10 *7.70*	-	21.9 *<.001*	1.08	2.16 *2.52*	19	2.27 *.11*	.39	2.32 *6.25*

5.14. Discussion

In a first step, we conducted a randomized controlled trial of NET/IPT compared to passive WL (six months). We trained Rwandan psychologists in NET/IPT. These first-generation psychologists, in turn, trained a second generation of Rwandan therapists in NET/IPT. Over two months, the trainees of both generations offered therapies to Rwandan genocide survivors suffering from PTSD.

In a second step, we tested the effect of NET/IPT 2 a randomized trial. Evaluations confirmed the feasibility of NET/IPT dissemination in a first and second generation for the treatment of PTSD. We further found that effects were stable. Contrary to our expectation, co-morbid trauma-spectrum disorders already reduced with repeated assessments. I present the findings of the therapy trials in this chapter. I conclude with discussing limitations and considerations of the current research, and implications for the future.

5.14.1. Results randomized controlled trial: NET/IPT 1 versus six months WL

In this part, I compare the results of patients who underwent therapy by the fist generation of Rwandan therapists trained in NET/IPT (NET/IPT 1 group) versus those of patients who were on the WL for six months (WL control group).

PTSD

The PTSD symptoms of the cluster re-experience, avoidance, and arousal decreased over time in both groups. Consequently, the CAPS severity-score also decreased significantly in both groups. The interaction of time and therapy group was significant. PTSD symptoms reduced significantly more in the NET/IPT 1 group (ES = .66) than in the WL control (ES = .37). Thus, therapy was superior to the WL with a corrected ES of .43.

Equally, other studies showed the superiority of exposure approaches compared to AMT, psycho-education, and SC for the treatment of PTSD (e.g., Neuner (2008b), Ertl (2008), Schnurr (2005)). In meta-analyses of treatment trials in Western trauma populations, Bisson and Cloitre found an ES of 1.43 from pre- to post-test for CBT expert treatment of PTSD. The ES between treatment and the passive control group was 1.11 (Bisson, 2007), (Cloitre, 2009). In a trial of expert PTSD treatment for an outpatient refugee population, Paunovic and Öst found an ES of 2.47 at six-month follow-up with 16 to 20 weekly sessions (Paunovic, 2001). Hinton administered 12 sessions of CBT to Cambodian refugees with an ES of 2.52 for pre-post PTSD symptom (Hinton, 2005). For NET, six months after expert treatments, researchers reported an ES ranging 1.1 in refugees in Germany (Hensel-Dittmann, 2007) to 3.15 in former Romanian political detainees (Bichescu, 2007). The results of the present study were also conform to a treatment trial with Rwandan genocide orphans. Schaal et al. found an ES of .39 from pre- to three-month post-test, and .71 from pre-test to six-month follow-up (Schaal, 2009).

In dissemination trials that used CBT for PTSD treatment, authors reported ESs between 1.12 and 3.31 for symptom improvement from pre- to post-tests (Gillespie, 2002), (Foa, 2005), (Levitt, 2007), and of .80 for treatment versus an active control group (Schnurr, 2005). In NET dissemination trials, Neuner found an ES of 1.4 at six- and nine-month follow-ups in an Ugandan refugee settlement (Neuner, 2008b). Thus, the present study is conform to a high medium ES of NET after a small amount of exposure sessions (four to eight) in clinical field

trials in difficult post-conflict and resource-poor settings. Further, the results support studies (Foa, 2005), (Neuner, 2008b), (Ruf, 2008) that found a low medium ES superiority of exposure therapy compared to a passive WL control group.

On a clinical level, the NET/IPT group differed significantly from the WL control group. Six months after the first expert assessment, 73% of NET/IPT 1 participants fulfilled the PTSD diagnosis compared to 94.4% of WL participants. The statistical measures corresponded to the clinical expert impression in the CAPS rating. Interviewers reported a significant PTSD severity decrease. Also, 83.8% of NET/IPT 1 participants felt an overall improvement of PTSD symptoms over the six months after the start of to treatment.

The positive effect of exposure therapy is in line with other studies. Bradley conducted a meta-analysis with PTSD treatment studies and found that 67% of CBT treatment completer no longer met PTSD diagnosis criteria at post-test (Bradley, 2005). In a refugee population, Paunovic and Öst diagnosed 52% of CBT and 47% of PE participants with PTSD at post-test (Paunovic, 2001). In NET participants, Bichescu found 44% PTSD at a six-month post-test (Bichescu, 2007). Schaal reported 58% PTSD at three-month, and 25% at six-month follow-up (Schaal, 2009). In a dissemination trial, Schnurr reported 59% of participants to fulfill PTSD at post-test (Schnurr, 2005).

PTSD symptom-decrease in WL control group

Participants mostly described genocide-related events as their worst life experience. In all but three participants, symptom onset occurred without delay. Other researchers did not find spontaneous recovery from chronic PTSD in such a population to be probable (Schaal, 2007), (Bichescu, 2007), (Sack, 1999). Nonetheless, the CAPS score decreased in the WL group over the six months. This result is consistent with other treatment studies that described a drop in trauma symptoms in WL participants. In a randomized controlled trial with motor vehicle accident survivors (N = 97) suffering from PTSD, Ehlers et al. compared the effect of CT, a self-help booklet, and repeated assessments. They found an ES of .84 in the repeated assessment group after nine months (Ehlers, 2003). Cloitre et al. investigated the success of a CBT program given to a minimal attention WL of sexual abuse victims suffering PTSD. In addition to a success of CBT, the CAPS score also improved for the WL, from 69 to 62 with an ES of .35. In this study, 25% of the WL participants no longer fulfilled the PTSD

diagnostic criteria at post-test (Cloitre, 2002). Authors explained this effect as a result of the repeated interviews they conducted with WL participants. In the present study as well, Rwandan and German psychologists were empathetic listeners, conducted psycho-education, and offered suicide interventions. The participants repeatedly described the diagnostic interviews as therapeutic. For many genocide survivors, these conversations were the first occasion to talk in depth about their daily problems, especially those resulting from their genocide experience, without being stigmatized or devaluated.

In our study, the expectation of receiving an effective treatment may have further contributed to a symptom decrease. WL respondents knew that *vivo* would offer them therapy in the course of the study.

Furthermore, a domino effect of sharing experiences may have occurred as Igreja et al. described it for TT before (Igreja, 2004). They evaluated TT in Mozambican civil war survivors and found a significant HTQ symptom reduction in trauma victims both in their active treatment and passive control group. Authors argued that the individual intervention may have positively influenced the whole community as therapy reinforced openness and reconciliation. This may also have been the case in our sample. Many participants told us that they had never before talked about their experiences and had now started to share their memories in the community.

Another factor that may have influenced the decrease of PTSD symptoms in the WL group was the attenuation effect. Sack and Piccinelli equally described a symptom decline when the same instrument was repeatedly administered over time (Sack, 1993), (Piccinelli, 1997).

Other trauma-spectrum disorders

Participants of both groups reported significantly less grief symptoms after six months. The severity-score of the PG-13 decreased with an ES of .31 for the NET/IPT 1 group, and .45 for the WL control group. Similarly, depression declined at a significant level for NET/IPT 1 (ES = .53) and WL participants (ES = .82). Diagnosis reduced from 62.2% to 35.1% in the NET/IPT 1 group, and from 61.1% to 22.2% in the WL group. There was no statistically significant group difference. Suicide tendencies also diminished in both groups with an ES of .37 in NET/IPT 1 and .38 in WL participants.

Other researchers reported CBT to be helpful for the treatment of co-morbid disorders (e.g., Blanchard (2003), Taylor (2003)). In a meta-analysis of CBT treatments, van Etten and Taylor

reported an ES of .93 for co-morbid depression (Van Etten, 1998). But in our study we did not find a significant advantage of NET/IPT over WL with regard to grief and depression. Unspecific distress decreased after empathic contact and psycho-education with Rwandan and European psychologists without any specific intervention. This result conforms findings by Foa et al. They investigated the decrease of co-morbid features in rape victims. In their CBT groups (PE and AMT), depression and anxiety decreased as much as in their active (SC) and passive (WL) control groups. Foa et al. concluded that mere therapist contact was sufficient to ameliorate non-specific distress (Foa, 1991).

In the first dissemination generation, we compared our effective intervention to a passive control group that received minimal attention. Out of ethical considerations, it is difficult to find alternative WL designs with less support for the participants. Some researchers even regard a WL control group as inadequate, especially for the examination of an effective treatment (Schwartz, 1997). All participants were free to consult traditional healers or local counseling centers throughout the study. Some respondents also told us of such visits during which they sometimes received medication. As a result, the WL may be seen as treatment as usual in Rwanda while our treatment was a supplementary intervention.

