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Risk Factors and Clinical Manifestations of Prolonged Grief Disorder: Particular Characteristics of Violent Loss

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Summary

Violent loss (i.e. homicide, suicide, accident) is associated with high levels of prolonged grief disorder (PGD), a condition defined as a maladaptive reaction to loss. PGD is a disorder marked by persistent yearning for the deceased, feelings of emptiness, and difficulties in accepting the loss for a period of at least six months. No meta-analytic evidence yet exists that identified specific risk factors for PGD after violent loss. Violent loss is particularly common in conflict-affected regions. Losses in warfare are often intertwined with traumatic experiences and high comorbidities between PGD and posttraumatic stress disorder (PTSD) are reported. Research has yet to determine how PGD and PTSD manifest in these populations. A further particular characteristic of violent loss in the context of warfare is the loss of a significant other to disappearance, which leaves relatives wondering about the fate of the missing person. Despite the large number of persons globally affected by the disappearance of a loved one, the scientific evidence about the psychological consequences among relatives of missing persons remains limited.

This thesis followed several aims to address the above-mentioned research gaps. The first study provided a systematic review and meta-analytic evidence on risk factors for PGD among individuals exposed to a violent loss. Across 36 eligible studies (N=5911), 29 potential risk factors were identified. Large effect sizes were found for other psychological disorders, suicidality and rumination, while medium effect sizes were found for exposure to traumatic events and factors associated with the relationship to the deceased. Small effect sizes emerged for sociodemographic characteristics, multiple loss, physical symptoms and religious beliefs. Ten variables did not show a significant association with PGD. Heterogeneity was observed among several risk factors, however, subgroup analyses could not explain the heterogeneity.

The meta-analysis identified, among other results, a high association between PGD and PTSD after violent loss. The second study subsequently addressed how PGD and PTSD manifest in the aftermath of warfare. The results revealed that clinical manifestations of PGD and PTSD among survivors of armed conflict may be characterized by four classes of symptom profiles: A resilient class, a PTSD class, a predominately PGD class, and a high distress class with overall high values of PGD and PTSD. Relative to the resilient class, participants in the high-distress class were more likely to be female, to have lost a close relative, to have been exposed to a higher

number of traumatic events, and to perceive less social support. Compared to the PTSD class, the PGD class was marked by less time since the loss had occurred and a higher likelihood to have had lost a close relative.

The third and fourth article addressed the psychological and psychosocial consequences of the loss of a significant other to disappearance by providing an overview about the current state of research (paper III) and by contributing a comparative study of relatives of disappeared persons and bereaved individuals (paper IV). The overview indicated that depression, PTSD and PGD are common consequences among relatives of disappeared persons. While three of the reviewed studies found that relatives of disappeared persons had higher levels of psychopathology than bereaved individuals, paper IV did not indicate significant differences in PGD, depression, or PTSD symptom severity between the two groups. Results of paper IV furthermore indicated that the extent to which relatives of disappeared persons hoped that their loved one was still alive was significantly associated with the severity of PGD symptoms.

To conclude, prolonged grief disorder is an important psychological disorder that can emerge in response to the violent loss of a significant other. This dissertation contributes significantly to the knowledge on risk factors and clinical manifestations of PGD among violent loss survivors. This is especially relevant in the light of inclusion of PGD in the forthcoming International Classification of Diseases (ICD-11) as it will be important for clinicians to identify bereaved individuals at risk for PGD. This dissertation furthermore added important knowledge on psychological consequences and their risk factors to the under-researched field of psychological distress among relatives of disappeared persons.

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Introduction

The loss of a significant other is a painful, but also universal experience that almost everyone will encounter throughout life. While the majority of bereaved persons cope well, about one out of ten will develop complications in their adjustment to bereavement (Galatzer-Levy & Bonanno, 2012; Lundorff, Holmgren, Zachariae, Farver-Vestergaard, & O'Connor, 2017). Prolonged grief disorder (PGD) is defined as a maladaptive reaction to loss and is marked by persistent yearning for the deceased, feelings of emptiness, and difficulties in accepting the loss (Prigerson et al., 2009). High levels of PGD are observed particularly among those who have lost a significant other to violent circumstances ('violent loss'; i.e. loss through homicide, suicide, or accident, including acts of warfare and natural disaster). Grieving a violent loss may be different from grieving a non-violent loss in terms of exposure to risk factors and specific symptomatology. However, no meta-analytic evidence yet exists to identify specific risk factors of PGD after violent loss.

A particular form of violent loss is the loss of a significant other in the context of warfare. Losses in warfare are often intertwined with traumatic experiences and high comorbidities between PGD and posttraumatic stress disorder (PTSD) are reported. Research has yet to examine how PTSD and PGD symptom profiles manifest in populations exposed to both trauma and loss. A further frequent loss experience in the context of warfare is the loss to disappearance. Despite the large number of persons globally affected by the disappearance of a loved one due to war or state terrorism, the scientific evidence about the psychological consequences among relatives of missing persons is limited. To sum up, several research gaps could be identified in the literature on violent loss and its association with PGD. To address these gaps, four studies on risk factors and clinical manifestations of PGD were conducted.

The first article comprises a systematic review and meta-analysis on risk factors for prolonged grief disorder among adults exposed to violent loss. The second article specifically addresses the psychological consequences of trauma and loss in the context of warfare and identified differential symptom profiles of PTSD and PGD. The third article addresses the phenomenon of disappearances in the context of warfare and provides an overview of the current state of research on the psychological and psychosocial consequences of these losses for those left behind. The final article compares rates of prolonged grief, depression, and PTSD among relatives of

disappeared persons and bereaved individuals and examines the extent to which relatives of disappeared persons hoped that their loved one is still alive and its association with the severity of PGD.

This thesis is divided into 10 chapters. After an overview of theoretical models describing the normal course of grief (chapter 1), chapter 2 introduces the concept of prolonged grief disorder and its differentiation from related disorders. Chapter 3 addresses the specific characteristics of PGD after violent loss and its risk factors. It furthermore outlines the psychological consequences of the loss of a significant other to disappearance. Two of the presented studies relied on a sample of Colombian internally displaced persons and chapter 4 provides a brief historical outline of the Colombian armed conflict. After the presentation of the research objectives in chapter 5, chapter 6 to 9 comprise the articles described above. The concluding discussion of the results of this dissertation, its implications, limitations, and directions for future research will be presented in chapter 10.

1 Bereavement and grief

Losing a significant other is a universal experience that almost anyone will encounter throughout life. Bereavement refers to the objective situation of losing someone to death, whereas grief refers to the natural human reaction to loss and, it includes a wide range of emotional, cognitive and behavioral responses (Prigerson, Frank, et al., 1995). Various studies have shown that losing a significant other is associated with distress and an increased risk for morbidity and mortality, especially in the period immediately after loss (Ajdacic-Gross et al., 2008; Kaprio, Koskenvuo, & Rita, 1987). However, longitudinal studies have established that grief reactions decrease over time (Bonanno et al., 2002; Galatzer-Levy & Bonanno, 2012; Tsai et al., 2016). According to these findings, most bereaved persons adjust well: for instance, they resume their daily routines and retake part in social activities. About 10% nevertheless, exhibit higher degrees of grief for longer than a year (Galatzer-Levy & Bonanno, 2012; Lundorff et al., 2017; Tsai et al., 2016). Since the beginnings of the field of psychology, grief has attracted the attention of many researchers. Several models describing the course of grief have been proposed and will be shortly introduced in the following.

1.1 Grief work hypotheses

Mourning a loved one was first described as a distinct human condition in Freud's essay "Mourning and Melancholia" (1917). Freud considered mourning to be a painful experience that requires working through grief by repeatedly going over shared memories and bringing the reality of the loss into awareness to withdraw from the attachment with the lost person (Freud, 1917). According to this understanding of grief, working through the latter is a prerequisite to avoid complications in its course. The idea of grief work was further on adopted in attachment theory, which was originally developed not only to describe how humans connect or bond with each other, but also how they experience separation (Bowlby, 1980). Grief is conceptualized similarly to childhood separation anxiety: in the light of separation, the infant seeks to regain proximity with the attachment figure through searching, anxiety and yearning (Bowlby, 1980). The intensity of these reactions eventually decreases when the separation is prolonged. In response to the loss of a significant other to death, Bowlby observed similar reactions with initial yearning for the lost person, and, finally, the realization of the finality of the loss (also understood as: detachment). According to this theory, working through grief is crucial for rearranging representations of both the

person lost and of the self. Suppressing grief, conversely, was assumed to result in psychological and physical ill health (Bowlby, 1980).

Many researchers have criticized the lack of empirical support of the grief work hypotheses. Reviewing the literature, Wortman and Silver (1989) found no empirical support for the dominant ideas. For instance, that (1) distress is necessary to cope with the loss or that (2) depression in the aftermath of bereavement is inevitable. Moreover, there is evidence that strong negative emotions at an early stage of bereavement can rather predict later complications in grief than healthy adjustment (Bonanno, Papa, Lalande, Zhang, & Noll, 2005).

1.2 Phase models of grief

Based on the concept of attachment theory and subsequent observations of bereaved individuals from shortly after bereavement to a year or more afterwards, Bowlby and Parkes proposed a phase model of mourning (Bowlby, 1980; Parkes, 1971). The original grief work theory was thereby expanded. Since then, a number of phase models have been proposed. Many of these models conceptualize grief as a dynamic process with overlapping stages, the most established theory being the "stage theory of grief" by Elisabeth Kübler-Ross.

Kübler-Ross's phase model was originally developed to describe how humans cope with the knowledge of their impending death in cases of serious illness. Later on, it was adapted to grief, postulating the following five stages of grief: (1) denial, (2) anger, (3) bargaining, (4) depression and (5) acceptance (Kübler-Ross, 1970). According to the stage theory, normal grief is initially characterized by a sense of denial or disbelief of the reality of the loss, followed by anger that the person is gone. In the third phase, that of bargaining, the bereaved may engage in thoughts about what could have been done to avoid the death. Then, the fourth phase, depression, typically includes intense feelings of sadness and hopelessness in the light of the loss. Finally, normal grief finally concludes with acceptance of the loss, which gradually increases over time.

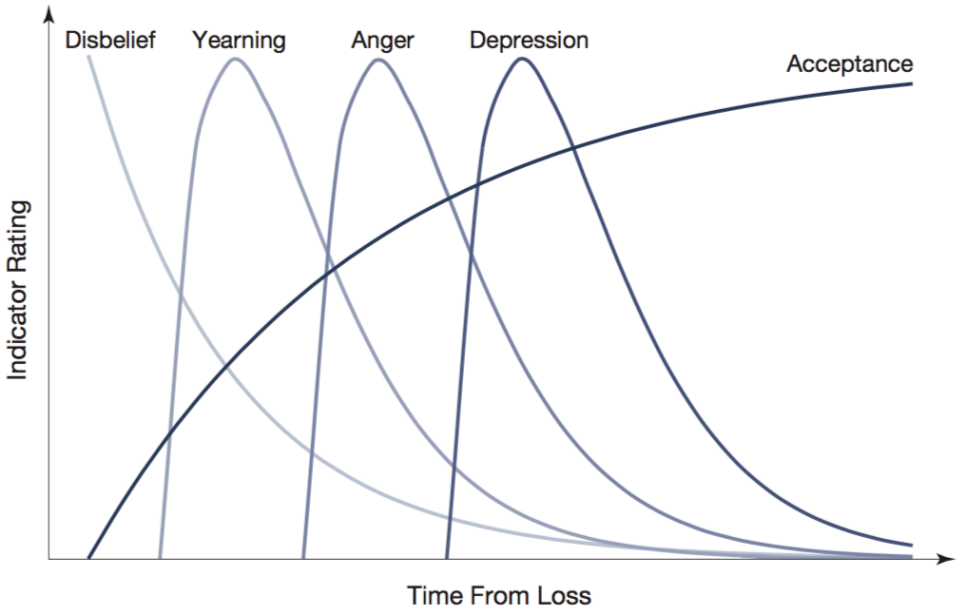

Figure 1. Hypothesized stage model of grief, based on Jacobs (1993); (Macjewski et al., 2007)

The stage model was well accepted and, ever since, has been widely used in grief counseling. Yet, its validity was not consistently supported by the empirical literature (Worden, 2008). Maciejewski et al. (2007) evaluated the stage theory in a longitudinal study with bereaved persons who had lost a family member due to natural causes. Results show that disbelief was not the initial, dominant reaction to loss. In fact, yearning seemed to be the dominant response rather than depression. Holland and Neimeyer (2010) replicated this study with bereaved college students using a cross-sectional design. Grief indicators did not strictly follow the proposed sequential pattern. Furthermore, participants who had lost a significant other to violent causes were more likely to have higher scores on negative grief indicators (anger, disbelief, depression) and their distress was more persistent.

The variation observed in response to loss led researchers to the idea that grief should rather be conceptualized as an individualized process than as a process unfolding in rigid phases (Stroebe & Schut, 1999). Furthermore, an interest grew to understand in a better way why some individuals cope well with bereavement while others continue to suffer from persistent distress.

2 Prolonged grief disorder (PGD): Definition and symptomatology

Based on clinical observations with grieving persons, many researchers found patterns of "maladjustment" to loss. These are characterized by the lack of integration of the loss into the autobiographical knowledge base, resulting in intrusions as well as feelings of anger, bitterness and failure to adapt to the loss (Horowitz et al., 1997; Shear & Shair, 2005).