5.14.2. Results first and second dissemination generation at three, six, and 12-month post-tests

In this part, I describe differences between the first and second generations of therapists trained in NET/IPT, and the success of the therapies they administered to genocide-survivors. In the second dissemination generation, we did not use a control group any more. Thus, we cannot exclude that the trauma-spectrum disorders would have reduced further without intervention. Yet, the finding that 94.4% of the WL participants still fulfilled the PTSD diagnosis from baseline to pre-test would contradict this hypothesis. Other researchers also found some symptom reduction over time after many years of chronic PTSD, but spontaneous recovery was unlikely (Schaal, 2009), (Bichescu, 2007). Consequently, we attribute the extensive changes in mental health symptomatology to our psychotherapeutic intervention.

PTSD

Among the NET/IPT 1 participants, the PTSD symptoms decreased on a statistically significant but modest level at the three-month post-test. Respondents showed even greater

improvement at the 12-month post-test. At this final post-test, all symptom clusters had declined at a highly statistically significant level, with an overall ES on the PTSD symptoms of 1.48.

NET/IPT 2 participants improved substantially during the repeated assessments of PTSD symptoms. However, the greatest reduction of symptoms for this group was found three months after treatment. Up to the 12-month follow-up, NET/IPT 2 participants experienced only a mild improvement. Overall, the CAPS severity-score of NET/IPT 2 participants reduced with an ES of 1.15 from pre- to 12-month post-test. Measured from baseline, participants improved with an ES of 1.99.

Our outcomes are comparable with other NET dissemination trials. Neuner et al. found at six and nine-month follow-up an ES of 1.4 in an Ugandan refugee settlement (Neuner, 2008b). Ertl and colleagues reported an ES of 1.42 in an one-year follow-up with formally abducted children (Ertl, 2008).

In general, studies in Western populations found higher ESs of exposure treatment for PTSD patients than this study (Bisson, 2007), (Cloitre, 2009), (Paunovic, 2001), (Hinton, 2005). The comparatively lower ES of this study could be due to dissemination with inexperienced therapists. Contradicting this view is the fact that Western dissemination therapy studies found large to extremely large ESs from pre- to post-tests (Gillespie, 2002), (Foa, 2005), (Levitt, 2007). Furthermore, a comparable study with expert therapists for the treatment of Rwandan genocide survivors found similar ESs (Schaal, 2009). Thus the difference probably does not result from a lack of experience.

Consequently, other factors may have made the difference. As we found similar outcomes as Neuner, Ertl, and Schauer in similar settings (Neuner, 2008b), (Schauer, submitted for publication), (Ertl, 2008), the short therapy duration with highly traumatized populations may lead to lower ESs than in Western trauma treatment studies. Therapists reported for severely affected participants a lack of time to explore all traumatic experiences in detail. Also a level of ongoing violence (Schauer, submitted for publication) or difficult living conditions may reduce the ES of treatment (Neuner, 2008a).

In the present study, 40.5% of NET/IPT 1 participants still met the PTSD criteria at 12-month follow-up. Clinicians and participants rated a substantial lower global PTSD severity over

time. Ninety-five per cent of the patients reported an improvement of PTSD symptoms due to treatment.

Of the NET/IPT 2 participants, 25.8% still met PTSD diagnostic criteria at 12-month post-test. Also in the second group, clinicians and participants rated a lower PTSD severity. Ninety-four per cent of respondents felt an improvement of PTSD symptoms due to therapy. Similarly, other researchers reported positive and stable effects of CBT interventions for PTSD symptom reduction at a one-year follow-up (Blanchard, 2004), (Foa, 2005), (Schauer, 2008), (Ertl, 2008).

Rwandan interviewers confirmed the outcome of the expert interviews. From pre-test to six-month post-test, they found a considerable improvement in PTSD symptoms. According to their assessment, the PDS severity score decreased with an ES of 2.19 for NET/ITP 1 participants and 1.62 for NET/IPT 2 participants. Respondents from both groups also suffered from less functional impairment six months after treatment. At a six-month post-test, the PTSD diagnosis for patients of the first dissemination generation dropped from 100% to 29.7%, while it dropped from 100% to 45.2% for patients of the second dissemination generation.

Two participants of NET/IPT 1 and one of NET/IPT 2 showed a worse PTSD severity-score at the 12-month post-test compared to the first expert assessment. On a subjective level, these participants reported a benefit from therapy and saw their complaints related to their miserable life situation. The sample lived in very difficult conditions. Despite the hardships participants described, most genocide survivors profited objectively (95.59%) and subjectively (94.12%) from therapy. This underlines the feasibility of psychotherapeutic treatment, especially of exposure therapy in difficult living conditions, as reported by other authors as well (e.g., Neuner (2008b), Bolton (2003)).

Participants of the first and second dissemination generation profited on a similar level. As psychiatric symptoms dropped from the first to the second assessment in both groups, the pre-test levels were different. Thus I did not compare treatment effects directly. But the results imply that therapists were equally effective in reducing mental health problems.

The chronological sequence of PTSD amelioration differed between the two dissemination trials. Whereas the NET/IPT 1 participants reported a modest decrease at three-month post-

test and a large decrease up to the 12-month post-test, the NET/IPT 2 participants showed their greatest improvement at the three-month post-test and only a modest effect up to the 12-month post-test. The assessment time of the three-month post-test of NET/IPT 1 may be the reason for this difference. The current government announced a process of national unity and reconciliation after the genocide (Auswärtiges Amt, 2008). This included an annual mourning period for the month of April to memorize and pay respect to the victims of genocide. Also in April 2008, the local authorities organized numerous memorial events and screened movies concerning the genocide in public. As we conducted the post-test in May 2008 the questionnaires referred to the previous four weeks. Thus, the interviewers asked questions about the mourning period of April. Extensive reminders of the genocide during the mourning period may have hindered the NET/IPT 1 participants to experience an immediate benefit from therapy, in contrast to NET/IPT 2 participants. At six-month post-test, the Rwandan interviewers already found comparable levels of symptom decrease in the two groups.

Overall, NET/IPT 2 participants had a lower PTSD symptom level at the 12-month post-test than NET/IPT 1 participants. This may be an effect of more exposure. In the end, we visited NET/IPT 2 participants more often (eight times compared to six visits for NET/IPT 1 participants) for interviews that confronted them with their traumatic experiences. Furthermore, participants of both groups highly appreciated the care of the *vivo* group over time. Therefore, the longer period of ongoing social companionship of NET/IPT 2 participants (24 months compared to 18 months for NET/IPT 1) may explain the greater benefit.

Guilt

In both groups, the guilt score increased slightly at a three-month post-test, but declined from pre- to 12-month post-test with an ES of .52 in NET/IPT 1 and .70 in NET/IPT 2 participants. We only briefly assessed guilt feelings with two CAPS questions. In other studies with more exact ratings, exposure therapy directly reduced guilt feelings and maintained gains at follow-up (Stapleton, 2006), (Resick, 2002), (Taylor, 2003), (Kubany, 2004), (Marks, 1998). Thus, for valid guilt assessment, detailed questionnaires may be necessary.

PGD

Grief symptoms dropped in both participant groups. Among NET/IPT 1 participants, symptoms slightly improved at the three-month post-test, but declined on a greater level up to

the 12-month post-test (ES = 1.31). PG functional impairment dropped from 86.5% at pre-test to 55.6% after 12 months. The diagnosis of PGD decreased among NET/IPT 1 participants from 18.9% to 11.1% one year later.
In WL participants, grief symptoms already dropped from baseline to pre-test. Nevertheless, NET/IPT 2 participants experienced the most significant improvement from pre- to three-month post-test. From three- to 12-month post-test the PG symptoms remained stable (ES = 1.08). The functional impairment by grief symptoms dropped from 80.6% at pre- to 45.2% at post-test. In contrast to the symptoms, the diagnosis of PGD was stable from baseline to pre-test. At three- and 12-month post-test, 0% of NET/IPT 2 participants fulfilled grief diagnostic criteria.
At six-month post-tests administered by Rwandan psychologists, grief symptoms decreased with a large ES in both intervention groups (NET/IPT 1: 1.79, NET/IPT 2: 1.83). The diagnosis PGD decreased from 37.8% to 4.4% in NET/IPT 1 participants and from 22.6% to 0% in NET/IPT 2 participants.

In our treatment study, we offered therapy for the treatment of PTSD and co-morbid features. Therapy effects on grief symptoms have not yet been examined yet in the literature. Even the diagnosis of PGD is still debated (e.g., Latham (2004), Boelen (2005)), as is the need for a specific therapy (Jordan, 2003). During NET, we exposed painful losses and in the last two sessions, therapists offered IPT. These elements resemble the kind of specific grief treatment Shear demonstrated to be useful for the treatment of PGD (Shear, 2005). In the present study, participants' grief symptoms declined at a highly significant level after treatment, as well as for those on the WL. Only four genocide survivors who completed treatment (5.9%) fulfilled a PGD diagnosis at a one-year follow-up. This seriously puts in question the need for a separate grief treatment module.

Depression and anxiety

In expert interviews, NET/IPT 1 participants improved on the M.I.N.I. depression sum-score from pre- to 12-month post-test with an ES of 1.05 at a highly significant level. In NET/IPT 2 participants, the depression symptoms already greatly decreased from baseline to pre-test. After treatment, we found a statistically significant but modest reduction up to the 12-month post-test with an ES of .39. The clinical diagnosis of NET/IPT 1 participants decreased from

62.2% at pre-test to 18.9% at 12-month post-test. For NET/IPT 2 participants, the diagnosis dropped substantially from baseline (64.5%) to pre-test (25.8%). The diagnosis increased at the three-month post-test (35.5%) but was lowest at the 12-month post-test (19.4%).

At a six-month post-test of Rwandan interviewers, the participants reported significantly less depressive symptoms. HSCL symptoms diminished with an ES of 1.80 for NET/IPT 1 and 1.88 for NET/IPT 2 participants. Equivalent to the other co-morbid disorders, anxiety decreased in both participant groups with large ESs (NET/IPT 1: 1.61 and NET/IPT 2: 1.05).

Several studies confirmed the effectiveness of CBT interventions for depression and anxiety (Shear, 2005), (Wong, 2001), (Hecht, 2008). Especially when they occurred as co-morbid disorders, these problems reduced after a completed trauma-focused therapy (e.g., Resick (2002), Taylor (2003), Keane (1989)). Our findings are in the range of these results. Van Etten and Taylor reported in their meta-analysis of PTSD treatment studies with CBT an ES of .93 for depression and .99 for anxiety (Van Etten, 1998). Paunovic and Öst measured a depressive symptom reduction of 55.5% after CBT for PTSD in refugees (Paunovic, 2001). With NET/IPT Schaal and colleagues found a drop in MD from 67% at pre-test to 50% at three-month and 16.7% at six-month post-tests (Schaal, 2009). Among Tamil children who had received disseminated NET, Schauer et al. reported a decrease in MD from 29.5% to 5% (Schauer, 2008).

Suicide tendency

In NET/IPT 1 participants, suicide tendencies decreased directly after therapy and stayed stable afterwards (ES = .37). In NET/IPT 2 participants, suicide thoughts declined slightly from baseline to pre-test and stayed stable afterwards (ES = .07). The interviews of the Rwandan psychologists confirmed these findings.

For ethical reasons, we obliged every interviewer to conduct psycho-education and suicide intervention with a non-suicide agreement in case of elevated suicide risk. The direct reduction in suicide tendencies may be a result of immediate crisis intervention of the interviewers.

Dropout

In the present study, we had a very low dropout rate. Only two participants who initially received treatment did not complete it. In the WL, we lost two participants from baseline to

pre-test as they had moved. This result stands in contrast to the meta-analyses of Hembree and Blanchard. They found dropout rates for exposure therapy of 24.1% and 20.5% (Hembree, 2003), (Blanchard, 2003). But our results are in line with a study of Ehlers et al. In their randomized controlled study with survivors of motor vehicle accident. They had no dropout in CT and three dropouts (10%) in repeated assessments (Ehlers, 2003). In addition, all studies on NET (especially Neuner et al. in Northern Uganda (Neuner, 2004b), (Onyut, 2005a), Bichescu et al. in Romania (Bichescu, 2007), and Schaal et al. in Rwanda (Schaal, 2009) reported low dropout rates (0% to 3.6%). NET may have the advantages of a very short duration. Additionally the personal copy of one's life story, the patient receives at treatment termination may be an incentive to complete treatment (Neuner, 2004b). Bichescu reported that chronic PTSD patients appreciated the interest in their story and problems (Bichescu, 2007). For IPT, Verdeli et al. also reported a high acceptance in Uganda with dropout rates between 7% and 12% (Verdeli, 2003).

5.14.3. Controversies about mental health programs

In this study, we found that Western medical concepts were present and applicable for the problems of the Rwandan population, similar to several other studies in post-conflict societies (e.g., Bolton (2001), Karunakara (2004), De Jong (2005)). Participants often told us that finally someone came and understood or named their problems. They further described it as a relief to understand that they were not alone with their trauma-spectrum disorders. Many participants even experienced diagnostic interviews as therapeutic for themselves. Also the concept of a lifeline and the narration of one's life were easy to understand. These experiences and our data confirm a general acceptance from the affected community, which was also observed by (Prewitt Diaz, 2006), (Inter-Agency Standing Committee Task Force on mental health and psychosocial support in emergency settings, 2007). Consequently, our results contradict Summerfield, Bracken, and Watters arguments that non-interference should be preferred to Western concepts (Summerfield, 1999), (Bracken, 1993), (Bracken, 1995).

Many genocide survivors reported earlier efforts to find relief at traditional healers or at hospitals. As de Jong et al. described it for resource-poor countries (De Jong, 2002), in Rwanda psychiatric treatment also focus on drug administration. Interviewees reported of rituals and counseling that they received at traditional healers and trauma centers. Despite decades of these traditional interventions, the genocide survivors still suffered from genocide

traumata, which seriously put in question the efficacy of local healing mechanisms (Summerfield, 1999), (Bracken, 1993).

In our extremely poor and stigmatized sample, psychotherapy seemed not only to ease mental health problems but also had a positive influence on economic means and physical health. One year after treatment, therapy participants reported more economic means and significantly less physical health problems. Similarly, Basoglu and Schauer emphasized that psychosocial programs helped to reduce traumatic stress even in difficult socio-political circumstances (Basoglu, 2005), (Schauer, 2008). Neuner et al. reported similar findings from refugee camps in Uganda. In their randomized controlled trial, significantly more NET participants had moved away from the settlement one year after treatment. These respondents also had less physical health problems than the control group (Neuner, 2004b). Consistently, these empirical findings contradict the prioritization of social, occupational, and economic needs cited by Summerfield, Fernando, and Maslow (Summerfield, 1999), (Fernando, 2004), (Maslow, 1943). Effective mental health interventions for survivors of organized violence should be prioritized to give them the possibility to recover and reorganize their life independently.

5.14.4. Dissemination

Our briefly trained Rwandan psychologists successfully administered NET/IPT to severely affected genocide survivors. Other dissemination trials that included the training of manualized therapy and ongoing supervision for trauma-spectrum disorders also reported positive results. CBT treatments showed high large to extremely large ESs of PTSD symptom reduction (Schnurr, 2005). Treatment trials of *vivo* with a first dissemination generation one year after NET were on a similar level as in this study. Neuner and Ertl found ESs of 1.4 for PTSD in their projects with refugees and former child soldiers (Neuner, 2008b), (Ertl, 2008). Schauer reported treatment effects of disseminated NET with an ES of 1.57 for trauma symptoms in Tamil students (Schauer, submitted for publication). In general, these projects support the findings about the simple implementation of exposure treatment for PTSD and the successful dissemination to inexperienced individuals. Dissemination projects in resource-poor post-conflict countries seemed to succeed on a similar level as in Western populations (Gillespie, 2002), (Foa, 2005), (Foa, 1997).

The participants' benefit from PTSD treatment was on a similar level for all therapists in both intervention groups. This is in line with Crits-Christoph's findings about dissemination of treatment manuals and ongoing supervision. He reported good therapist adherence with only 4% of the outcome variance due to therapist differences (Crits-Christoph, 1996).

Furthermore, the *train the trainer model* seemed to be very successful. Participants of NET/ IPT 2 reported significantly less PTSD symptoms at post-test. The benefit from therapy seemed to be on a similar level as in the first dissemination trial. Similarly, Foa et al. reported encouraging preliminary results from a trial in Israel (Foa, 2006). These studies demonstrated that high-quality EBP can effectively be disseminated to local mental health workers to confront the great suffering of traumatized populations, such as the Rwandan one. The great advantages in costs and time open completely new perspectives, especially for resource-poor and post-conflict countries. More people can be trained in a short time, less external supervision is required, and effective therapy can be offered to a large number of trauma patients. These findings should stimulate further research on the *train the trainer model*. Still, ongoing support and expert supervision of therapists in the first generation and second generation may be crucial (Foa, 2005), as shown in this study as well.

5.14.5. Limitations of the treatment study and considerations for the future

In the present study, we offered a combined treatment of NET and IPT. It is consequently not possible to trace exact treatment effects on the symptoms of PTSD, grief, depression, or anxiety separately. Other researchers have demonstrated positive effects of both approaches for PTSD and depression in treatment trials (e.g., Bichescu (2007), Schaal (2009), Prigerson (1996a), Shear (2005), Krupnick (2008)), as well as in disseminated controlled trials (Neuner, 2008b), (Ertl, 2008), (Schauer, submitted for publication), (Bolton, 2003), (Bolton, 2007). In a long-term perspective, Schaal et al. found NET to improve PTSD symptoms, whereas NET and IPT both were associated with the reduction of depressive symptoms (Schaal, 2009).
With the present study, we tried to meet the gold standards defined by Foa and Meadows (Foa, 1997). I present further limitations of the treatment study and considerations for the future along the defined parameters of methodological treatment research.