Two research groups, Holly Prigerson et al. (1995) and Mardi Horowitz et al.(1997), independently proposed diagnostic criteria for these patterns of maladjustment to loss, which they termed "complicated grief". After more than a decade of research, Prigerson and Horowitz published a revised version of criteria for "prolonged grief disorder" (PGD) together (see table 1, Prigerson et al., 2009), which they suggested for inclusion into the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5). In addition, the research group of Shear and colleagues proposed diagnostic criteria for 'complicated grief' (Shear et al., 2011). While diverse terms have been used to describe the condition ("traumatic grief", "complicated grief (disorder)", "pathological grief"), the term "prolonged grief disorder" will be used throughout this thesis as it represents the currently most accepted term in the literature.

It is proposed that intense yearning for the person lost, termed "separation distress", represents the core feature of PGD (Prigerson et al., 2009). Moreover, several cognitive, behavioral and emotional symptoms are suggested to accompany the disorder, for instance, difficulties accepting the loss and an inability to trust others since the loss. It is assumed that individuals with PGD experience the grieving process differently than individuals with normal grief. Those with prolonged grief are more easily reminded of the person they have lost than individuals without prolonged grief (Lichtenthal, Cruess, & Prigerson, 2004). Despite the frequent reminders of the person they lost, individuals with PGD seem to remain shocked or stunned by the reality of the loss. While the proposed criteria sets described above show consensus about the inclusion of separation distress as core feature of PGD, disagreement can be observed with regard to some of the cognitive-emotional-behavioral symptoms proposed to be indicative of PGD. For example, Shear et al. (2011) suggests the inclusion of "frequent troubling

rumination about the circumstances of the death" while Prigerson et al. (2009) do not include this symptom criterion.

A meta-analysis including 14 population-based studies suggests a prevalence rate of 9.8% among bereaved adults exposed to non-violent loss (Lundorff et al., 2017). It is worth mentioning, that these rates depend largely on the sample characteristics and the instruments used. In a representative population-based sample, Kersting et al. (2011) report a rate of 6.7% among the German bereaved sub-population aged 14 or older. Furthermore, a rate of 25.7% in the subpopulation of bereaved older adults was found in the Netherlands (Newson, Boelen, Hek, Hofman, & Tiemeier, 2011). In the Japanese population, a prevalence rate of 2.4% was found (Fujisawa et al., 2010).

Table 1. Consensus criteria proposed for DSM-5 and ICD-11 by Prigerson et al. (2009)

A.	**Event:** Bereavement (loss of a significant other)
B.	**Separation distress:** The bereaved person experiences yearning ((e.g., craving, pining, or longing for the deceased; physical or emotional suffering as a result of the desired, but unfulfilled, reunion with the deceased) daily or to a disabling degree.
C.	**Criteria C**: The bereaved person must have five of the following symptoms experienced daily or to a disabling degree: 1. Confusion about one's role in life or diminished sense of self (i.e. feeling that a part of oneself has died 2. Difficulty accepting the loss 3. Avoidance of reminders of the reality of the loss 4. Inability to trust others since the loss 5. Bitterness or anger related to the loss 6. Difficulty moving on with life (e.g. making new friends, pursuing interests) 7. Numbness (absence of emotion) since the loss 8. Feeling that life is unfulfilling, empty or meaningless since the loss 9. Feeling stunned, dazed or shocked by the loss
D.	**Timing**: Diagnosis should not be made until at least six months have elapsed since the death.
E.	**Impairment**: he disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning (e.g., domestic responsibilities).
F.	**Relation to other mental disorders**: The disturbance is not better accounted for by major depressive disorder, generalized anxiety disorder, or posttraumatic stress disorder.

PGD is most likely to be included within the forthcoming International Classification of Diseases, version 11 (ICD-11) in a new category for stress-related disorders (Maercker et al., 2013; WHO, 2018). Although matter of a long debate, PGD was not included as distinct clinical entity within the DSM-5 (American Psychiatric Association, 2013b). To encourage further research, a new combination of symptoms

termed "persistent complex bereavement related disorder" was included as *condition for further study* (table 13, appendix). At the same time, the bereavement exclusion criterion was removed from the diagnostic criteria of major depressive episode, allowing clinicians to give a diagnosis of bereavement-related depression as soon as two weeks after the death of a significant other (American Psychiatric Association, 2013a). Some critics have voiced concern about the DSM-5 proposal arguing that there is little scientific support for symptoms that are unique to the DSM-5 diagnosis (Bryant, 2014; Rosner, 2015) and a revised version of the DSM-5 will most likely address some of these issues.

2.1 Development of prolonged grief: A cognitive-behavioral model

While the theoretical basis of prolonged grief disorder still remains under-researched, some attempts have been made to describe the development of PGD (Boelen, van den Hout, & van den Bout, 2006; Kotoučová, 2012; Maccallum & Bryant, 2013). The *cognitive-behavioral model of complicated grief* by Boelen and colleagues (2006) largely draws on previous theories such as the cognitive model for the development of PTSD by Ehlers and Clark (2000). It states three crucial mechanisms that underlie prolonged grief (PGD):

(1) Insufficient integration of the loss into the autobiographical knowledge base
(2) Negative global beliefs and misinterpretations of grief reactions
(3) Anxious and depressive avoidance strategies

In normal grief, the meaning and implications of the loss are elaborated and hence integrated with information about the relationship. In contrast, it is proposed that in PGD, the factual knowledge of the loss is not connected with information about the relationship with the lost person. The *insufficient integration of the reality of the loss into the autobiographical knowledge base* in PGD results into a number of consequences: to elaborate, thoughts, feelings and memories can be easily triggered while having an intrusive and perhaps even disruptive effect. Within the framework of the cognitive-behavioral model, individuals with PGD presumably remain attached to the person they have lost.

The second core process, *negative global beliefs and misinterpretations of grief reactions*, is conceptualized to directly generate symptoms of PGD. In other words, to aid the bereaved in engaging in avoidance strategies, and to interfere with the

integration of the loss into the autobiographical memory base. For example, the death of a child may be disruptive for the belief in a just world or for the meaning of life. If these negative dysfunctional beliefs stemming from the loss experience dominate (e.g. "this should not have happened"), they may hold the survivor dwelling in the past on what was lost rather than focusing on the present and future. These interpretations are assumed to likely to lead to distress and to facilitate anxious avoidance strategies. *Anxious and depressive avoidance strategies* come into place when mourners believe that the confrontation with reminders of the loss would be unbearable or have painful consequences. Avoidance strategies may include the avoidance of situations, persons, or objects that may trigger memories of the deceased as well as withdrawal from social, occupational or recreational activities. Other individuals with PGD may maintain a strong connection with the deceased by talking frequently about the person, having inner conversations with the deceased or by cultivating certain mourning rituals. This behavior is also considered avoidant behavior as mourners avoid the confrontation with the reality of the loss. The model proposes that the avoidance of the reality of the loss promotes the development and maintenance of PGD.

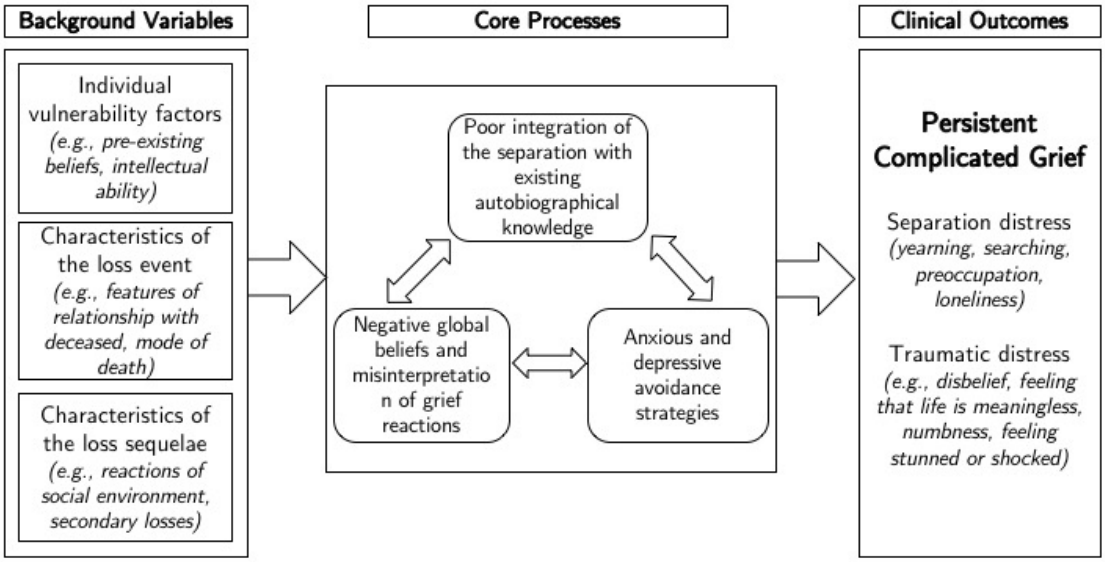

Figure 2. Cognitive-behavioral model by Boelen et al. (2006)

Several background variables are proposed to heighten the impact of these core processes on the individual's vulnerability to develop PGD, such as *individual vulnerability* (pre-existing belief system, attachment style), the *characteristics of the loss event* (relationship with the deceased, mode of death) and the *characteristics of the loss sequelae* (reactions of social environment etc.).

The general associations between the three core processes and PG outcomes have been supported in various studies (Boelen, de Keijser, & Smid, 2015; Eisma et al., 2013; van der Houwen, Stroebe, Schut, Stroebe, & van den Bout, 2010). For example, in a sample of 496 bereaved persons mourning a violent loss vs. non-violent loss, it was found that the confrontation with a violent loss (*background variable*) was associated with a greater sense of unrealness (*integregration of the loss into autobiographical knowledge*), an increased endorsement of negative cognitions (*negative global beliefs and misinterpretations*) and greater engagement in anxious and depressive avoidance behaviors. The magnitude of endorsement of these factors were associated with PGD severity (Boelen et al., 2015).

2.2 Differentiation from related disorders

PGD shares several characteristics with other psychological disorders and is often comorbid with depression, anxiety and PTSD (McDevitt-Murphy, Neimeyer, Burke, Williams, & Lawson, 2012; Schaal, Jacob, Dusingizemungu, & Elbert, 2010; Stammel et al., 2013). There is considerable evidence that PGD is different from depressive and anxious syndromes. Factor-analytic methods demonstrated the separability of PGD from these disorders (Barnes, Dickstein, Maguen, Neria, & Litz, 2012; Boelen & van den Bout, 2005; Jacobsen, Zhang, Block, Maciejewski, & Prigerson, 2010). Furthermore, PGD contributed uniquely to a range of problems such as unhealthy behavior (tobacco and alcohol use) and medical conditions such as high blood pressure and cardiovascular problems (Chen et al., 1999; Prigerson et al., 1997). Insecure attachment style and the lack of preparedness for death were identified as risk factors that contributed uniquely to PGD and not to other syndromes (Barry, Kasl, & Prigerson, 2002; Van Doorn, Kasl, Berry, Jacobs, & Prigerson, 1998).

2.2.1 Depression

Depression is a common psychological response to bereavement and a vast array of research was devoted to the investigation of bereavement-related depression (Galatzer-Levy & Bonanno, 2012; Jacobs, Hansen, Berkman, Kasl, & Ostfeld, 1989; Jozwiak, Preville, & Vasiliadis, 2013). Depression and prolonged grief share several characteristics and studies show a moderate to high overlap between depression and PGD (Boelen, 2013; Morina, Rudari, Bleichhardt, & Prigerson, 2010).

A diminished sense of self is prevalent in both PGD and depression, but in depression, it relates to global negative assumptions about the self and feelings of worthlessness (Wittchen & Hoyer, 2011). In PGD, a diminished sense of self refers to the specific belief that a part of oneself has died and that life has no meaning without the lost person (Prigerson et al., 2009). Feelings of guilt are equally prevalent in both depression and PGD. However, feelings of guilt in PGD are specific to the death of a loved one, whereas in depression, guilt is multi-layered and often intertwined with self-blame (Duncan & Cacciatore, 2015).

Further discrepancies can be observed in relation to defining features. Separation distress, which is defined as a person longing or yearning for the lost person resulting from the desired, but unfulfilled reunion with the deceased, represents a feature unique to PGD (Prigerson et al., 2009). This is also represented on a psychobiological level: yearning in PGD is associated with activation of the dopamine circuitry, whereas the capacity for the activation of reward pathways is reduced in depression (Naranjo, Tremblay, & Busto, 2001; O'Connor et al., 2008). Studies on risk factors of both disorders suggest that the development of PGD depends on relationship– and bereavement-specific factors (e.g. relationship to the deceased, insecure attachment style, cause of death), whereas in depression, individual vulnerability factors play a major role (e.g. genetic predisposition, sleep disturbance) (Cole & Dendukuri, 2003; Johnson, Zhang, Greer, & Prigerson, 2007; Wijngaards-De Meij et al., 2005).

Early studies on the response to treatment showed that the use of tricyclic antidepressants did not reduce symptoms of PGD (Pasternak et al., 1991; Reynolds, Miller, et al., 1999). Standard treatment for depression did not always prove to be effective in treating PGD. For example, interpersonal therapy focusing on grief-related depression was associated with lower response rate and longer time to respond than an intervention that specifically targeted PGD (Shear, Frank, Houck, & Reynolds, 2005). In contrast, there is growing evidence supporting the efficacy of PGD-tailored psychotherapy (Shear et al., 2005; Wittouck, Van Autreve, De Jaegere, Portzky, & van Heeringen, 2011).

2.2.2 Posttraumatic Stress Disorder (PTSD)

Posttraumatic stress disorder (PTSD) and PGD exhibit both common characteristics and significant differences. Both disorders are etiologically defined by a significant life event. PTSD can develop in response to a traumatic event. The disorder is characterized by four symptom clusters according to the DSM-5 classification:

intrusions or re-experiencing of the traumatic event, avoidance of trauma-associated stimuli, negative alterations in trauma-associated cognitions, and significant changes in arousal and reactivity (American Psychiatric Association, 2013c). Intrusive memories in PTSD include fragments of the traumatic event or cues that were temporally related to the traumatic event (Ehlers, Hackmann, & Michael, 2004). These intrusive memories are involuntarily triggered through cues that are similar to those before or during the traumatic event. Persons with PTSD usually engage in avoidance strategies in order to prevent re-experiencing painful memories.