Clearly defined target symptoms of trauma-spectrum disorders: all treatment participants fulfilled a PTSD diagnosis at the pre-test as our main outcome measure. Most participants further fulfilled MD (75.34%) or PGD (19.17%) diagnosis at the pre-test. We used the strict DSM-IV diagnostic criteria (American Psychiatric Association, 2000). Furthermore, we included all genocide survivors who suffered from PTSD despite sample differences with regard to co-morbidity, HIV, or alcohol abuse. NET/IPT proved to be a robust and useful intervention (Foa, 1997). Our study had high external validity, being implemented in a randomly chosen trauma population. Thus, results may be generalized to other contexts (Addis, 2002).

Reliable and valid measures: we used the CAPS to assess PTSD diagnosis and symptom severity. Researchers proved the CAPS to be a solid measurement for PTSD with excellent predictive power in refugee populations (Weathers, 1999), (Renner, 2006). For PGD, the questionnaire was still under development. We used the latest version of available measures (Prigerson, 2007). As discussed above, applicability and validity of this measure should be further investigated in different cultural contexts. For depression we administered the M.I.N.I. (Sheehan, 1998) for a DSM-IV symptom screening in European expert interviews, and the HSCL (Derogatis, 1974) in Rwandan psychologist interviews. For more exact symptom measures of therapy effects, in future studies the HSCL might be of advantage. However, as the HSCL cut-off point seemed to overestimate clinically relevant symptomatology, the Bolton algorithm may be a valid supplement for future studies (Bolton, 2002).

Use of blind evaluators: to avoid expectancy and demand bias, we used mostly blind evaluators. The therapists never evaluated their own interventions. Training patients not to reveal their treatment condition was not necessary in our context. Patients did not have a concept of their treatment condition. WL participants talked about therapy when they meant interview sessions. Also the participants had difficulty to estimate time spans. Thus even at the end of the interviews, it was complicated for the interviewers to find out what treatment condition their interviewee had participated in.

Assessor training: Nine clinical experts conducted the interviews with the genocide survivors. All were specialized in clinical psychology and had extensive experience in working with refugees and survivors of organized violence. In the randomized controlled trial, all interviewers assessed participants from both treatment conditions. Four interviewers conducted pre- and post-tests. Thus, a high accordance of clinical rating can be assumed. As we already interviewed the participants many times, we did not assess interrater reliability in the strict sense. Nevertheless, in 37 interviews a second expert passively observed and rated the answers on the same questionnaire-set separately and invisible to the interviewer. The severity-scores of the two experts (for the identical interview) showed statistically significant Pearson correlations for trauma ($r = .98$) and grief symptoms ($r = .99$). They also rated depressive symptoms ($r = .98$) and suicide risk ($r = .94$) on a very similar level.

The clinical experts worked with trained interpreters who were not from the participant's communities. Local interviewers conducted different questionnaire-sets with a validated Kinyarwandan questionnaire. We found a very high diagnostic accordance of expert and local interviews. As we administered different questionnaires, we cannot compare the results directly.

Manualized, replicable, and specific treatment programs: we used NET and IPT to target the main outcome measures for PTSD and co-morbid depression. Foa and Meadows pointed out that detailed treatment manuals were a requirement for conducting treatment outcome research to ensure consistent treatment across patients and therapists (Foa, 1997). Nevertheless, the standardized therapy administration is a limitation. Several genocide survivors were confronted with numerous different traumatic event types and great cruelty. Therapists extended the sessions to 2.5 hours but still reported a lack of time to work adequately through all traumata. Also Igreja also reported this problem in a randomized controlled trial with Mozambican civil war survivors (Igreja, 2004). Paunovic and Öst adapted the number of treatment sessions to the individual need in outpatient refugees. They found extremely large ESs (2.47) (Paunovic, 2001). Thus, even in standardized protocols, a flexible adaptation may be of advantage better to tailor the intervention to the need of each participant.

Unbiased assignment to treatment: we randomly assigned participants to the treatment condition and therapist. At the first pre-test, the two treatment groups did not differ significantly in any socio-demographic or clinical measure. During the study, participants did not report any relevant structural changes or benefits in the community that could explain the mental health improvements of our treatment participants. Thus, the observed differences at post-test may be attributed to our interventions.

Treatment adherence: we assessed treatment adherence with protocol sheets and ongoing supervision. Therapists carried out treatment as planned, except that some sessions exceeded the time limit. The psychoeducation and social support that WL participants received during the repeated assessments may have lead to a slight overlap of the NET/IPT1 and WL conditions.

5.15. Conclusion

Victims of violence suffer from grave psychological disorders, such as PTSD that hamper their ability to master their lives. In Western populations struck by organized violence (e.g., September 11, 2001, attacks) governmental and non-government aid organizations implemented broad-based and scientifically evaluated mental health projects for the victims. In contrast, in resource-poor countries other issues are prioritized. Aid organizations refuse to adapt Western concepts, or offer non-evaluated and ineffective psychosocial care. In this thesis, I argue against this two-tier system of mental health programs: every person affected by organized violence should have the same access to rehabilitation and should receive the best EBP available.

Researchers have demonstrated that survivors of organized violence suffer from similar mental health problems all over the world. The healing from trauma reduces psychological problems, enables people to be productive, supports reconciliation, and stops the trans-generational transmission of violence. For the treatment of PTSD and other trauma-spectrum disorders, highly effective therapy modules exist, such as exposure therapy. In our project in post-conflict Rwanda, we succeeded in implementing an evidence-based NET/IPT intervention. We trained local personal to effectively offer psychotherapy of trauma-related disorders. Even with relatively short therapist training and few treatment sessions, this

approach proved efficient. Participants benefited from a mental health perspective, but also their physical health and life conditions improved. Even more importantly, we demonstrated that we were able to teach Rwandan therapists to train their peers in EBP for effective treatment. Thus, sustainable interventions in resource-poor and post-conflict countries are possible.

These findings should lead to a programmatic change of mental health programs. For purposes of project planning, an epidemiological assessment in the community should identify main problem areas and high-risk populations. Using a wide approach, interviewers should screen for mental health problems with standardized measures. A sustainable intervention program requires the training of local people to build local capacities. Psychosocial projects or counseling may be sufficient for the treatment of non-specific distress. Nevertheless, evidence-based pragmatic psychotherapy such as NET/IPT should be available for severely affected and traumatized individuals. All interventions should then be scientifically evaluated to assess further need and adaptations to each special context and improve emergency mental health interventions.

6. Zusammenfassung

Organisierte Gewalt hat lang anhaltende und verheerende Effekte auf das Individuum und die Gesellschaft. Frühere Studien aus Krisenregionen, einschließlich Ruanda, verdeutlichten die Folgen von Gewalt auf das psychische Funktionsniveau.

In einer epidemiologischen Querschnittstudie erfassten wir psychische Probleme und Bedürfnisse ruandischer Genozid-Überlebender. Die Zielgruppen waren Witwen und Waisen – zwei häufig vorkommende und vulnerable Gruppen in Konfliktgebieten und Nach-Kriegs-Gesellschaften. Dreizehn Jahre nach dem ruandischen Genozid 1994, trainierten wir lokale Psychologiestudenten in der Anwendung psychodiagnostischer Interviews. Unter Expertensupervision befragten die Studenten 406 Genozidüberlebende in fünf verschiedenen Bezirken von Butare (südliches Ruanda). Die Instrumente enthielten eine an Ruanda adaptierte Ereignisliste zur Erfassung traumatischer Erlebnisse, eine validierte Version der Posttraumatischen Stress Diagnoseskala und der Hopkins Symptom Checkliste sowie der Suizid-Sektion C des Mini Internationalen Neuropsychiatrischen Interview auf Kinyarwanda. Wir rekrutierten Waisen zwischen 18 und 31 Jahren und Witwen ohne Altersbeschränkungen.

Die Ergebnisse zeigten, dass die Genozidopfer im Durchschnitt 11,3 unterschiedliche Arten potentiell traumatischer Ereignisse durchlebt hatten. Die meisten Erlebnisse standen in direkter Verbindung zu dem Genozid, so wie *Glaube, selber zu sterben* (89,9%), *Flucht vom Wohnort* (89,7%), und *Verstecken um zu überleben* (88,9%). Die häufigste Antwort auf die Frage nach dem schlimmsten Erlebnis waren *Genozid*, *sexuelle Gewalt*, und *Bezeugen eines Mordes oder Massakers*. Psychische Probleme waren sehr häufig in der Stichprobe, 34,7% litten an einer Posttraumatischen Belastungsstörung (PTBS), 7,9% hatten eine Diagnose Anhaltender Trauer, 40,9% zeigten klinisch relevante Symptome einer Depression, 50% berichteten eine klinisch relevante Angstsymptomatik, und 38,2% hatten ein erhöhtes Suizidrisiko. Insgesamt waren Witwen vulnerabler für psychische Probleme. Die Summe der erlebten traumatischen Erlebnistypen war der beste Prädiktor für klinische Symptomatik. Zum Zeitpunkt des Interviews, erhielten nur 5,4% der Stichprobe psychologische Hilfe.

Psychische Störungen, insbesondere die PTBS, sind gravierende Probleme in Post-Konflikt Ländern. Die große Anzahl von Opfern organisierter Gewalt, erfordert die Dissemination effektiver therapeutischer Module an lokale Ressourcen. Entsprechend untersuchten wir

nachfolgend mit der vorliegenden Studie Machbarkeit und Effektivität der Dissemination von Psychotherapie. In der zuvor durchgeführten epidemiologischen Untersuchung hatten wir Genozidüberlebende identifiziert, die unter chronischer PTBS litten. Wir evaluierten die Wirksamkeit der Therapie anhand der Symptomatik der Teilnehmer mit der Klinischen Posttraumatischen Belastungs-Skala für DSM-IV (CAPS), dem Fragebogen zu Verzögerter Trauer (PG-13), und dem Mini Internationalen Neuropsychiatrischen Interview (M.I.N.I.) zu Depression und Suizid. Die Interviews wurden vor der Therapie sowie drei-, sechs-, und 12 Monate danach durchgeführt. Nach der initialen Diagnostik wurden die Teilnehmer randomisiert der Therapiegruppe oder der Sechs-Monat Warteliste zugeteilt. In einer ersten Disseminationsgruppe trainierten klinische Experten ruandische Psychologen (B.A.) in *Narrativer Expositions Therapie* (NET) und *Interpersoneller Therapie* (IPT). Unter Expertensupervision wendeten die lokalen Psychologen eine Kombination der Therapie-Module (NET/IPT) in der Therapiegruppe an. Sechs Monate später führten wir in einer zweiten Disseminationsgruppe die Evaluation eines Multiplikatoren-Modells durch. Drei Therapeuten der ersten Disseminationsgruppe trainierten und supervidierten eine weitere Gruppe ruandischer Psychologen bei der Durchführung der NET/IPT mit den Wartelisten-Teilnehmern. Nach sechs Monaten, berichteten die Therapie-Teilnehmer der ersten NET/IPT Disseminationsgruppe eine signifikante Reduktion der PTBS Symptomatik im Vergleich zu den Teilnehmern der Warteliste (korrigierte Effektstärke ,43). Unspezifische komorbide psychische Probleme wie Anhaltende Trauer und Depression reduzierten sich signifikant in beiden Bedingungen über die Zeit. Auch nach der NET/IPT der zweiten Disseminationsgruppe berichteten die Teilnehmer einen signifikanten Rückgang psychischer Probleme vergleichbar zur ersten Gruppe. Die Symptomreduktion wurde über die Zeit beibehalten bzw. erhöhte sich bis zur 12-Monat Nachuntersuchung mit einer Effektstärke von 1,48 in der ersten und 1,15 in der zweiten Disseminationsgruppe. Die Ergebnisse zeigen, dass Traumatherapie an ruandische Psychologen disseminiert werden kann. Es erwies sich als eine effektive Intervention, was eine generelle Machbarkeit der Dissemination von Psychotherapie in Post-Konfliktländern impliziert.

7. Annex

7.1. Historical and political background

Rwanda is situated in East Africa, one degree south of the equator, with a surface of 26.340 km² (Auswärtiges Amt, 2008). Rwanda has a population of about 8.9 million people and a growth rate of 2.3% per year. This represents one of the highest population densities in Africa (Gasana, 2002), (Prunier, 1995). There are three socio-ethnic groups: Hutu (about 85%), Tutsi (about 14%), and Twa (1%). Now, a single Rwandan identity is replacing these ethnic labels (Walker, 2008). Rwanda has three official languages: English, Kinyarwanda, and French (Auswärtiges Amt, 2008), (Nkunzumwami, 1996). Religion has played an important role since colonization, whereby 55% are Catholic, 38% Protestant, 5% Muslims, and 2% follow other religions (Prunier, 1995), (Auswärtiges Amt, 2008).

Officially Rwanda is a presidential republic. Paul Kagame of the *Rwandan Patriotic Front* (RPF) has been the elected president since 2003. The RPF, together with seven other political parties, forms the Government of National Unity (Auswärtiges Amt, 2008), (Government of Rwanda, 2008). The economy is essentially an agricultural one (92% of Rwandans live in rural areas), consisting of coffee, tea and ore export (Nkunzumwami, 1996). Though economic growth has exceeded 5% in the preceding years and the World Bank has named Rwanda the top economic reformer in 2009 (International Crisis Group, 2002), Rwanda is one of the poorest countries in the world, with 60% of the population living below the poverty line (Auswärtiges Amt, 2008).

Figure 43: Map of Rwanda and its neighboring countries[2]

7.1.1. Rwanda's history

The original inhabitants of Rwanda were the Twa. In the early 14th century Hutu farmers from the Bantu tribe came to the country and imposed their language and customs on the indigenous inhabitants (DesForges, 2002). The Tutsi, descendants of cattle-herders, arrived from the North, possibly Ethiopia, in the 15th and 16th centuries (Taylor, 1995). Tutsi, Hutu, and Twa spoke the same Bantu language Kinyarwanda, shared their religion and culture, lived side by side, and frequently intermarried (Prunier, 1995). The *tribe* classification was social and floating in every clan: Tutsi were cattle owners, Hutu were farmers, whereby Twa were hunters and gatherers (Heeger, 1998). Rwanda was fragmented into hundreds of micro-units. Those close to Kigali were united under the Tutsi king *mwami* (Taylor, 1995). Over decades and centuries the dynasty and the authority of the *mwami* expanded, and he achieved greater administrative centralization and more political control (Prunier, 1995). Pre-colonial Rwanda was a subdivided society, which consisted of clans and a multitude of ancestors who fought against cattle-stealing and external enemies to defend their kingdom (DesForges, 2002).

[2] Source: http://ec.europa.eu/development/geographical/regionscountries/countries/maps/map_rwanda_large.jpg

Rwanda's population was sparse and geographically mobile, frequently crossing the borders to neighboring countries (Pottier, 2002).

At the end of the 19th century, European scientists were preoccupied with the questions of "race" and civilisation (Heeger, 1998). For the first explorers in Rwanda there was a big contradiction between the cultural and linguistic homogeneity of the population and its *tribal* physical subdivisions – the Tutsi were tall, had clear skin and slim facial features whereas the Hutu and Twa were small, had dark skin and broader facial characteristics (Prunier, 1995). The appearance of Western colonialists and the predominant social position of the Tutsi soon resulted in myths about their superior *Hamite race* (Rutembesa, 2005), (Prunier, 1995). This attitude had a deep and enduring influence on the behavior of the colonial authorities, first the Germans (1897 -1916) and then the Belgians (1916 – 1962) (Heeger, 1998).

During German colonization, a system of indirect rule and centralization reinforced the *mwami*'s power. After World War I, Belgium took over Rwanda under a mandate of the League of Nations (Waller, 1993). Between 1926 and 1931, Belgian reforms reconstructed a "modern" Rwanda: centralized, systematized, rationalized, privatized, individualized, efficient, neo-traditionalist, and Catholic. The Tutsi, as allies of the colonial rulers, realized great benefits in economy and education. The myth of the "superior race" became reality; it legitimized the economic, social, and political deprivation of the Hutu (DesForges, 2002). In 1933, the Belgians introduced ethnic-based identity cards (DesForges, 2002). In 1946, Ruanda-Urundi (today's Burundi) became a UN trust territory, governed by Belgium (Semujanga, 2005). The UN aimed to transfer the power to local administration to prepare Rwanda for independence and trying to establish a democratic order. This led to reforms of the traditional administration and the social system (Rink, 1998).

In the 1950s, the Tutsi elite began to support ideas of decolonization and challenged Western control over the Rwandan church (Waller, 1993). To guard their interests, the Belgians began favouring the growth of a Hutu counter-elite. The creation of co-operatives, societies, and cultural associations, giving opportunity to economic wealth and leadership training, marked the emancipation process of the Hutu (Prunier, 1995). In 1957, the Hutu elite published a text known as *Hutu Manifest* to complain about the deprivation of the Hutu. The socio-political problem was now dealt with in *racial* terms (Adekunle, 2007). The manifest was calling for a change in Rwanda's power structure to adopt the principle of democracy based on majority (Prunier, 1995).