PGD is etiologically defined by the loss of a significant other. Similar to PTSD, individuals with PGD exhibit intrusive memories. These intrusive memories may include unpleasant memories associated with the circumstances of the death, but they often include comforting memories of the deceased, so-called "bittersweet memories", of the deceased person and related experiences (Horowitz et al., 1997; Maercker & Znoj, 2010). Thus, although both disorders similarly show intrusive memories, the dominant affect in PTSD is *fear* while the dominant affect in PGD is *yearning* for the lost person (Lichtenthal et al., 2004). This is also supported by a study of heart rate response, in which during the discussion of the loss of a significant other, participants with PGD showed a reduced heart rate in contrast to an increased heart rate among participants with PTSD (Bonanno et al., 2007). For both disorders, the explanation for intrusive memories is a poor integration of the trauma/loss into the autobiographical memory base (Boelen et al., 2006; Ehlers & Clark, 2000). In both disorders, individuals engage in avoidance strategies. In PTSD, these avoidance strategies focus on the prevention of intrusive memories of the traumatic event, whereas in PGD, reminders of the reality of the loss are avoided, i.e. the painful reality that the person is gone. This is frequently associated with the avoidance of activities that are related to the loss or the processing thereof, and extends to the avoidance of social integration, the resumption of activities, and future-oriented planning (Hogan, Worden, & Schmidt, 2005; Prigerson et al., 2009).

Both PTSD and PGD also show changes in cognitions and appraisals. Among individuals with PTSD, negative appraisals refer to the potential reoccurrence of danger (Ehlers & Clark, 2000). In PGD, negative appraisals are concerned with the impact of the loss on the self and the future (Boelen et al., 2006). Taken together, several similarities can be observed on the symptom level of both PTSD and PGD, but discrepancies emerge with regard to dominant affect and the content of both intrusive memories and cognitive appraisals. Due to the similarities with regard to etiology and

on a symptom level, PGD and PTSD will be categorized together in a new cluster of "trauma- and stress-related disorders" within the ICD-11 (Maercker et al., 2013).

3 Grief after violent loss

It is assumed that the way a person dies has an impact on the surviving family members and friends (Boelen et al., 2006). Violent loss is defined as the loss of a significant other through homicide, suicide or accident (Rynearson, 2006). Violent deaths occur suddenly and thus, unexpectedly for those left behind. Several authors suggest that violent death is often perceived as preventable, which may impede the survivors' search for reasons and meaning, or induce them to assign blame to others or themselves (Armour, 2006; Rynearson, 2006). Furthermore, the lack of a supporting social environment or stigmatizing social attitudes are common among survivors of homicide and suicide and may exacerbate the process of adjustment (Bailey, Hannays-King, Clarke, Lester, & Velasco, 2013; Feigelman, Gorman, & Jordan, 2009). Grieving a violent death may therefore be different from grieving a non-violent death and evidence indicates that losing someone by violent means is associated with a greater risk for the development of prolonged grief disorder as compared to a loss by non-violent means (Burke & Neimeyer, 2013; Kersting et al., 2011; Schaal et al., 2010).

3.1 Violent loss in the context of warfare

The loss of a significant other in the context of warfare is a specific form of violent loss. Worldwide, people are exposed to violent conflicts and systematic human rights violations as evidenced by currently 20 full-scale wars and 222 violent political conflicts in total (Heidelberger Institute for International Conflict Research, 2017). Human-caused disasters are considered to have a more profound negative impact on mental health than natural disasters or accidents as they often deliberately inflict harm on the civilian population (Norris et al., 2002; Weisæth, 2006). The majority of studies investigating these mental health consequences focused on PTSD and depression. As a consequence of traumatic experiences within conflicts, rates of about 30% for depression and PTSD disorders have been documented in several studies (Steel et al., 2009). Traumatic experiences within violent conflicts, however, often involve the loss of a significant other and only lately, studies addressed maladaptive grief in conflict-affected populations. Rates of PGD are usually higher in war-torn countries as compared to

civilian settings with studies reporting rates between 8 and 38% (Morina et al., 2010; Morina, von Lersner, & Prigerson, 2011; Schaal et al., 2010; Stammel et al., 2013). Several studies demonstrate moderate to high comorbidities between PGD and PTSD in the context of violent conflicts, suggesting a complex interplay between posttraumatic stress and prolonged grief symptoms (Morina et al., 2010; Schaal et al., 2010; Stammel et al., 2013). Research has yet to examine how PTSD and PGD symptom profiles manifest in populations exposed to both trauma and loss.

As mentioned above, rates of PGD vary across studies of violent loss survivors, indicating that the exposure to trauma and loss does not necessarily lead to the development of PGD, but that certain risk factors play a role in explaining the emergence of the disorder. The scientific literature generated preliminary knowledge of why some people cope well after violent bereavement while others develop persistent distress of clinical concern. The following paragraph presents results that relate to both violent loss in the civilian context and to violent loss in the context of warfare.

3.2 Risk factors

Several factors have been discussed to impact the likelihood of PGD emerging after violent loss. For an overview, factors were categorized into the following categories: sociodemographic factors, characteristics associated with the death and the deceased, health-related characteristics, cognitive factors, and interpersonal factors.

3.2.1 Sociodemographic characteristics

Sociodemographic characteristics are easy to assess and have been examined in several studies. There are mixed results on the impact of female gender in the contexts of violent conflicts: while some studies found females to be at higher risk for PGD (Morina et al., 2010; Neria et al., 2007), others did not find an association when other trauma- and loss-related variables were statistically controlled (Momartin, Silove, Manicavasagar, & Steel, 2004; Schaal et al., 2010; Stammel et al., 2013).

There is some evidence that older individuals are more likely to be affected by PGD than individuals who are younger (Craig, Sossou, Schnak, & Essex, 2008; Yi et al., 2018). This may be attributed to a higher degree of loneliness and the perception of less social support among the elderly (Fried et al., 2015). Some studies furthermore demonstrated a link between higher levels of education and lower PGD symptom severity (Dyregrov & Dyregrov, 2005). It has been suggested that higher education

may facilitate reappraisal strategies or finding meaning in the loss and may thus operate as a protective factor against the development of adverse mental health outcomes (C. E. Ross & Mirowsky, 2006).

3.2.2 Factors associated with death and the deceased

Less time since loss was related to higher PGD symptom severity in a study with bereaved survivors of the Rwandan genocide, indicating that grief symptoms decrease as time goes by (Schaal et al., 2010). However, it has been proposed that grief related to a violent loss may decrease more slowly than losses from natural death (Kristensen, Weisaeth, & Heir, 2012). It was also shown that the loss of a closely related family member was associated with more severe grief reactions than the loss of a distantly related family member, indicating that the emergence of PGD relies much on the relationship and the closeness to the person lost (Neria et al., 2007; Prigerson et al., 2002; Stammel et al., 2013).

3.2.3 Health related factors

High comorbidities with PTSD have been reported in a number of studies (Morina et al., 2011; Schaal, Dusingizemungu, Jacob, Neuner, & Elbert, 2012). The violent nature of a loved one's death is likely to produce intrusive memories surrounding the circumstances of the death (Baddeley et al., 2015; Smid et al., 2015; Wagner, Knaevelsrud, & Maercker, 2005); these violent or painful images have been reported to contribute to PGD and PTSD (Hibberd, Elwood, & Galovski, 2010). Survivors may subsequently engage in avoidance of these intrusive images, thereby maintaining symptoms of both PGD and PTSD (Boelen et al., 2006; Ehlers & Clark, 2000). Other comorbid psychological difficulties (e.g. depression, anxiety) have likewise been considered as risk factors for PGD.

3.2.4 Cognitive factors

Violent loss is likely to leave the survivors incapable of finding meaning. A lower degree of meaning making was associated with PGD in a study of violent loss survivors (Currier, Holland, Coleman, & Neimeyer, 2008). This finding suggests that not only the loss itself but the subjective interpretation of the loss is crucial for the development of PGD. Violent losses within the scope of human-caused disaster or mass violence are likely to have a disruptive effect on the individual's core assumptions about the world

and other people (Currier, Holland, et al., 2008; Prager & Solomon, 1995). In their study with 61 Holocaust survivors, Prager and Solomon (1995) found that Holocaust survivors, in comparison to a control sample, perceived the world as being worse and perceived less meaning in the world. Global negative beliefs and negative assumptions about the world have been reported to be predictive of PGD even when other loss-related variables were controlled (Boelen, van den Bout, & van den Hout, 2003; Currier, Holland, & Neimeyer, 2012; Wickie & Marwit, 2000).

Research has also been devoted to understanding the role of rumination and PGD. Rumination is defined as repetitive thinking about negative emotions and focusing on their causes, meanings, and consequences (Nolen-Hoeksema, 1991). Anecdotal evidence from grief-related case studies of violent loss survivors indicate that the latter are more likely to engage in ruminative thoughts about the deceased's death or what the survivor could have done to prevent this from happening (Higson-Smith, 2014; Smid et al., 2015; Wagner et al., 2005). There is evidence of an association of rumination with PGD (Morina, 2011).

3.2.5 Interpersonal factors

The way that people feel supported by their close social environment has frequently been reported to be associated with adverse mental health outcomes. Nevertheless, findings on the association of social support with PGD after violent loss are mixed (Burke, Neimeyer, & McDevitt-Murphy, 2010; Hibberd et al., 2010). It might be that social networks are not necessarily supportive. Violent deaths were reported to be associated with stigma, which can be particularly disruptive (Bailey et al., 2013; Feigelman et al., 2009). Moreover, a recent study found that responses by the social network and by agencies in the aftermath of suicide are often perceived as insensitive and not adjusted to the needs of the bereaved (Peters, Cunningham, Murphy, & Jackson, 2016). Withdrawal from the social network can, therefore, be a consequence among individuals bereaved by violent loss.

In reference to Bowlby's attachment theory, some researchers investigated how attachment styles were related to PGD. Studies with persons bereaved by non-violent loss showed that individuals with insecure, anxious or dependent attachments were more likely to develop PGD than those with secure attachment styles (Beverung & Jacobvitz, 2016; Boelen & Klugkist, 2011; Mash, Fullerton, Shear, & Ursano, 2014). Results on the role of attachment styles in the development of PGD among violent loss

survivors are only preliminary but showed a potential link between anxious and avoidant attachment styles and PGD (Currier, Irish, Neimeyer, & Foster, 2015).

3.3 Missing persons

During acts of war or conflict, many civilians fall victim to massacres, bombings, or other human rights violations. Not always, their bodies are retrieved or can be identified. Others may be secretly imprisoned or have no means to reestablish contact with their families after a flight. As a consequence, many families are left in the dark about the fate of their loved ones. In a survey among 1245 Syrian refugees arriving in Greece, 20% stated they had a missing family member due to the war in their home-country (UNHCR, 2015). Between 2006 and 2014, almost 30,000 persons have disappeared in Mexico (Secretaria de Gobernación & Procuraduría General de la República, 2014) and about 80.000 missing persons are reported in the scope of the Colombian armed conflict (Instituto de Medicina Legal y Ciencias Forenses, 2016). Forced disappearance is an exceptional form of disappearance defined as the abduction of a person by agents of the state followed by the refusal to acknowledge that an abduction has taken place (United Nations, 2007). Other non-state actors such as guerilla, paramilitary units or drug cartels have adopted this method in various countries (e.g. Colombia, Mexico), which is often used as an instrument to weaken political opponents or to create obedience in an atmosphere of silence and fear (Centro Nacional de Memoria Histórica, 2013; De Alwis, 2009; Misereor & Brot für die Welt, 2015; Rozema, 2011).

Pauline Boss (1977) coined the term "ambiguous loss" to describe a loss that remains unclear and without resolution. She describes two types of ambiguous loss: the first type is physical and describes the situation of relatives of a missing person. To explain the first type, a loved one is physically absent but kept psychologically present because of the lack of information about the whereabouts of the person. In these cases, hope for the return of the lost person often persists. The second type of ambiguous loss is psychological, when a loved one, though physically present, is psychologically absent due, for example, to memory loss or cognitive impairment (Boss, 1977; Boss & Yeats, 2014). An assumption originating from Boss's theories is that "ambiguous loss is the most stressful loss because it defies resolution and creates confused perceptions about who is in or out of a particular family" (Boss, 2004, p. 553).

The few studies that have been conducted with relatives of missing persons have found high levels of PTSD, depression, and/or prolonged grief and some found that relatives

of missing persons had higher levels of psychopathology than those who knew about the death of their loved one (Baraković, Avdibegović, & Sinanović, 2013, 2014; Powell, Butollo, & Hagl, 2010; Quirk & Casco, 1994). Several reasons can explain why relatives of missing persons may experience more complex emotional reactions towards their loss than those who are grieving someone they know to be deceased. The uncertainty about the fate of the missing persons may lead to severe preoccupations about his or her whereabouts (Blaauw & Lähteenmäki, 2002). Evidence from qualitative interviews suggest that relatives of disappeared persons often ruminate about the circumstances of the disappearance and blame themselves for not having done enough to prevent the incident from happening (Hollander, 2016). Grief-related rumination about the circumstances and meaning of a loss was highly associated with PGD in a sample of missing persons (Lenferink, Eisma, de Keijser, & Boelen, 2017). Furthermore, various studies demonstrate that feelings of guilt in the aftermath of loss play an important role in the development and maintenance of PGD (Duncan & Cacciatore, 2015; Stroebe et al., 2014).

Without verification of death, families frequently have to cope with confusion about roles within the family system and family conflicts are a common consequence (Boss, 2002; Munczek & Tuber, 1998). For example, in their qualitative study with Honduran children, Munczek & Tuber (1998) found that different beliefs about the whereabouts of the disappeared (dead, alive, uncertain) are common to exist within a family, representing a high potential for conflict. Family conflicts were also more frequent in families of the disappeared than in families with a loss from political assassination. Furthermore, relatives of disappeared persons are often additionally confronted with financial and practical hardships for which they receive little support from neither their social network nor the state (Blaauw & Lähteenmäki, 2002; Haugaard & Nicholls, 2010). Finally, marginalization, stigma and a decline of social support have been reported to emerge in the context of forced disappearances as neighbors and the community may fear political repression themselves due to contact with relatives of the disappeared (Hollander, 2016; Munczek & Tuber, 1998; Quirk & Casco, 1994; Thornton, 2000).

Taken together, research indicates that the disappearance of a family member is associated with detrimental psychological effects for those left behind. Despite the large number of persons who are confronted with a disappearance due to war or state terrorism, only few studies have yet investigated these psychological consequences. Furthermore, little is known about the specific risk factors these populations face. This,

in turn, may lead to an insufficient understanding of the specific situation of relatives of disappeared persons and to an insufficient awareness of their needs.

4 The Colombian armed conflict – A historical overview

Two of the studies in this thesis are based on data that were collected in Colombia within the study "Justice and Reconciliation", that focused on mental health and attitudes towards reconciliation among internally displaced people in Colombia (Stammel, Heeke, Díaz Gómez, Ziegler, & Knaevelsrud, 2012). A brief historical overview about the Colombian armed conflict will be given in the following section.

Colombia has been faced with an armed conflict between guerilla, paramilitary units and the Colombian army for almost 60 years. The origins of the armed conflict date back to the early 20th century and some would even argue that it goes back to the beginnings of colonialism (Zelik, 2000). The causes of the conflict are complex, with unjust land distribution, lack of access to political power, and corruption playing a crucial role, to name a few. The two most important political movements that had emerged in the middle of the 19th century were the Conservatives and the Liberals. While the Conservatives, in their majority representing the wealthy, were in favor of a Catholic-oriented state, a centralistic constriction and a protectionist economy, the Liberals stood for a secular state with a federal constitution and free trade. Furthermore, the Liberal Party was in favor of civil rights and the fair distribution of land (Zelik, 2000). After decades of hegemony of the Conservative party, the Liberal party introduced several social, economic and political reforms in the 1930s, resulting in an atmosphere of polarization (Gonzáles, 2004).

After the assassination of the promising Liberal presidential candidate Jorge Eliécer Gaitán in 1948, massive riots broke out among his leftist sympathizers, destroying vast parts of Bogota's infrastructure. In response, the Conservative government persecuted all persons with Liberal or Communist convictions. In the course of this persecution and in order to defend themselves, several groups of Liberals and Communists armed themselves (Layús, 2010). This war, known as the "Great Violence" (*Gran Violencia*), lasted from 1948 until 1953 and resulted in 250,000 deaths (Zelik, 2000). After the termination of the "Great Violence" through General Rojas Pinilla (1953-1957) and the installation of an amnesty law for members of self-defense outlaw groups, some

members of the armed groups, mostly Communists, decided to continue the armed struggle to fight poverty and for equal rights, representing the first Guerilla.

In 1964, the FARC-EP (Fuerzas Armadas Revolucionarias de Colombia – Ejército del Pueblo) were established as armed forces of the Colombian Communist party (Pataquiva García, 2009). Most of its members were from the rural population. The FARC refers to itself as a leftist, Marxist-Colombian guerrilla movement, with the aim of establishing an egalitarian social system and asserting an agrarian reform that would improve the living conditions for the rural population (Layús, 2010; Pizarro, 1989). At the same time and inspired by the Cuban revolution, the National Liberation Army (ELN) was formed by middle class students and intellectuals. The ELN later became known for locating themselves in strategic areas to exploit natural resources and to extort money from oil companies and other multinational corporations (Zelik, 2000). The FARC financed themselves by extorting the so-called revolutionary taxes (*vacuna*) from landlords and multinational companies. They increased their armed capacity to about 20,000 combatants in the 1980s and expanded from peripheral areas towards more densely populated areas (Pataquiva García, 2009). The FARC's increasing use of extortions, kidnapping and drug-trafficking to finance their activities altered society's perception of the armed struggle and promoted a societal atmosphere that was less accepting the guerilla's actions (Gonzáles, 2004).

The right-wing paramilitary militia were first created as self-defense armies by wealthy landowners in the late 1970s to protect themselves from the various guerilla groups (Denissen, 2010). With economic support from landlords and financing through drug-trade they soon extended throughout different regions and not only fought the guerilla but also those they suspected supporting or working for the guerilla. Within the scope of their "social cleansing", paramilitary units were soon involved in grave human rights violations among the civilian population (Denissen, 2010). In 1997, the different paramilitary groups joined under the United Self-Defense of Colombia (*Autodefensas Unidas de Colombia*, AUC). AUC combatants used violent and brutal methods to advance their interests and are responsible for forced displacement, torture, massacres, forced disappearances and the killing of thousands of civilians (International Human Rights Law Clinic, 2010). After the installation of Colombia's Justice and Peace Law in 2005, which established the legal framework for the demobilization of members of illegal armed groups, more than 30,000 paramilitary combatants demobilized. In the aftermath of demobilization, many of them, however, created so-called criminal gangs (*bandas criminales*) that until today commit human rights violations among civilians.

Peace dialogues between the FARC and the government of president Juan Manuel Santos began in September 2012. On November 24th, a revised peace agreement between FARC and government was signed, ending 60 years of conflict between the government and the FARC. Throughout the Colombian armed conflict, about 6 million people were internally displaced and more than 220.000 persons have lost their lives, leaving behind significant numbers of bereaved individuals (Centro Nacional de Memoria Histórica, 2013). At least 80.000 persons are considered disappeared (Instituto de Medicina Legal y Ciencias Forenses, 2016).

5 Research objectives

To sum up, current research suggests that individuals exposed to a violent loss are more likely to develop PGD as compared to individuals exposed to non-violent loss. To understand why some individuals are able to cope after violent bereavement while others develop persistent distress of clinical concern, several studies on potential risk and protective factors have been published. However, to date, researchers and clinicians rely on individual study findings to describe the association of a potential risk factor with PGD. These findings are often inconsistent and therefore difficult to interpret. To obtain an overview over the diverse studies published in the field, the synthesis of the evidence in the scope of a meta-analysis has an advantage over interpreting single-study results due to increased statistical power and precision. The first study aims at the following:

1. *To identify potential risk factors of PGD through a systematic review of the quantitative literature among adults who had lost a significant other by violent means*
2. *To quantify the magnitude of the relationship between potential risk factors and PGD after violent loss in a meta-analysis*
3. *To evaluate the quality of the included studies*

The exposure to both trauma and loss of a significant other is a common experience within contexts of war and human rights violations. Little is known about clinical manifestations of PTSD and PGD in populations exposed to multiple trauma and loss. Distinct profiles could differ in terms of the intensity of symptom endorsement (e.g. low, medium, and high symptom severity) but also in the type of emotional response (e.g. some with only elevated PGD, others with elevated PTSD). The identification of subgroups characterized by specific profiles may broaden the knowledge on responses to trauma and loss and may enable the development of tailored interventions to these groups. Identifying specific factors associated with distinct symptom profiles would also yield important information about individuals at risk for specific symptom patterns. The aim of the second study is

1. *to identify differential symptom profiles of PGD and PTSD among individuals exposed to both trauma and loss*
2. *to identify sociodemographic, trauma- and loss-related variables that predicted group membership to a specific symptom profile*

The loss of a significant other through disappearance is a particular and not infrequent phenomenon in the context of war and conflict. Living with ambiguity may prevent relatives from achieving closure. Given the large number of persons who are confronted with a disappearance due to war or state terrorism, it is important to gain a comprehensive overview about the psychological consequences among relatives of missing persons. This may help to expand the knowledge about the nature and risk factors of psychopathology, and furthermore allows directions for the development of tailored interventions. The third article aims to

1. *provide an overview of the current state of research on the psychological and psychosocial consequences of ambiguous loss for relatives of disappeared or missing persons*
2. *review potential risk factors for adverse mental health outcomes*

A loss through disappearance is considered to be one of the most painful losses due to the uncertainty about the whereabouts of the loved one. Yet, studies comparing symptom-levels of PGD, PTSD, and depression between relatives of disappeared persons and bereaved individuals are inconclusive and scarce. The belief about the whereabouts of the missing person may constitute an important risk factor for the development of PGD. After a certain time, some relatives may assume the death of the disappeared person, while others continue to believe or maintain hope that the disappeared person is still alive. The idea that hope in the disappeared person returning plays a role in the development of adverse mental health outcomes has been suggested, but not yet empirically tested. The fourth article aims to contribute to the current state of research on psychological consequences of the disappearance of a significant other for those left behind by addressing the following study objectives:

1. *Determine the rates of PGD, depression and PTSD among relatives of disappeared persons and to compare them with the respective rates among bereaved individuals*

2. *Examine the extent to which relatives of disappeared persons hoped that their loved one is still alive and its association with the severity of PGD*
3. *Analyze potential risk factors of PGD among relatives of disappeared persons as compared with bereaved individuals*

6 Article I: Meta-Analysis

A systematic review and meta-analysis of risk factors for prolonged grief disorder in adults exposed to violent loss

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An adapted version of this chapter has been submitted to
Depression and Anxiety

6.1 Abstract

Violent loss (i.e. loss through homicide, suicide, accident) is associated with high levels of prolonged grief disorder (PGD). We searched for studies investigating potential risk factors for PGD in adults exposed to violent loss in PsycINFO, PsycARTICLES, PubMed, Web of Science, and Scopus. Thirty-six eligible studies published between 2003 and 2017 (N=5911) revealed 29 potential risk factors. Few risk factors were routinely assessed. Large significant effect sizes were found for comorbid psychopathology (r=.50 – .59), suicidality (r=.41, 95% CI (.30; .52]) and rumination (r=.42, [.31; .52]), while medium effect sizes were found for exposure to traumatic events and factors concerning the relationship to the deceased. Small effect sizes emerged for sociodemographic characteristics, multiple loss, physical symptoms and religious beliefs. Ten variables did not show a significant association with PGD. Heterogeneity and a small number of studies assessing certain risk factors were observed.

The associations with other psychological disorders indicate shared mechanisms of psychopathology. To understand the relevance of risk factors for the development of PGD, further research is warranted using longitudinal study designs with large sample sizes. Moreover, we recommend that clinicians carefully assess suicidal ideation among individuals with PGD who have been exposed to violent loss.

6.2 Introduction

Violent loss has been defined as the loss of a significant other through homicide, suicide or accident, and also includes deaths due to natural disasters, terrorism or warfare (Rynearson, 2006). More than 200,000 persons died due to violent causes in the United States in 2015 (7.7% of the total number of deaths), with violent death ranking among the five leading causes of death in the US (Murphy, Xu, Kochanek, Curtin, & Arias, 2017). It is suggested that violent death is often perceived as preventable, and may impede the survivors' search for reasons and meaning, or induce them to assign blame to others or themselves (Armour, 2006; Rynearson, 2006). Furthermore, a lack of recognition or stigmatizing social attitudes are frequently perceived by individuals exposed to violent bereavement and may aggravate the process of adjustment (Feigelman et al., 2009). Grieving a violent death may therefore be different from grieving a non-violent death, and evidence indicates that losing someone by violent means is associated with a greater risk of developing adverse mental health outcomes, in particular prolonged grief disorder (Burke & Neimeyer, 2013; Schaal et al., 2010).

Prolonged grief disorder (PGD) has been defined as a maladaptive reaction to loss and is marked by persistent yearning for the deceased, feelings of emptiness, and difficulties in moving on over a period of at least 6 months (Prigerson et al., 2009). Evidence from continuous research spanning across more than two decades supports the notion that PGD represents a distinct clinical condition associated with marked impairment (Bryant, 2014). Despite the accumulated evidence, PGD was not included as distinct clinical entity within the DSM-5, and was instead included in the appendix termed as *complex bereavement related disorder* under "conditions for further study" (American Psychiatric Association, 2013b). The ICD-11, however, will most likely include prolonged grief disorder as clinical disorder (Maercker et al., 2013; WHO, 2018). A recent meta-analysis including 14 population-based studies found a PGD prevalence rate of 9.8% among adults exposed to non-violent bereavement (Lundorff et al., 2017). No such meta-analysis exists for the prevalence of PGD among individuals exposed to violent loss, but evidence suggests higher PGD prevalence rates among those exposed to violent loss as compared to those exposed to non-violent loss (Currier, Holland, et al., 2008; Schaal et al., 2010).

6.2.1 Previous reviews

So far, no meta-analysis has examined risk or protective factors for PGD either for violent or for non-violent loss. Two previous non-systematic literature reviews were conducted to provide an overview of potentially relevant risk factors for PGD among adults exposed to violent loss (Hibberd et al., 2010; Kristensen, Weisaeth, et al., 2012). Hibberd and colleagues focused on risk factors for PGD, PTSD and depression that are external to the mourner, namely cause of death, the mourner's relationship to the deceased, and the social environment surrounding the mourner. They reported that most studies did not find evidence for a difference in overall grief intensity between different causes of death (e.g. suicide vs. accident) and prolonged grief severity. Moreover, the authors reported some evidence suggesting that a close relationship to the deceased predicted PGD outcomes. Finally, they mentioned that among the few studies examining social support and PGD, social support emerged as protective factor for PGD. Kristensen, Weisaeth, et al. (2012) described a variety of mental health problems, including PGD, PTSD, depression and sleep problems, as common consequences in response to violent loss, and reviewed risk factors for these mental health problems. The results of the review suggest that female gender, a close relationship to the deceased, multiple loss, self-blame and waiting for death confirmation contribute to the likelihood of emergence of PGD.