After the death of the last *mwami* in 1959, the situation escalated. The Hutu elite founded several ethnically defined political parties. Hostility and sporadic fighting spread across the country, mainly targeting Tutsi, leaving about 20.000 dead and 15.000 internally displaced (Prunier, 1995), (Adekunle, 2007). This rise in violence was the start of the so-called *Hutu Social Revolution* (DesForges, 2002). In 1961, the Hutu elite took over the power, proclaimed Rwanda a republic, and held the first municipal elections. In 1962, Rwanda became independent, ratified a new constitution, and elected Grégoire Kayibanda president, who formed an all-Hutu government (Wütherich, 1998). In the following years, the government established being Hutu, Christian, and educated as intrinsic values (DesForges, 2002). Kayibanda centralized all power, corruption and partisanship became extensive, and Rwanda was led into poverty and isolation (Wütherich, 1998). With hate campaigns against Tutsi and oppositional Hutu who were denounced as *Inyenzi* (cockroaches), the president tried to maintain his political power. The propagandists alleged that the *Inyenzi* were planning the elimination of all Hutu to reinstall a repressive feudal system in the entire Great Lakes region (DesForges, 2002). In response, Hutu massacred thousands of Tutsi, triggering large-scale emigration from Rwanda to Zaire (today's DRC), Burundi, and Uganda (Prunier, 1995). An estimated 700.000 Tutsi left Rwanda between 1959 and 1973 alone, forming a huge diaspora around the world but especially in the neigbouring countries. Many refugees lived in difficult situations, their rights not respected and with little security. Many were discriminated against and persecuted. Citing "overpopulation", Rwandan authorities refused Tutsi refugees the right to return (DesForges, 2002), (Waugh, 2004).

In 1973, tensions between different Hutu clans led to a coup d'état in which Major General Juvenal Habyarimana overthrew president Kayibanda (DesForges, 2002). The new president established peace and stability in Rwanda with authoritarian means. He outlawed all political parties except his own totalitarian party, the *Revolutionary National Movement for Development* (British Broadcasting Corporation, 2008). Habyarimana implemented an extremely strict administrative control, whereby Tutsi experienced institutional discrimination but were not persecuted (Prunier, 1995). The Hutu elite established close ties to the French government, especially concerning arms trade (Wallice, 2006).

In 1978, members of the Tutsi Diaspora in Uganda formed the *Rwandese Alliance for National Unity*. At first, their aim was to help victims of political repression, but later the objective was the mobilization of Rwandans to resolve problems such as genocidal ideology,

repeated massacres, persistent refugee problems, and the lack of avenues for a peaceful political change (Government of Rwanda, 2008). Many members of the Tutsi Diaspora were fighting during the 1980s on the side of Museveni against Ugandan president Obote, assisting him in taking over power in 1986 (Waugh, 2004). In 1987, *Rwandese Alliance for National Unity* became the RPF, a political organization with a military wing, which insisted on the exileds' right of return to Rwanda (Prunier, 1995).

In Rwanda, Habyarimana, twice the sole candidate, was elected in 1983 and re-elected in 1988. At the end of the 1980s, the political system was on the edge of collapsing as different political Hutu clans were fighting against each other, while the population grew increasingly discontent about spreading corruption. Taxes and forced labour overburdened the population. In addition, a famine affected the south-west of the country. The price for coffee and tin, Rwanda's main export products, had fallen immensely, leaving the economy in a critical situation, and heavily dependant on foreign aid (Waller, 1993), (Prunier, 1995). The relatively good medical system had contributed to an increase of Rwanda's population from 1.9 million inhabitants in 1948 to 7.5 million in 1992, resulting in land scarcity, population pressure, and poverty (Gasana, 2002). The power of the Hutu government in Kigali was in danger. To reunite the Hutu population, extremists constructed an anti-Tutsi ideology (Semujanga, 2005). The government exaggerated the threat of the RPF to justify curfews, numerous arrests, massacres on Tutsi civilians, and massive recruitment for the *Armed Forces of Rwanda* (FAR) (Prunier, 1995). Land deprivation had forced many youths to move to the cities for employment. Finally many of them joined the army, frustrated and receptive for ethnic propaganda (DesForges, 2002).

In October 1990, the Ugandan-based RPF declared war on the Rwandan government and invaded Rwanda from the north. France, Belgium, and Zaire came to support the FAR and fought back the attack (British Broadcasting Corporation, 2008). After the loss of numerous important RPF leaders, Paul Kagame took over its military wing and built up an efficient, non-corrupt, and well educated guerrilla force in Uganda (Prunier, 1995). From that time, the RPF fought a low-scale civil conflict against the FAR on the northern border, capturing parts of Rwandan territory and causing 300.000 to flee their homes and become internally displaced (Prunier, 1995).

Economic crises, the growing population, the refugee question, the guerrilla war, and pressure by European donors for democratisation forced president Habyarimana to introduce a

multiparty system in 1990 (Prunier, 1995), (British Broadcasting Corporation, 2008), (Bieringer, 1998). The foundation of two Hutu extremist parties, *Democratic Republican Movement* and CDR (*Coalition for Defence of the Republic*), a center-left party *Social Democratic Party* and a centre-right party *Liberal Party*, created the false image of a democratisation progress in Rwanda. At the same time, human rights organizations and independent press developed, but the government still controlled the crucial radio stations (DesForges, 2002).

In the beginning of the 1990s, Tutsi massacres were becoming more frequent in Rwanda (17 severe acts of violence were committed between 1990 and 1993) (DesForges, 2002). The extremist Hutu elite published the influential *Ten Commandments of a Hutu* which proposed the *final solution* for the Tutsi, and called for Hutu unity against a worldwide Tutsi conspiracy (Semujanga, 2005), (Bieringer, 1998). In 1992, the *Revolutionary National Movement for Development* and CDR founded *Radio Rwanda* as an anti-Tutsi propaganda channel, as well as the radical *Interahamwe* militia ("those who are fighting together"). The local authorities then organized massacres systematically (Prunier, 1995).

The same year, the five biggest opposition parties formed a transitional coalition government and started talks with the RPF leadership in Arusha (Tanzania). Massacres, political disappearances, and violent demonstrations in Rwanda overshadowed the peace negotiations (Waller, 1993), (Prunier, 1995). In January 1993, president Habyarimana signed a first power-sharing agreement with the RPF in Arusha, officially signalling the end of civil war (British Broadcasting Corporation, 2008). The Hutu extremists rejected the RPF collaboration and committed revenge massacres against the Tutsi population. This in turn prompted a new RPF military offensive from the north (Valentino, 2004). The Arusha agreement collapsed and an estimated 860.000 Hutu peasants fled in fear of the Tutsi rebels. French troops in support of the FAR stopped the RPF attack just before they could invade Kigali (Prunier, 1995).

In August 1993, massive international pressure led to the signature of a complex second peace agreement in Arusha, seriously curtailing the power base of the Hutu government (DesForges, 2002). It carried precise provisions for a future *Broad Based Transitional Government*, a *National Transition Assembly*, united armed forces, and refugee repatriation (Valentino, 2004).

In the same period, the French military mission in Rwanda was reinforced, and trained and armed the FAR (DesForges, 2002), (Prunier, 1995), (Waugh, 2004), (Wallice, 2006), (Goose, 1994).

In October 1993 in neighboring Burundi, extremist Tutsi kidnapped and killed the Burundian Hutu president. Some 300.000 Hutu refugees poured into Rwanda when the Tutsi regained power in Burundi. In Rwanda, the Hutu extremist campaign used the Tutsi coup d'état for its support, saying that it proved the real *Inyenzi* threat. Ethnic violence spread, resulting in 50.000 deaths and 150.000 forced into internal displacement. Most of them were Tutsi (Valentino, 2004), (DesForges, 2002). As a political consequence, the Hutu extremists founded an ethnic inter-party movement named *Hutu Power* which split all important opposition parties and called for effective action against the *Inyenzi* (DesForges, 2002).

In November, the *United Nations Assistance Mission to Rwanda* (UNAMIR), a peace-keeping mission, started to operate in Rwanda, in accordance with the Arusha agreement. French troops officially withdrew, and the RPF established a presence in Kigali (DesForges, 2002), (United Nations, 1993). But the peace process had stalled, the RPF was preparing for war, and the government distributed arms to the *Interahamwe* and Hutu civilians (Melvern, 2004). In Kigali all attempts to inaugurate the *Broad Based Transitional Government* failed because of riots and extremists manipulations. Meanwhile, the international pressure on the president to implement the Arusha agreement was increasing further (Prunier, 1995).

By the end of 1993 the Hutu extremist established *Radio Television Libre de Mille Collines* and its audience grew fast. It was openly propagating war and calling for the elimination of Tutsi, moderate Hutus and UNAMIR staff (Government of Rwanda, 2008), (Kanimba, 2005).