6.2.2 Risk factors

Research has produced a considerable array of individual studies on factors which potentially contribute to the development of PGD among survivors of violent loss. To provide an overview of potentially relevant risk factors for PGD among survivors of violent loss, below, we divide these factors into the following categories: sociodemographic factors, characteristics associated with the death and the deceased, health-related characteristics, cognitive characteristics, and interpersonal characteristics.

6.2.2.1 Sociodemographic characteristics

Sociodemographic characteristics are easy to assess and have been examined in many studies. Gender has received particular attention, but findings on the association of gender with PGD in the context of violent conflicts have been mixed: While some studies found women to be at higher risk of PGD (Morina et al., 2010; Neria et al., 2007), others did not find an association when other trauma- and loss-related variables

were statistically controlled for (Momartin et al., 2004; Schaal et al., 2010; Stammel et al., 2013). Moreover, some studies showed that a higher educational level was associated with lower PGD severity (Dyregrov, Nordanger, & Dyregrov, 2003; Neria et al., 2007). It has been suggested that a higher educational level may facilitate reappraisal strategies or the finding of meaning in the loss, and may thus operate as a protective factor against the development of adverse mental health outcomes (C. E. Ross & Mirowsky, 2006).

6.2.2.2 Characteristics associated with death and the deceased

Similar to evidence concerning non-violent loss, several studies in survivors of violent loss indicate that grief symptoms decrease as time goes by (Heeke, Stammel, & Knaevelsrud, 2015; Schaal et al., 2010). It was also shown that the loss of a closely related family member was associated with more severe grief reactions than the loss of a distantly related family member, indicating that the emergence of PGD relies much on the relationship and the closeness to the person lost (Neria et al., 2007; Prigerson et al., 2002; Stammel et al., 2013). The potential for multiple loss is high in contexts of war, terrorism or accidents, and multiple loss been associated with more severe grief in some studies (Mercer & Evans, 2006; Stammel et al., 2013).

6.2.2.3 Health-related characteristics

The violent nature of a loved one's death is likely to evoke visual images of the deceased's final minutes, and cognitions about what he/she must have gone through (Baddeley et al., 2015; Smid et al., 2015; Wagner et al., 2005). Survivors may subsequently engage in avoidance of these intrusive images. High comorbidities with PTSD have been reported in a number of studies, and suggest a complex interplay of posttraumatic stress and grief-related symptoms (Morina et al., 2011; Schaal et al., 2012). Other comorbid psychological difficulties (e.g. depression, anxiety) have likewise been considered as risk factors for PGD.

6.2.2.4 Cognitive characteristics

Violent loss is likely to leave the survivors incapable of finding meaning, and a study in survivors of violent loss found that a lower degree of meaning-making was associated with PGD (Currier, Holland, et al., 2008). This finding suggests that not only the loss itself, but also the subjective interpretation of the loss, is crucial for the development of PGD. Rumination has been defined as repetitive thinking about negative emotions and a focus on their causes, meanings, and consequences (Nolen-Hoeksema, 1991).

Anecdotal evidence from grief-related case studies indicates that survivors of violent loss may be more likely to engage in ruminative thoughts about the deceased's death or what the survivor could have done to prevent this from happening (Higson-Smith, 2014; Smid et al., 2015; Wagner et al., 2005). There is evidence of an association between rumination and PGD (Morina, 2011).

6.2.2.5 Interpersonal characteristics

Research on the way in which people feel supported by their close social environment has mostly shown that a greater extent of social support functions as a protective factor against the development of PGD (Burke et al., 2010; Hibberd et al., 2010). However, it is possible that social networks are not always supportive, and violent death survivors have frequently reported stigma as well as insensitive reactions from their social environment (Feigelman et al., 2009; Peters et al., 2016).

6.2.3 Objectives

The primary aim of the present study is to identify potential risk factors for PGD through a systematic review of the quantitative literature in adults who had lost a significant other by violent means. Second, we aim to quantify the magnitude of the relationship between potential risk factors and PGD in a meta-analysis. Third, we descriptively evaluate the quality of the included studies.

6.3 Method

The systematic review and meta-analysis was conducted in accordance with recommendations from the PRISMA statement (Moher, Liberati, Tetzlaff, Altman, & The Prisma Group, 2009). The protocol was pre-registered in PROSPERO in November 2016 (registration no.: CRD42016050470).

6.3.1 Inclusion criteria

Included studies were those in which quantitative methods were used to investigate predictors of or risk factors for PGD in adults (≥18 years) who had lost a significant other to violent death. Violent loss was defined as a loss through homicide, suicide or accident, including acts of war, natural disasters or terrorism. From studies that included both violent and non-violent loss, only those in which at least 70% of the participants had lost a significant other to violent loss were included. A risk factor was

defined as any variable examined as potentially contributing to variability in prolonged grief in terms of symptom severity or diagnostic status. Studies that consisted entirely of individuals with PGD were not suitable for calculating risk factors for PGD and were therefore excluded. We focused our analysis on reliable and validated instruments that specifically assessed complicated or prolonged grief reactions rather than the general extent of grief (Tomita & Kitamura, 2002). A list of the reliable and validated instruments included, as well as the excluded PGD instruments, is provided in the supplementary material. Similarly, risk factors other than standard sociodemographic data, which were assessed using qualitative interviews, non-validated questionnaires, or single-item questions, were excluded from data analysis. Articles were excluded on the basis of any of the following reasons:

a. Studies that focused on conditions other than PGD (e.g. bereavement-related depression, MDD, PTSD etc.)
b. Single-case and intervention studies
c. Studies that were conducted in professionals (e.g. nurses, firemen), patient samples
d. Studies with individuals who were selected on the basis of a specific psychological disorder (e.g. MDD, PTSD) or physical condition (e.g. HIV, Alzheimer's disease)
e. Studies in which the study sample consisted entirely of individuals who fulfilled the criteria for PGD according to the respective PGD instrument and were therefore not suitable for calculating risk factors for PGD
f. Studies in which non-adult participants (<18 years) or unfitting types of losses (job loss, pet loss) were included in the same comparison group as adults who had lost a significant other to violent loss
g. Studies that did not provide sufficient data
h. Studies in which all risk factors (other than standard sociodemographic data) were assessed using qualitative interviews, non-validated questionnaires, or single-item questions

Since the different PGD assessment instruments apply diverse time criteria (2, 6, 14 months), no exclusion criterion was applied for the time since loss (Bui et al., 2015; Horowitz et al., 1997; Prigerson et al., 2009; Prigerson et al., 1999).

6.3.2 Identification and selection of studies

Journal articles, books, book chapters and dissertations published and unpublished in the English or German language between 1980 and 31st December 2017 were considered for inclusion. We originally searched databases until August 2016, but repeated the search in December 2017 to look for new articles that had been published in the meantime. The following databases were searched: *PsycINFO, PsycARTICLES, PubMed, Web of Science*, and *Scopus*. Search terms for the databases were: *prolonged grief, traumatic grief, complicated grief, pathological grief, persistent complex bereavement disorder* OR (*grief* AND (*risk* OR *predict** OR *predisposition*)). In addition, a snowball search system was employed to identify further potentially relevant studies by manually searching the reference lists of the included articles (Lipsey & Wilson, 2001).

6.3.3 Screening procedure

Two authors (CH, CKa) decided on the inclusion or exclusion of each study. In the case of disagreement, consensus was reached by discussion. During the full-text screening, 25% of the records were independently screened, chosen based on computerized randomization. The interrater reliability was calculated using Cohen's kappa for categorical variables (Orwin, 1994).

6.3.4 Coding and data extraction

Manuscripts reporting analyses from the same data set were included if the studies provided effect size estimates for different risk factors. If a risk factor was repeatedly reported in different studies on the basis of the same or an overlapping data set, we used the article with the largest sample size or the most comprehensive article (Borenstein, Hedges, Higgins, & Rothstein, 2009). If estimates of subscales as well as the whole scale were reported, only the association of the overall score with PGD was used. Meta-analyses were conducted for those risk factors that were measured in at least two studies. Where continuous (symptom severity) and categorical (diagnosis) estimates of a risk factor were both available within a study, the effect size for PGD

symptom severity was used due to the statistical advantages of continuously measured variables (Borenstein et al., 2009). In the case of longitudinal data, we used the data that were closest to the 6 months criterion for PGD.

6.3.5 Effect size calculation

As advocated in the literature on the measurement of the relationship between variables (Borenstein et al., 2009; Çoğaltay & Karadağ, 2015), Pearson's correlation coefficient r was used as a measure of effect size. Several advantages support the use of r: It can be easily computed from several statistics, such as t, d and Chi-square, and is convenient to interpret. According to Cohen (1988), effect sizes of $0.1 \geq r < 0.25$ are considered as small, $0.25 \geq r < 0.4$ as medium, and $r \geq 0.4$ as large.

6.3.6 Meta-analytical procedure

A random effects model (REM) was used to calculate effect sizes. The assumption for REM is that the true effects differ between sample groups in different studies, and differences in effect size may not only be attributed to random error inherent in each study (Borenstein et al., 2009). All subgroup analyses were conducted using mixed effects analysis (MEA). Subgroups were based on the quality of the study, the type of loss studied, and on the type of data assessment (interview or questionnaire). In the case of the presentation of multiple assessments of the same construct, an average correlation was calculated. In such cases, to control for potential bias, Pearson's r was first transformed to Fisher's z, then averaged, and subsequently back-transformed to Pearson's r (Corey, Dunlap, & Burke, 1998).

Heterogeneity was examined using the Q-statistic and the I^2 index (Borenstein et al., 2009; Crombie and Davies, 2009). Q determines the conformity to the normal distribution of effect sizes. A significant value ($p < .05$) indicates heterogeneity. I^2 is an estimate of the ratio of true heterogeneity in the observed variation, with a score ≤25 indicating low heterogeneity, 50 moderate heterogeneity and ≥75 high heterogeneity (Borenstein et al., 2009; Higgins & Thompson, 2002). Moderate to high levels of heterogeneity may lead to difficulties in the interpretation of the mean effect size, and possible moderators contributing to the heterogeneity should be examined (Higgins & Green, 2011). To this end, in cases of heterogeneity, subgroup analyses were performed in order to identify factors explaining the heterogeneity. According to recommendations, at least 10 observations (10 studies per meta-analysis) should be available for the subgroup analysis (Higgins & Green, 2011). It also should be noted

that findings from multiple subgroup analyses may be misleading due to the accumulation of Type 1 error, and findings should therefore be interpreted with caution.

6.3.7 Quality assessment/ risk of bias

Quality assessment was performed by using items 4, 6-9, 16, 18, 20 and 26 from the STARD list (Standards for Reporting Diagnostic Accuracy Studies; Bossuyt et al., 2015). This reporting-standard tool was originally developed to contribute to the completeness and transparency of study-reporting in diagnostic accuracy studies. However, as no standard tool is available to assess the risk of bias in observational, non-therapeutic studies of incidence or risk factors, it was used to measure the quality of the included studies in the present systematic review and meta-analysis. To increase the applicability of the tool to all types of studies included, items of the STARD list were selected on the basis of recommendations from a review on tools for quality assessment (Shamliyan, Kane, & Dickinson, 2010). Based on the Cochrane recommendations, items were rated as "high risk of bias", "low risk of bias" or "unclear" (Higgins et al., 2011). Items with a "high risk of bias" were assigned a score of 0, items with an "unclear" rating were assigned a score of 1, and those with a "low risk of bias" a score of 2. An overall score of <10 indicated low quality, a score of ≥ 10 and <13 indicated medium quality and a score of ≥ 13 indicated high quality, as adapted from the quality rating provided by L. E. Ross et al. (2011). The individual item-based ratings can be found in the appendix. A strength of the STARD list is that it required little subjective judgment, which is a common flaw in many risk-of-bias tools. To achieve an objective assessment, two authors (CH, CKa) independently rated the studies. In the case of disagreement, consensus was reached by discussion. The interrater reliability was calculated using Cohen's kappa for categorical variables (Orwin, 1994).

6.3.8 Publication bias

A key concern is publication bias, defined as the selective publication of studies with significant or positive results (Rothstein, Sutton, & Borenstein, 2005). The effect of publication bias can also be considered as missing data. It can lead to an overestimation of the magnitude of an effect, as non-significant findings are less likely to be published. The presence of publication bias can be measured using Egger's regression test (Egger, Smith, Schneider, & Minder, 1997). Duval and Tweedie's trim-and-fill procedure

computes the number of presumably missing studies and produces an effect size estimate that is corrected for bias (Duval & Tweedie, 2000). At least six studies per risk factor and a homogenous data set are required in order to measure publication bias (Sterne & Egger, 2005). The difference between the original and the corrected effect size was tested for significance by examining whether the original fell within the confidence limits of the bias-corrected effect size estimate (Niemeyer, Musch, & Pietrowsky, 2013).

All analyses were performed using the Comprehensive Meta-Analysis software (Biostat, 2011).

6.4 Results

6.4.1 Study selection and screening

The initial search for relevant records yielded 8719 results. Duplicates (3926) were removed, leaving 4793 unique records for screening. Of these, 4191 records were removed based on title and abstract, leaving 602 full texts for eligibility assessment. From these remaining 602 full texts, 566 were removed based on the following reasons: three studies did not have an English or German full text; 250 used a measure to assess grief that did not fulfill the inclusion criteria; 27 did not target PGD; seven reported qualitative or no empirical data; 46 were excluded based on sample characteristics; 85 did not provide sufficient statistical data; two showed an insufficient quality of risk factor assessment (exclusion criterion h); 145 studies did not primarily target violent loss; and one study reported only risk factors, which were also reported in another study based on the same sample. Through this method, 36 studies were identified that fulfilled all inclusion criteria. Interrater reliability during the full-text screening was substantial ($\varkappa$=.76) according to the conventions of Landis and Koch (1977). Figure 3 displays the selection process and reasons for study exclusion.

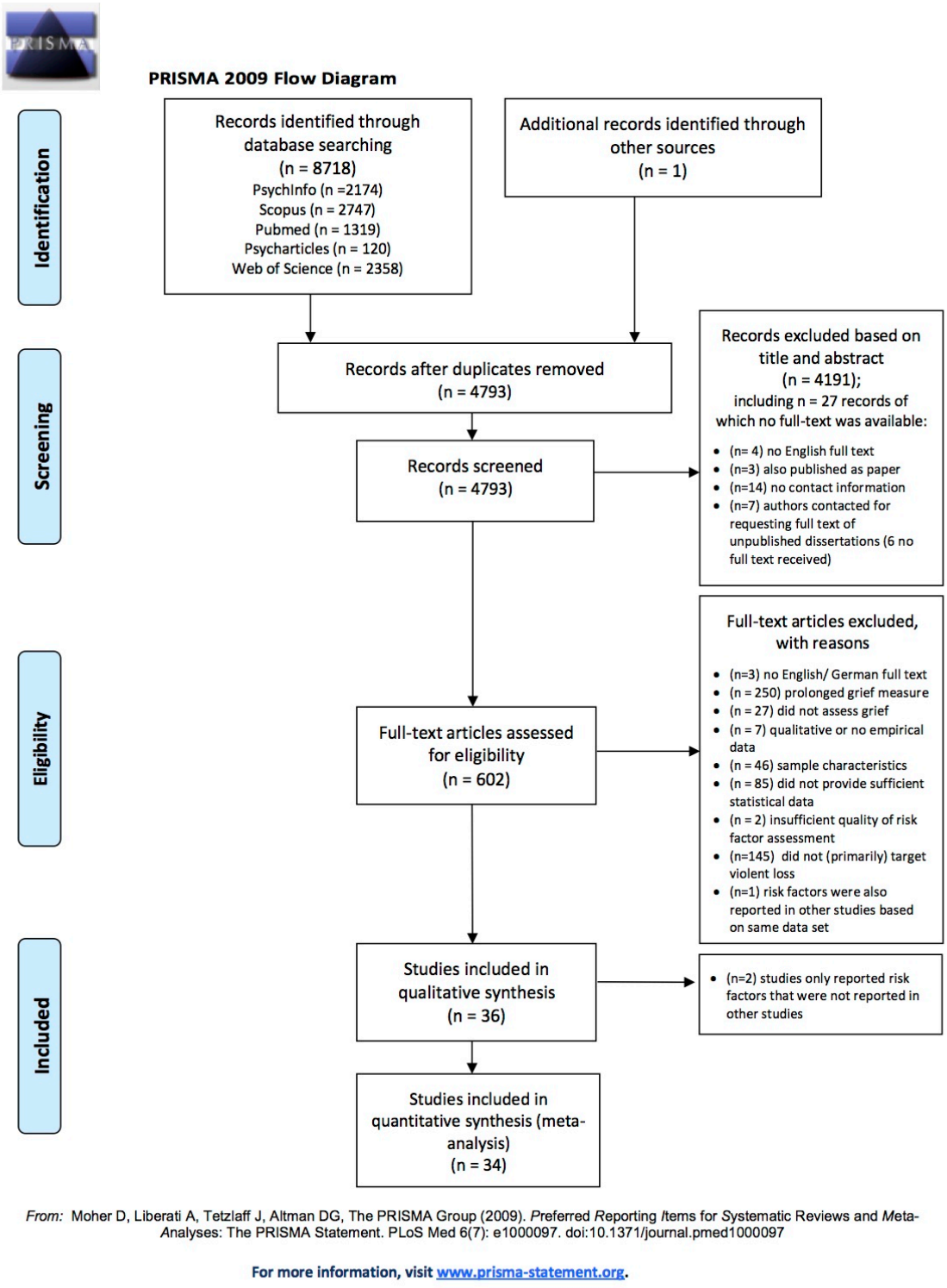

Figure 3. Flow chart of study identification and selection.

6.4.2 Description of the studies

Overall, 36 studies fulfilled the inclusion criteria. However, 10 publications were based on overlapping data sets associated with four individual studies. The systematic review therefore only comprised 30 original studies. The 10 publications based on overlapping data sets were nevertheless included because they reported effect size estimates for different risk factors. We used the article with the largest sample size or the most comprehensive article for risk factors that were repeatedly reported in different studies on the basis of the same or an overlapping data set. The 30 original data sets comprise a total sample size of N=5911 persons (control groups, for example participants who were not bereaved, were not included in this total amount). To assess prolonged grief, fourteen (46.7%) of the 30 original studies used the Inventory of Complicated Grief (ICG), seven studies (23.3%) used the Prolonged Grief 13 (PG-13), and five studies (16.7%) used the Inventory of Complicated Grief-Revised (ICG-R). Most of the studies were conducted in Northern America (n=14, 46.7%), while seven (23.3%) were conducted in Europe, and six (20.0%) in Asia.

From the 30 original studies, n=13 studies (43.3%) referred to homicide, suicide or accident, n=2 (6.7%) referred to collective accidents (stampede, ferry accident), n=2 referred to terror attacks (6.7%), n=3 referred to a natural disaster (10.0%) and n=10 (33.3%) were conducted in populations that had lost a significant other primarily through war-related events. Hence, 13 studies (43.3%) were conducted with participants exposed to an individual death, whereas 17 studies (56.7%) were conducted with participants who, as a majority, had lost a significant other due to collective violence (war, terrorism, natural disaster, collective accidents). The search based on 36 studies generated 29 risk factors that were each examined by at least two studies. The sample sizes per risk factor ranged between n=137 and n=3259. Two studies only provided estimates for risk factors, which were not examined in any other study (Kristensen, Tonnessen, Weisaeth, & Heir, 2012; Neimeyer & Burke, 2011); hence, these studies were not included in the quantitative synthesis. Altogether, 35 risk factors were measured only once and could therefore not be included in this meta-analysis (e.g. posttraumatic growth, media exposure, neuroticism). Characteristics of the studies included in the meta-analysis are displayed in table 2.

Table 2. Characteristics of studies included in the meta-analysis

Study	Location	Loss Type	Sample type	N	PG measure	Age mean or range	% females	Time since loss (years or range)	Overall quality
Anderson, A. J. (2010)	USA	suicide	Individual	201	ICG	48.89	90.5%	5.51 (6 – 484 months)	H
Aronson, K. R., S. J. Kyler, N. R. Morgan, D. F. Perkins and L. Love (2017)	USA	suicide (24.3%), accident (27.1%), combat (48.6%)	Individual	70	ICG-R	52.90	100.0%	4.00 years	M
Burke, L., R. Neimeyer and M. McDevitt-Murphy (2010) [1]	USA	homicide	Individual	54	ICG-R	48.61	88.9%	1.75 years	M
Capitano, C. (2013)	USA	suicide	Individual	219	ICG	31-40 years: 3.7%; 41-50 years: 32.4%; 51-60 years: 44.7%; 61-70 years: 12.8%. 71+ years: 5.9%	91.3%	6-12 months: 6.4%; 13-36 months: 34.7%; 37-60 months: 20.1%; 61-120 months or longer: 8.7%; missing: 30.1%	H
Craig, C. D., M.-A. Sossou, M. Schnak and H. Essex (2008)	USA (with Bosnian refugees)	primarily war-related atrocities; some by natural disaster	War-related loss/ collective	126	ICG	42.00	56.0%	Data collection 10 years post-war	M

Currier, J. M., J. E. F. Irish, R. A. Neimeyer and J. D. Foster (2015)	USA	accidents: 58.9%; homicide: 18.8%; suicide: 22.3%	Individual	195	ICG-R	21.00	80.0%	Max. 2 years post-loss	L
Dyregrov, K., A. Dyregrov and P. Kristensen (2015)	Norway	Utøya terror attack	Terrorism/ Collective	67	ICG	39–78	55.0%	About 1.5 years	M
Dyregrov, K., D. Nordanger and A. Dyregrov (2003)*	Norway	suicide: 65.3%; accident: 34.7%	Individual	196	ICG	Not reported	59.9%	6–23 months	M
Feigelman, W., J. Jordan and B. Gorman (2008)	USA	suicide (86%); accidents (8%) natural death (4%); homicide (0.8%); other (0.9%)	Individual	540	CG-Assessment	Not reported	85.0%	Not reported	L
Field, N. P., J. Strasser, S. Taing, S. Horiuchi, S. Chhim and W. Packman (2014)**	Cambodia	50% died in stampede	Collective Accident/ Collective	159	PG-13	49.29	100.0%	6 months (for stampede group)	M
Harris, R. E. (2016)	USA	suicide	Individual	94	ICG	49.97	100.0%	Not reported	H

Heeke, C., N. Stammel and C. Knaevelsrud (2015)	Colombia	survivors of armed conflict	War-related loss/ collective	222	PG-13	48.70	59.0%	12.12 years	M
Hu, X. L., Li, X. L., Dou, X. M., & Li, R. (2015)	China	Wenchuan earthquake	Natural disaster/ collective	271	ICG	44.87	54.6%	Not reported	M
Huh, H. J., S. Huh, S. H. Lee and J. H. Chae (2017)	South Korea	Sewol ferry accident	Collective accident/ collective	84	ICG	47.40	57.0%	1.5 years	M
Kristensen, P., Lars, W., & Heir, T. (2010)[2]	Norway	Tsunami in Southeast Asia	Natural disaster/ collective	130	ICG	45.70	51.5%	2.2 years	H
Kristensen, P., Tonnessen, A., Weisaeth, L., & Heir, T. (2012)[2]	Norway	Tsunami in Southeast Asia	Natural disaster/ collective	130	ICG	45.70	51.5%	2.2 years	H
McDevitt-Murphy, M. E., Neimeyer, R. A., Burke, L. A., Williams, J. L., & Lawson, K. (2012) [1]	USA	homicide	Individual	54	ICG-R	48.61	88.9%	1.74 (29 days - 58.30 months)	M
Mitchell, A. M. and L. Terhorst (2017) [3]	USA	suicide	Individual	60	ICG	43.30	72.0%	1 month	L

Mitchell, A. M., Kim, Y., Prigerson, H. G., & Mortimer-Stephens, M. (2004) [3]	USA	suicide	Individual	60	ICG	43.30	72.0%	1 month	L
Moore, M. M. (2013)	USA	suicide	Individual	154	PG-13	Not reported	90.1%	Not reported	H
Morina, N. (2011)	Kosovo	war-related killings	War-related loss/ collective	100	Prolonged Grief Disorder interview	50.10	100.0%	Data collection 10 years post-war	M
Morina, N., Rudari, V., Bleichhardt, G., & Prigerson, H. G. (2010)	Kosovo	war-related killings	War-related loss/ collective	60	ICG-R	40.60	33.3%	7-8 years	L
Morina, N., von Lersner, U., & Prigerson, H. G. (2011)	Kosovo	war-related killings	War-related loss/ collective	179	PG-13	20.30	58.1%	Data collection 10 years post-war	H
Mutabaruka, J., Séjourné, N., Bui, E., Birmes, P., & Chabrol, H (2012)	Rwanda	war-related killings	War-related loss/ collective	102	Inventory of Traumatic Grief	45.00	68.6%	Data collection 13 years post-genocide	L
Neimeyer, R. A., & Burke, L. A. (2011) [1]	USA	homicide	Civilian/ individual	46	ICG-R	50.23	89.1%	1.63 years (1.1 - 58.3 (months)	L
Neria, Y., Gross, R., Litz, B., Maguen, S., Insel, B.,	USA	9/11 terror attacks	Terrorism/ collective	704	CG-Assessment	45.13	79.0%	2.5 – 3.5 years	M

Seirmarco, G., . . . Marshall, R. D. (2007)									
Rheingold, A. A., & Williams, J. L. (2015)	USA	homicide	Individual	47	ICG	50.84	78.7%	2.08 years	M
Schaal, S., Dusingizemungu, J.-P., Jacob, N., Neuner, F., & Elbert, T. (2012)[4]	Rwanda	genocide: 62%; illness: 27.5%; accident: 3%; other (mainly poisoning): 7.5%	War-related loss/ collective	400	PG-13	37.18	87.7%	11.50 years (1-38 years)	H
Schaal, S., Elbert, T., & Neuner, F. (2009)	Rwanda	war-related killings	War-related loss/ collective	40	PG-13	49.93	100.0%	Data collection 13 years post-genocide	M
Schaal, S., Jacob, N., Dusingizemungu, J.-P., & Elbert, T. (2010)[4]	Rwanda	war-related killings: 62%. illness: 27.5%. accident: 3%. other (mainly poisoning) (7.5%)	War-related loss/ collective	400	PG-13	37.18	87.7%	11.50 years (1-38 years)	H
Stammel, N., Heeke, C., Bockers, E., Chhim, S., Taing, S., Wagner, B., & Knaevelsrud, C. (2013)	Cambodia	war-related killings	War-related loss/ collective	775	CG-Assessment	56.70	64.3%	Data collection 30 years post-genocide	H

Tolstikova, K., Fleming, S., & Chartier, B. (2005)	Canada/ USA	motor vehicle accident (86%)	Individual	84	ICG	49.70	86.0%	6.20 years (6 months – 38 years)	L
van Denderen, M., de Keijser, J., Gerlsma, C., Huisman, M., & Boelen, P. A. (2014)	Netherlands	homicide	Individual	331	ICG	52.60	65.9%	6.90 years	H
Weder, N., García-Nieto, R., & Canneti-Nisim, D. (2010)	Palestine (West Bank)	war-related killings	Individual	21	PG-13	44.87	52.4%	15.00 years	L
Williams, J. L., Burke, L. A., McDevitt-Murphy, M. E., & Neimeyer, R. A. (2012) [1]	USA	homicide	individual	47	ICG-R	49.66	89.4%	1.74 years	M
Xu, Y., Herrman, H., Bentley, R., Tsutsumi, A., & Fisher, J. (2014)	China	Sichuan earthquake	Natural disaster/ collective	226	ICG	27– 45 years	100.0%	2.41– 2.83 years	H

* the "sudden infant death syndrome" group in this study was excluded from this meta-analysis. ** Repeated communication with study authors could not unequivocally clarify whether participants in the control group were bereaved by violent loss, but all had experienced the Khmer Rouge regime (1975-1979). Sensitivity analyses excluding this study can be accessed in appendix (table 15). [1,2,3,4] data stem from the same study, respectively, but provided different risk factor estimates. Overall study quality rating: L: low quality, M: medium quality; H: high quality. ICG=Inventory of Complicated Grief, ICG-R=Inventory of Complicated Grief-Revised, PG-13=Prolonged Grief–13.