7.1.2. The Rwandan genocide of 1994

Raphael Lemkin first defined the term *genocide* in 1944. He combined the Greek word *genos* (race or tribe) with the Latin derivative *cide* (to kill) and defined *genocide* as "a coordinated plan of different actions aiming at the destruction of essential foundations of the life of national groups, with the aim of annihilating the groups themselves. The objectives of such a plan would be disintegration of the political and social institutions, of culture, language, national feelings, religion, the economic existence of national groups, and the destruction of the personal security, liberty, health, dignity, and even the lives of the individuals belonging to such groups" (Lemkin, 1944). Theories about genocide concentrate on three main factors as

central preconditions, which are, however, neither sufficient nor necessary: deep social cleavages between groups, war/revolution or other national crises, and the concentration of political power (Valentino, 2004). All these preconditions were present in Rwanda.

On April 6, 1994, Habyarimana joined a meeting in Dar-es-Salaam with other East African presidents, where he accepted to support the progress of the *Broad Based Transitional Government* (DesForges, 2002). In the evening of the same day, as the airplane carrying the presidents of Rwanda and Burundi was approaching Kigali airport, two missiles destroyed the plane (Prunier, 1995), (Dallaire, 2004). Later investigations did not identify those responsible (Prunier, 1995), (Dallaire, 2004), (African Rights, 1995).

During the same night, the first *Interahamwe* roadblocks were set up in Kigali and the killing started. A crisis committee of Hutu hardliners – the Rwandan interim "government" – put itself into action, accusing the RPF of having killed the president (Dallaire, 2004), (Prunier, 1995), (DesForges, 2002), (African Rights, 1995). Numerous moderate politicians, journalists, priests, wealthy citizens, Tutsi, and civil right activists were killed immediately. This gave the genocide a mixed racial and political character. In the first days of the genocide the elite troops of the Rwandan army (Presidential Guard and para-commandos), as well as Hutu militia, carried out most of the massacres. A small elitist group around the president's wife, motivated by ideological and material interests, organized the killings. The group was controlling the civil servants, majors, prefects, districts, and cells – the genocide was arranged by a hierarchical structure controlling politics, the military, and the administration. UNAMIR neither had the mandate nor the equipment to intervene in the fighting (Prunier, 1995), (DesForges, 2002). The next day, on April 7, the Rwandan military killed 10 Belgian Blue Helmets, causing even greater reluctance in the United Nations to get involved in the conflict. Instead they evacuated all foreigners and reduced UNAMIR to a minimum (Dallaire, 2004), (Prunier, 1995). The international community refused to classify the massacres as state organized *genocide*, thereby avoiding the obligation to intervene and safeguarding their neutral diplomatic activities. The RPF's call for international support was rejected, so that on April 8, they decided to renew the war against the interim government (DesForges, 2002).

Meanwhile, encouraged by the interim government and the media, the genocide spread all over the country – mostly carried out with traditional weapons such as clubs, machetes, and lances (DesForges, 2002). The perpetrators were rewarded with the possessions and farmland

of the victims as well as job promotions. The extremists dismissed or killed all noncompliant prefects, mayors, authorities, and civilians (Prunier, 1995), (DesForges, 2002). They used a varierty procedures: one was to gather the *Inyenzi* in public places such as churches or administrative offices. First, the militia attacked the crowd with fire arms and grenades, followed by 'chasers' with machetes, clubs, and sticks to kill the survivors. Another modus operandi was killing as many *Inyenzi* as possible in a forest, called *clearing the bush*. A third procedure was the street barrier, installed by local *Interahamwe* bosses, especially in towns. At the barriers, they inspected identity cards and killed Tutsi on the spot (Semujanga, 2005). The militia committed the killings with great cruelty; torture, cutting off limbs or sexual characteristics, as well as large-scale rape was common (African Rights, 1995).

The RPF quickly advanced the war front, and arrived in Kigali on April 11, but had to fight for another three months to capture the capital. In the RPF-occupied zones, the RPF stopped the massacres, but in government-controlled zones, especially in the south, the killing continued until July (DesForges, 2002). The RPF had to recruit quickly during its advance in Rwanda, which deteriorated its discipline and paved the way for numerous revenge killings (Prunier, 1995).

The international community planned to strengthen UNAMIR but failed due to a lack of political will to provide funds and equipment. Only France had an interest to intervene but was isolated because of its long-lasting relationship with the Hutu regime. Nevertheless, the French government received a UN mandate to start *humanitarian operation Turquoise* in June (Trines, 1998). At that time, the RPF was controlling most of Rwanda and objected the French intervention, because of what it perceived as shady intentions and a lack of neutrality. Nonetheless, France deployed *Opération Turquoise* on June 23, and installed a *Safe Humanitarian Zone* in the south-western quadrant of Rwanda (Prunier, 1995). The French troops rescued about 16.000 Tutsi civilians from the *Intrahamwe*, but at the same time offered numerous organizers and killers of the genocide protection and assistance on their flight into neighboring Zaire (DesForges, 2002). During *Opération Turquoise*, the Hutu extremists propagated many myths about the brutality and devilishness of the RPF, as they saw their political future in the refugee mass. Finally, there were 1.8 million internally displaced and 2.1 million refugees, who crossed the borders to Zaire, Burundi, etc., together with the

Interahamwe, who accounted for about 30% of the Rwandan population). Thus, the genocide caused a major refugee problem to the Great Lakes Region and Rwanda in particular (Prunier, 1995).

On the July 4, the RPF took over Kigali and therewith the war against the FAR (DesForges, 2002). They stopped the genocide within a few days by destroying crucial civil and military structures. During the Rwandan genocide, an estimated 800.000 Tutsi were killed – about three quarters of the Tutsi population still living in Rwanda, in addition to10.000 to 30.000 oppositional Hutu. Thus, in 100 days, 10% of the Rwandan population had lost their lives (British Broadcasting Corporation, 2008), (DesForges, 2002). Estimated figures about the victims of the RPF (civilians and soldiers), killed between April and August 1994, range from 25.000 to 45.000 (DesForges, 2002).

7.1.3. Rwanda after the genocide

At the end of the war and the genocide, Rwanda faced massive problems such as the complete destruction of its infrastructure, economy and judiciary, as well as overcrowded prisons. About 750.000 Tutsi migrated to Rwanda after the end of the war, causing major issues related to reconciliation, management of the mass returns, and reallocation of property. The destruction of an estimated 150.000 houses during the 1994 genocide aggravated the problem (Prunier, 1995).

On July 19, the RPF started to rebuild a political structure in Kigali. A government was formed according to the Arusha agreement. Also a new constitutional law was put in place, but now eliminating the Hutu hard-line parties in favour of the RPF. The government declared Hutu Pasteur Bizimungu president and gave the newly created post of vice president to General Paul Kagame (Prunier, 1995). The RPF created an ideology of a national identity, eliminating ethnicity and ethnic discrimination (DesForges, 2002). The fragile government needed international help to rebuild an economy, but potential donors insisted on stable and appropriate conditions (Prunier, 1995). In Rwanda, insecurity remained high as the former *Interahamwe* and Hutu guerrillas launched attacks (Internal Displacement Monitoring Centre, 2005). Therefore, the RPF conducted military actions in displaced people's camps inside and refugee camps outside Rwanda. In Kibeho camp with an estimated 160.000 internally displaced, for instance, 4.000 people were killed (Prunier, 1995).

In November 1994, the international community created the *International Criminal Tribunal for Rwanda* (ICTR) in Arusha to sentence the main leaders of the genocide. The tribunal started to operate in 1995 and its first trial took place in 1997 (Prunier, 1995). In Rwanda, the legal system was functioning poorly because of a lack of resources and interference of the executive branch. This created problems such as postponed trials, insufficient salary for judges and lawyers, corruption, blackmail, overwork, lack of transport, recruitment of inexperienced staff, and harassment of witnesses (Waugh, 2004).

In 1995, refugee camps in neighboring countries were still overcrowded (Prunier, 1995). The *Interahamwe* had taken over the control in many refugee camps, in particular in Zaire, and had monopolised the distribution of humanitarian aid. They sold it in order to rearm and prepare for an invasion of Rwanda. The extremists kept the refugees as political and economic hostages, holding them back by threats and killings. In addition, the poor humanitarian situation in the camps provoked a cholera epidemic which killed about 30.000 refugees in Zaire (Prunier, 1995), (British Broadcasting Corporation, 2008), (Waugh, 2004).

In 1996, the refugee situation escalated into what became known as the *Kivu crisis*. Extremist Hutu militia and Zairean government forces had intensified attacks on Tutsis in Zaire, called Banyamulenge (Waugh, 2004). The Rwandan government launched a counterattack which resulted in massive killings. The RPF military intervention was successful in driving the *Interahamwe* out of the Kivu region away from the camps. This led to a mass return of about 550.000 refugees home to Rwanda (Prunier, 1995). At the same time, Burundi and Tanzania announced a complete evacuation of refugee camps on their territories and forcefully repatriated about 500.000 Rwandans the same year (British Broadcasting Corporation, 2008), (Trines, 1998).