6.4.3 Quality assessment

Across the 36 studies, nine studies (25.0%) showed low quality, 15 (41.7%) showed medium quality and 12 (33.3%) showed high quality. While the majority of all studies stated research questions, eligibility criteria, source of the recruited sample, basic sociodemographic/ clinical characteristics and study limitations, several of the low- and medium-quality studies did not clearly state the setting of data assessment, did not specify how missing data were handled, or did not perform a power calculation. High-quality studies were characterized by precise reporting in almost all domains. Altogether, only six studies used random sampling or approached the entire population. The individual item-based ratings are presented in the appendix. The interrater reliability was high ($\varkappa$=.85) according to the criteria of Landis and Koch (1977). The overall quality rating per study is displayed in table 2.

6.4.4 Risk factor effect size estimates

Twenty-nine risk factors examined by at least two studies were identified across the 34 studies published between 2003 and 2017. Only five risk factors (17.2%) were examined in more than 10 studies, demonstrating that only a limited number of variables are routinely assessed. Altogether, 19 risk factors showed significant associations with PGD. The main results of the meta-analysis for each risk factor are displayed in table 3. With regard to sociodemographic characteristics, four variables showed a small association with PGD (gender, education, employment, having another child born after a loss or having remaining children), whereas four variables did not show an association with PGD (marital status, ethnicity, age, income). Heterogeneity was only a minor problem among sociodemographic characteristics and age was the only risk factor to display significant heterogeneity.

Among the factors associated with the death and the deceased, only the relationship to the deceased showed a significant association with PGD (r=.38; 95%CI [.23; .53]): Having lost a closely related person (partner, parent, child, sibling) was associated with more severe PGD compared to having lost a distantly related person. With regard to time since loss, the combined effect size of seven studies did not reach significance (r=-.15; 95% CI [-.30; .01]). The studies included in the meta-analysis showed considerable heterogeneity with respect to the time since loss, with some reporting data from several

months after a loss, and others reporting data from several years after loss. However, the small number of studies did not allow for subgroup analyses.

All health-related characteristics were significantly associated with PGD. Physical/somatic symptoms showed a medium-sized association with PGD (r=.23, 95%CI [.12; .34]) based on three studies. The remaining health-related characteristics, such as comorbid depression or PTSD, all showed high associations with PGD.

Altogether, three factors concerning interpersonal relationships, which were assessed by at least two studies, were identified within the included studies: attachment anxiety, attachment avoidance, and social support. Only attachment anxiety was significantly related to PGD (r=.33, 95%CI [.15; .50]). Regarding cognitive characteristics, only rumination was measured more than once across the included studies. Based on two studies, the meta-analysis showed a large association with PGD (r=.42, 95%CI [.31; .52]).

Finally, multiple loss and the presence of religious beliefs both showed small positive associations with PGD (r=.11, 95%CI [.04; .18]; r=.12, 95%CI [.01; .23], respectively). Based on five studies, the exposure to traumatic events had a medium-sized association with PGD (r=.27, 95%CI [.06; .45]).

Significant heterogeneity was observed in 12 risk factors (age, traumatic events, relationship to the deceased, time since loss, depression, PTSD, anxiety, global psychopathology, avoidance, social support, attachment avoidance, and counseling experience). Thus, not all variance found between studies was due to random error, and at least some of the variance was due to true differences between the study effects (Bienvenu et al., 2004; Costa Jr, Terracciano, & McCrae, 2001; Craske, 2003). To determine potential moderators of heterogeneity, subgroup analyses were subsequently performed.

Table 3. Meta-analyses of individual risk factors

	k	N	r	95% confidence interval of r		p-value	r_{pb} CI 95%	Q	p-value (Q)	I^2
				Lower limit	Upper limit					
Sociodemographic characteristics										
Female gender	14	2885	.20	.14	.25	<.001	0.18 [0.12; 0.23]	16.66	.06	40.61
Age	14	2971	-.10	-.20	.01	.07		85.44	<.001	84.79
Education	12	2769	-.10	-.14	-.06	<.001	-0.11 [-0.15; -0.07]	8.47	.67	0.00
Employment: being employed	7	1127	-.14	-.21	-.08	<.001	-0.14 [-.21; -0.08]	4.68	.70	0.00
Marital status: being in a relationship or married	7	1479	-.05	-.11	.01	0.09	-0.05 [-0.11; 0.01]	6.72	.35	10.69
Income	4	821	-.09	-.21	.03	0.15		4.87	.18	38.36
Race/ ethnicity: being White	2	740	-.05	-.13	.03	0.24		0.001	.97	0.00
Having another child/ remaining child	5	602	-.23	-.36	-.10	<.001		8.50	.08	52.96
Characteristics associated with death and the deceased										
Relationship to the deceased: closely related (vs. distantly related)	4	1701	.39	.23	.53	<.001		33.00	<.001	90.91
Time since loss	7	913	-.15	-.30	.01	.07		29.52	<.001	79.68

Mode of death: suicide (vs: accident)	3	716	-.00	-.10	.09	.94	2.64	.27	24.36
Age of deceased person	3		-.10	-.24	.04	.17	3.75	.15	46.71
Health-related characteristics									
Depression	15	3139	.59	.52	.65	<.001	83.33	<.001	83.20
PTSD	13	3259	.59	.50	.67	<.001	113.02	<.001	89.38
Anxiety	8	2457	.52	.44	.59	<.001	29.27	<.001	76.08
Health conditions (Physical/somatic symptoms)	3	496	.23	.12	.34	<.001	3.02	.22	33.77
Global psychopathology	3	327	.50	.28	.67	<.001	8.25	<.01	76.62
Suicidality	3	923	.41	.30	.52	<.001	2.50	.27	24.27
Avoidance	2	137	.54	.24	.74	<.001	4.46	<.05	77.57
Intrusion	2	137	.62	.43	.76	<.001	2.68	.10	62.66
Anger	2	278	.47	.36	.58	<.001	1.29	.26	22.53
Interpersonal characteristics									
Social support	4	428	.00	-.42	.43	.99	65.62	<.001	94.70
Attachment avoidance	2	396	.08	-.09	.24	.38	2.86	.09	65.08
Attachment anxiety	2	396	.33	.15	.50	.001	4.01	<.05	75.09
Cognitive characteristics									
Rumination	2	252	.42	.31	.52	<.001	0.64	.43	0.00
Other									
Multiple loss	5	1440	.11	.04	.18	<.01	6.00	.20	33.32
Traumatic events	5	1327	.27	.06	.45	.01	43.56	<.001	90.82
Counseling experience	2	975	.00	-.27	.27	.99	14.01	<.001	92.86
Religiosity: having religious beliefs	2	292	.12	.01	.23	<.05	0.29	.59	0.00

Note. k=number of studies; N=sample size per risk factor estimate; r=Pearson's r; r_{pb}=Pearson's r corrected for publication bias; Q=Q-statistic for heterogeneity;

Table 4. Subgroup analyses based on assessment type, type of loss and study quality

Risk factor	Subgroup		k	r [95% CI][a]	Q, significance of Q, I^2	Comparison (p-value)[b]
Depression	Assessment	Questionnaire	12	.60 [.52; .66]***	Q=59.18, p<.001, I^2=81.41	p=.99
		Interview	3	.59 [.19; .82]***	Q=21.20, p<.001, I^2=90.57	
	Type of loss	Individual	4	.69 [.53; .81]***	Q=12.75, p<.001, I^2=76.46	p=0.12
		Collective	11	.55 [.49; .62]***	Q=53.50, p<.01, I^2=81.31	
	Quality	Low	3	.50 [.15; .74]***	Q= 16.92, p<.001, I^2=88.18	p=.74
		Medium	8	.60 [.51;.68]***	Q= 26.27, p<.001, I^2=73.36	
		high	4	.62 [.47; .73]***	Q= 34.59, p<.001, I^2=91.33	
PTSD	Assessment	Questionnaire	12	.62 [.54; 68]***	Q=81.50, p<.001, I^2=86.50	n.a.
		Interview	1	.24 [.07;.39]**	n.a.	
	Type of loss	Individual	3	.64 [.44; .78]***	Q=9.66, p<.01, I^2=79.29	p=.52
		Collective	10	.58 [.47; 66]***	Q=95.53, p<.001, I^2=90.58	
	Quality	Low	2	.42 [-.04; .74]	Q=8.00, p<.001, I^2= 87.50	p=.59
		Medium	7	.62 [.50; 72]***	Q=44.40, p<.001, I^2=86.49	
		high	4	.59 [.43; .72]***	Q= 55.20, p<.001, I^2=94.57	
Age	Type of loss	Individual	6	-.28 [-.43; -11]**	Q=21.16, p<.01, I^2=76.36	p<.01
		Collective	8	.02 [-.07;.11]	Q=28.49, p<.001, I^2=75.43	
	Quality	Low	1	0.00 [-.25 .25]	n.a.	p=0.42
		Medium	9	-.04 [-.15; .07]	Q=34.23, p<.001, I^2=76.63	
		high	4	-.19 [-.50; .17]	Q=48.86, p<.001, I^2=93.86	

[a] Analyses based on random effects model; [b] Analyses based on mixed effects analyses; **p<.01; ***p<.001

6.4.5 Subgroup analyses

Subgroups were based on quality of study, the type of loss studied (loss with regard to individual or collective incident), and, if available, on data assessment (interview or questionnaire). Subgroup analyses were performed for the three risk factors which were examined by at least 10 studies and which had a heterogeneous data set (age, depression, PTSD).

The subgroup analyses for age revealed that among bereaved persons who had lost a significant other to an individual incident (homicide, suicide, accident), age emerged as a significant risk factor, with younger age being associated with less PGD (r=-.28; 95%CI [-43;-.11]). By contrast, age was not a significant risk factor among persons bereaved by collective violence (r=-.02; 95%CI [-.07;.11]). For the remaining risk factors PTSD and depression, the interview measure, the type of loss, and the quality of the studies did not have an impact on the effect sizes or the heterogeneity. Results of the subgroup analyses are displayed in table 4.

6.4.6 Publication bias

Publication bias analyses were applicable for four risk factors (gender, education, employment, marital status; see table 2). Egger's regression test was not significant for any of the examined variables and therefore did not indicate publication bias. The trim-and-fill procedure imputed one study for the variables gender and education, respectively, but the corrected effect sizes did not significantly differ from the original effect size estimates (table 3).

6.5 Discussion

The purpose of this systematic review and meta-analysis was to identify potential risk factors for PGD among adults who had lost a significant other by violent means. Sociodemographic characteristics and comorbid psychopathology ranked among the more frequently reported variables, whereas cognitive and interpersonal factors were less often examined.

As a second goal, we aimed to quantify the magnitude of the relationship between potential risk factors and PGD in a meta-analysis. Sociodemographic characteristics (female gender, low educational level, no employment, having no other child after the

loss of a child) showed small associations with PGD, while large associations were found for comorbid psychopathology and rumination. Small but significant associations were further found for multiple loss, religious beliefs and somatic/physical symptoms. Three risk factors (traumatic events, attachment anxiety, relationship to the deceased) showed medium-sized associations with PGD.

Significant heterogeneity was observed among 12 risk factors and may limit the interpretability of the mean effect sizes. It was not possible to identify moderators that caused the heterogeneity. Publication bias was measured for four variables, but the results did not indicate severe publication bias.

We descriptively evaluated the quality of the included studies. Fifteen studies were classified as being of medium quality, while about a quarter of the studies were of low quality and a third showed high quality. The most common flaws were the non-randomized selection of participants and imprecise reporting of data analyses.

6.5.1 Sociodemographic characteristics

The meta-analysis showed a small positive association of female gender with PGD. A number of factors may account for this finding. Women score higher on personality traits associated with the development of adverse mental health outcomes (neuroticism, openness to feelings) and are also more likely to respond to stressful life events with anxiety and avoidant behavior (Bienvenu et al., 2004; Costa Jr et al., 2001; Craske, 2003). As such, women are at greater risk of developing mental health problems. However, it should be kept in mind that the proportion of females in the included studies was high. This may be critical, as it may lead to an overrepresentation of symptoms that are more likely to be endorsed by women. Moreover, female participants already far outnumbered males in the development of the assessment instruments (Bui et al., 2015; Prigerson, Frank, et al., 1995; Prigerson et al., 2009), which may have led to a greater attribution of relevance to symptoms occurring in women already in the scale developments. As social norms of masculinity discourage emotional expression in men, they may grieve differently than women (Creighton, Oliffe, Butterwick, & Saewyc, 2013), and this aspect clearly needs further research. The overrepresentation of women within the included studies and during the scale development may have the consequence that the identified risk factors and respective associations with PGD are more likely to be representative of women.