In Rwanda, many *Interahamwe* hid among the returnees, and regular attacks on the Tutsi population worsened the security situation (Waugh, 2004). The RPF violently tried to control the crisis, killing hundreds of people in 1997 and the beginning of 1998 (Internal Displacement Monitoring Centre, 2005). As part of its efforts to stabilise the situation, the government moved hundreds of thousands of recently returned refugees into supervised makeshift camps between 1998 and 1999 in the north-western prefectures. This was followed by a *National Villagisation Process*, a project to construct about 300.000 houses (Internal Displacement Monitoring Centre, 2005). Officially, the process served security, social, and economic reasons, but Human Rights Watch claimed that the RPF forcibly resettled refugees

into inadequate shelters without infrastructure in order to gain absolute control (UNHCR, 2000), (Human Righs Watch, 2001). Human rights organizations accused the government of protecting Tutsi and other high-ranking military officers who were illegally occupying land (Internal Displacement Monitoring Centre, 2005).

In 1997, Rwandan- and Ugandan-backed rebels deposed president Mobutu Sese Seko of Zaire. Laurent Kabila became the new president and renamed the country the DRC. To gain control of the Kivu region, Kabila switched allegiance and started to collaborate with the *Interahamwe*. He recruited Hutu extremists into the Congolese army, who in turn engaged in ethnic cleansing against Tutsi in DRC (Waugh, 2004). In response, Rwanda started to support rebel forces trying to overthrow Kabila in 1998 (British Broadcasting Corporation, 2008). Further, the RPF illegally invaded the DRC to 'defend Rwanda from *Interahamwe* attacks'. At least six other African countries got involved in the conflict, which developed into a full-blown war. The embattled region contains immense natural resources. In 1999, the conflict parties signed the Lusaka Peace-Agreement, followed by the Pretoria Accord in 2001. Repeatedly, Rwanda's pre-condition for peace was the decommissioning and expulsion of the *Interahamwe*. Given that the Hutu extremist had earlier been integrated into the army, this was impossible to achieve (Waugh, 2004).

In the process of justice and reconciliation in Rwanda, the political administration announced that 30.000 persons were to be persecuted. But by 1998 there were over 120.000 genocide suspects in overcrowded prisons awaiting lawsuits (DesForges, 2002), (Government of Rwanda, 2008). Government attorneys estimated that 15% to 60% of the detainees were denounced because of revenge or by rivals for employment and property (DesForges, 2002). Therefore, the government created a new law which reduced sentences for confessing detainees, and established a Triage Commission with the aim of releasing prisoners when there was insufficient evidence or for minor offences. In response, survivors staged massive protests, former detainees were put at risk, but there were also cases of freshly released prisoners murdering genocide survivors (DesForges, 2002). To deal with the huge caseload of genocide detainees, the Rwandan government initiated a participatory form of justice, *Gacaca* ("meadow"), which drew from the experience of traditional pre-colonial Rwandan society (Government of Rwanda, 2008). The RPF launched the *Gacaca* court system in October 2001, whereby the community elected lay judges among them (Adekunle, 2007). After an open community debate, the laypersons agreed on a sentence (with a maximum of 15 years),

and negotiated an economic compensation for the victims (Waugh, 2004). The criminal justice system categorised genocide suspects according to the crimes of which they were accused. Category 1-suspects – the "planners, organizers, instigators, supervisors, and leaders" of the genocide – were to be tried in conventional courts. Suspects in categories 2 (murder), 3 (assault), 4 (theft), whose involvement was less serious, were tried in *Gacaca* courts (Government of Rwanda, 2008).

In March 2000, Rwandan president Pasteur Bizimungu resigned over differences with the RPF regarding the composition of a new cabinet. Moreover, he accused the parliament of targeting Hutu politicians in anti-corruption investigations (British Broadcasting Corporation, 2008). The resignation paved the way for Paul Kagame, whom ministers and parliament members elected as the new president in April 2000. He then changed Rwanda's flag and national anthem 'to promote a new era of unity and reconciliation' (British Broadcasting Corporation, 2008). In April 2002, the Rwandan government arrested and sentenced Pasteur Bizimungu to 15 years of jail on charges of illegal political activity, fostering ethnic division, and threats to state security after he had founded a new political party (British Broadcasting Corporation, 2008).

In October 2002, Rwanda declared to have pulled out the last of its troops from DRC but tensions simmered and plundering of the Rwandan forces continued (Waugh, 2004), (Auswärtiges Amt, 2008). The UN stated that Rwandan allies had the objective of 'permanent, autonomous control over territory in the eastern DRC' (British Broadcasting Corporation, 2008), (United Nations, 2003).

The transitional administration in Rwanda ended in 2003 when a referendum approved a new constitution. It was marked by the principle of power-sharing, a two-chamber parliament, a semi-presidential system, human and citizenship rights, and party pluralism (Auswärtiges Amt, 2008). The same year, Paul Kagame won his first popular presidential elections and the RPF gained the absolute majority in parliamentary elections (Adekunle, 2007). EU observers criticised in particular the run-up to the elections as fraudulent because the RPF had excluded major opposition parties because of alleged 'divisionism', intimidated voters, and had moved forward the election date to prevent opposition campaigns. Irregularities and lack of transparency marred the election itself (Waugh, 2004), (Human Rights Watch, 2003), (British Broadcasting Corporation, 2008).

In 2003, the government began with a mass release of prisoners who had confessed their involvement in the genocide. Some 60.000 suspects were freed to ease prison overcrowding (British Broadcasting Corporation, 2008). *Gacaca* courts had sentenced over 2.500 suspects though there were numerous human rights concerns such as a lack of legal counsel for the accused, poor training of judges, a lack of protection for witnesses, and the dismissal of allegations against the RPF (Human Rights Watch, 2003).
In 2007, former president Pasteur Bizimungu was released from jail after he had received a presidential pardon (British Broadcasting Corporation, 2008).
In DRC, the main Hutu rebel group, FDLR (Democratic Forces for the Liberation of Rwanda, the former *Interahamwe*), had announced the end of its armed struggle in 2005. As there was still no progress at the end of 2007, the DRC and Rwanda agreed on additional steps in decommissioning these militia (Auswärtiges Amt, 2008).

In 2004, president Kagame rejected a report of a French judge, which alleged his involvement in the attack on the president's plane in April 1994. This marked the start of a deterioration in the relationship between Rwanda and France. Finally, in 2006, Rwanda broke off diplomatic ties with France after a French judge had issued an international arrest warrant for close allies of president Kagame (British Broadcasting Corporation, 2008).

Despite inefficiency and a slow bureaucracy, the ICTR had tried 35 suspects by August 2008, 30 detainees were on trial and seven more were waiting for their trial (Government of Rwanda, 2008), (United Nations, 2008). Numerous *Interahamwe* were still not in detention at the ICTR because European and African countries accommodated them (Wallice, 2006).
In September 2008, under EU observation, Rwanda elected a second parliament. The RPF remained the dominating party with 79% of the votes; the Social Democratic Party won 13% and the *Liberal Party* 7.5% (British Broadcasting Corporation, 2008).
Under president Kagame, the process of national unity, reconciliation and the national fight against poverty continues to dominate the current political agenda. The stabilisation of inner security and the abolishment of the death penalty improved the human rights situation (Auswärtiges Amt, 2008).

7.1.4. Mental health in the Rwandan Culture

The indigenous religion of Rwanda was built on the concept of a supreme being called *Imana* (Adekunle, 2007). The belief in numerous taboos formed the religion of the Rwandan. These taboos served to regulate the multiple relations with family and society, compliance of children to their parents and older persons in general, respect towards authorities (Kayishema, 2005). In this belief system, breaking a taboo could cause disease and the guilty had to participate in a purification ritual to prevent his impureness. Traditional healers were able to communicate with the spirits and protect the living from misfortune with leaves, plants, and roots (Adekunle, 2007). The same belief pattern was found to prevail with regard to mental illnesses in recent studies in Butare. Gashumba and Kagoyire interviewed psychiatric patients, traditional and modern mental health workers. They both concluded that mental illness was mystified and stigmatized (Kayitesi, 2007), (Gashumba, 2004), (Kagoyire, 2007). Mental health problems are seen to be provoked by witchcraft, supernatural powers, or taboo breaking (Gashumba, 2004), (Kagoyire, 2007).

Rwandan culture prescribes the control of emotional expression. Especially men are not supposed to talk about emotional problems (Sydor, 1996), (Kayitesi, 2007). Mental health workers expressed an ambivalent image of modern psychotherapy in Rwanda. Medication was widely seen as the only seal of quality, the sense of psychiatric hospitals is rarely understood, and many patients prefer traditional healers. Many Rwandans did not understand how words should relief suffering or achieve healing (Kagoyire, 2007).

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