The small effect of higher educational level on lower PGD severity is in line with previous research, which demonstrated that a higher educational level is associated with lower levels of psychopathology (C. E. Ross & Mirowsky, 2006). Education is an important resource, as it facilitates reappraisal strategies and the pursuit of fundamental goals, including emotional well-being (Böttche, Pietrzak, Kuwert, & Knaevelsrud, 2015; C. E. Ross & Mirowsky, 2006). A person's educational level also has an impact on multiple other outcomes, such as social status, employment, and health behavior. Hence, the small effect of employment on levels of PGD was unsurprising. It is reasonable to assume that having regular tasks in life and a daily structure helps in dealing with bereavement. Qualitative evidence further suggests that parenting may offer a distraction from grief and provide a sense of meaning and purpose in life (Chidley, Khademi, Meany, & Doucett, 2014), which supports the finding that having another child (either born after the loss of a child, or having remaining children) was negatively associated with PGD.

6.5.2 Characteristics associated with the death and the deceased

Time since loss was not significantly associated with PGD. It is possible that grief does not decrease in cases of violent loss and that feelings of guilt, visual images of the death, or difficulties in finding meaning contribute to persistent grief among survivors of violent loss (Duncan & Cacciatore, 2015; Rynearson, 2006). However, some studies reported data on the association of time since loss with PGD a few months after loss, while others reported data on this association several decades after loss, which may have contributed to the observed heterogeneity. High levels of heterogeneity may lead to difficulties in the interpretation of the mean effect size. Once more studies have addressed the time since loss, future meta-analyses should clarify the role of time since loss for the course of PGD.

In line with the idea that PGD is a disorder that to a certain extent depends on the relationship to the lost person (Herberman Mash, Fullerton, Shear, & Ursano, 2014), a close relationship emerged as a significant risk factor for PGD, indicating that losing a member of the nuclear family is associated with higher PGD severity than losing a distantly related family member or friend. The observed heterogeneity was largely accounted for by one small study (Mitchell, Kim, Prigerson, & Mortimer-Stephens, 2004), which may have overestimated the effect.

6.5.3 Health-related characteristics

The largest effect sizes were found for health indicators, and in particular comorbid psychopathology. In line with previous results, the largest associations were found for depression and PTSD, respectively. The finding that in addition to depression and PTSD, all other health-related factors were similarly related to PGD, suggests a shared mechanism of psychopathology, which may be triggered by a certain risk (e.g. the loss of a significant other). The disorders also share multiple risk factors (e.g. female gender, educational level, exposure to traumatic events) as well as certain symptoms (feelings of hopelessness, intrusions), which increase the occurrence of comorbidities (Cole & Dendukuri, 2003; Xue et al., 2015).

Heterogeneity was particularly present among health-related indicators, indicating a large between-study variance of the effect sizes. The heterogeneity could not be explained by moderating variables.

The high association of intrusion with PGD may be largely accounted for by the fact that intrusions are part of the PGD criteria set in the form of "separation distress" (Horowitz et al., 1997; Prigerson et al., 2009). However, visual intrusions may be particularly disruptive in the case of violent losses, where mourners are likely to imagine the deceased's last minutes as painful. Future research should investigate whether the violent nature of a person's death is more likely to evoke intrusive images among the bereaved.

An important clinical implication is the finding that PGD was highly associated with suicidality. Previous research already showed that grief is associated with excess morbidity, and clinicians should carefully assess suicidal ideation among their bereaved patients (Ajdacic-Gross et al., 2008; Kaprio et al., 1987).

6.5.4 Cognitive characteristics

Rumination was the only cognitive factor that had been assessed more than once among the included studies. The large effect size suggests that cognitive factors may play a major role in the development of PGD, as proposed in the cognitive-behavioral conceptualization by Boelen and colleagues (Boelen et al., 2006). Some bereaved persons may engage in continuous rumination about the deceased's death or about their own reactions to the death, thereby increasing the attention to a negative

emotional state and inhibiting actions that might distract the individual (Nolen-Hoeksema, 1991).

6.5.5 Interpersonal characteristics

The way in which the social environment responds to a major life event largely impacts the emergence of a disorder (Brewin, Andrews, & Valentine, 2000; Maercker & Horn, 2013), yet only a small number of studies have investigated variables concerning interpersonal relationships. This non-significant association between social support and PGD was mainly due to one study, which found a positive correlation between PGD and social support (Anderson, 2010), while the other studies consistently found that higher social support was associated with lower PGD severity (Burke et al., 2010; Kristensen, Lars, & Heir, 2010; Rheingold & Williams, 2015). Due to the small number of studies that examined social support, it was not possible to conduct sensitivity analyses, and it remains for future research to investigate the link between social support and PGD further.

Two studies analyzed the relation between attachment styles and PGD. Attachment describes how people bond with others, and in particular, how people experience separation from loved ones (Bowlby, 1980). Two dimensions are proposed: attachment-related anxiety as "an individual's predisposition toward anxiety and vigilance concerning rejection and abandonment" and attachment-related avoidance, which "corresponds to discomfort with closeness and dependency or a reluctance to be intimate with others" (Sibley, Fischer, & Liu, 2005). The meta-analyses found attachment-related avoidance to be unrelated to PGD and attachment-related anxiety to be positively associated with PGD, which is in line with prior theoretical conceptualizations (Fraley & Bonanno, 2004).

6.5.6 Other factors

Traumatic events may heighten the vulnerability not only to depression and PTSD (Steel et al., 2009; Sunderland et al., 2016), but also to PGD, as evidenced by a medium-sized association. Moreover, a small dose-response relationship was found with respect to multiple loss, indicating that individuals who have lost more than one significant other at a time are more likely to develop PGD.

A notable finding was that the extent of religious beliefs showed a small but positive association with PGD, suggesting that religious beliefs rather function as a risk factor for the development of PGD. In contrast to this finding, Schaal et al. (2010) found the opposite effect, but the effect size could not be included in the meta-analysis for statistical reasons, as the authors did not report bivariate associations. Faith can be both a source of strength and a source of conflict, and the way in which a spiritually oriented person interprets a loss may be of particular importance. Neimeyer and Burke (2011) examined the association between religious coping and PGD among survivors of violent loss and reported a significant positive association between negative religious coping ("spiritual discontent; punishing God reappraisals") and the severity of PGD, but found no effect for positive religious coping ("expression of a sense of spirituality; a secure relationship with God"). Further analyses are needed to gain a deeper understanding of religiosity and religious coping and the respective association with PGD.

6.5.7 Limitations

Despite the various strengths of the present meta-analysis, several limitations should be considered when interpreting the results. The meta-analysis used cross-sectional studies with mostly non-randomly selected samples; most data relied on self-report measures. Hence, these studies can be prone to bias in terms of sample selection and recall. The use of stringent inclusion criteria, in particular with regard to the qualifying PGD assessment instruments, resulted in the exclusion of some articles relevant to the field. However, this strategy also increased the comparability between the included studies. The cross-sectional design of most studies does not allow conclusions to be drawn about causal relationships, but does provide a first overview of factors associated with variability in PGD. Moreover, the present meta-analysis was limited by the heterogeneity of several of the examined risk factors. It was not possible to identify moderators that caused the heterogeneity. Several variables included in this meta-analysis were only measured twice, which limits the conclusions that can be drawn about these risk factors.

6.6 Conclusions

The current study is the first systematic review and meta-analysis to report on risk factors for prolonged grief disorder among adults exposed to the violent loss of a significant other. Due to the systematic literature research based on precise inclusion criteria and the respective effect calculations, the meta-analysis extends the knowledge beyond conclusions that can be drawn from narrative reviews. Altogether, 19 risk factors showed significant associations with PGD. Sociodemographic characteristics showed small associations with PGD, while large associations were found for comorbid psychopathology and rumination. Some of the sociodemographic and health-related characteristics have already been investigated in a number of studies and these effect calculations therefore have a valid empirical basis.

The high number of identified risk factors among the 36 included studies and the finding that only a small number of risk factors are routinely assessed, suggest that knowledge of the relevant factors contributing to PGD may still be limited among researchers. Future research should therefore also extend the theoretical framework of PGD. For example, future research might focus on examining whether it is the kinship relationship with the deceased, or rather the interpersonal quality of the relationship (emotional closeness, depth, conflict), which influences the intensity and course of the grief reaction. Once more studies have addressed time since loss, future meta-analyses can potentially identify subgroups which moderate the association of time since loss with PGD. The present meta-analysis therefore highlights the need for further investigation of specific grief-related risk factors. Moreover, some of the risk factors for which there is so far only preliminary empirical evidence may turn out to be important in the future.

This is especially relevant because in the light of the inclusion of PGD in the forthcoming ICD-11, it is important for clinicians to identify bereaved adults at risk for PGD, particularly in the subgroups of survivors of violent loss, which have been shown to be more likely to be affected by PGD. To conclude, the most important clinical implications of the meta-analysis are first, that suicidality may be prevalent among individuals with PGD and clinicians should therefore carefully assess suicidal tendencies among their bereaved patients. Second, although based on only preliminary evidence so far, the large association of rumination with PGD supports a cognitive

approach to understanding PGD, and interventions might specifically target this domain.

7 Article II: Symptom profiles

Conflict-related trauma and bereavement: Exploring differential symptom profiles of prolonged grief and posttraumatic stress disorder

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7.1 Abstract:

Background: Exposure to trauma and bereavement is common in conflict-affected regions. Previous research suggests considerable heterogeneity in responses to trauma and loss with varying symptom representations. The purpose of the current study was to (1) identify classes of prolonged grief disorder (PGD) and posttraumatic stress disorder (PTSD) symptom profiles among individuals who were exposed to both trauma and loss due to the Colombian armed conflict and (2) to examine whether sociodemographic, loss and trauma-related characteristics could predict class membership.

Methods: 308 victims of internal displacement who had experienced trauma and loss were assessed through measures of PGD (PG-13), PTSD (PCL-C), and social support (DUKE-UNC). Latent class analysis (LCA) was performed to analyze differential profiles by symptoms of PGD and PTSD and multinomial logistic regression was used to analyze predictors of class membership.

Results: LCA revealed a four-class solution: a resilient class (23.6%), a PTSD-class (23.3%), a predominately PGD class (25.3%) and a high distress-class with overall high values of PGD and PTSD (27.8%). Relative to the resilient class, membership to the PGD class was predicted by the loss of a close family member and the exposure to a higher number of assaultive traumatic events, whereas membership to the PTSD class was predicted by the perception of less social support. Compared to the resilient class, participants in the high distress-class were more likely to be female, to have lost a close relative, experienced more accidental and assaultive traumatic events, and perceived less social support.

Discussion: Specific symptom profiles emerged following exposure to trauma and loss within the context of the Colombian armed conflict. Profiles were associated with distinct types of traumatic experiences, the degree of closeness to the person lost, the amount of social support perceived, and gender. The results have implications for identifying distressed subgroups and informing interventions in accordance with the patient's symptom profile.

7.2 Introduction

Worldwide, people are exposed to trauma and bereavement in the context of violent conflicts and systematic human rights violations. The high rates of posttraumatic stress disorder (PTSD) and depression as a consequence of traumatic experiences within these conflicts have been documented in several studies (Steel et al., 2009).

A large proportion of human war casualties are civilians. Traumatic experiences within violent conflicts therefore often involve the loss of significant others and studies have addressed maladaptive grief in conflict-affected populations only recently. Evidence suggests that a significant number of individuals experience persistent distressing grief symptoms after the loss of a loved one. Prolonged grief disorder (PGD) as a maladaptive reaction to loss is marked by separation distress, feelings of emptiness, and difficulties in moving on over a period of at least six months (Prigerson et al., 2009). While PGD was rejected as a diagnosis in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013b) and has only been introduced as a condition for further study ("persistent bereavement related disorder"), PGD is proposed for inclusion in the forthcoming edition of the International Classification of Diseases (ICD-11; Maercker et al., 2013).

It is estimated that 2.4–10% of bereaved individuals develop PGD after the death of a significant other (Bonanno & Kaltman, 2001; Fujisawa et al., 2010; Kersting et al., 2011). Evidence suggests that losing someone from a violent cause, i.e. by homicide, suicide or accident, is associated with an elevated risk for both PGD and PTSD (Boelen et al., 2015; Kristensen, Weisaeth, et al., 2012). Both disorders are aetiologically defined by a potentially traumatizing experience and are assumed to occur due to insufficient integration of the experience into the autobiographical knowledge base (Boelen et al., 2006; Ehlers & Clark, 2000). At the symptom level, both disorders differ with respect to some central elements. While PTSD is characterized by intrusions of the event, avoidance of reminders of the event, and persistent symptoms of increased arousal according to DSM-IV, the dominant element in PGD is separation distress in relation to the lost person (American Psychiatric Association, 2001; Prigerson et al., 2009). Furthermore, whereas in PTSD negative appraisals refer to the potential reoccurrence of danger, in PGD, negative appraisals are concerned with the impact of the loss on the self and the future (Boelen et al., 2006; Ehlers & Clark, 2000). However, in how far PTSD and PGD are distinguishable in cases of traumatic losses, is still a matter of debate. PGD rates vary between 8 and 38% between different violent conflict contexts (Morina et al., 2010; Morina et al., 2011; Schaal, Elbert, & Neuner, 2009; Schaal et al.,

2010; Stammel et al., 2013). Additional traumatic stressors occurring during conflict may exacerbate the grieving process (Schaal et al., 2010).

Research indicates considerable heterogeneity in responses to trauma and to bereavement with varying symptom representations. Galatzer-Levy and Bryant (2013) stated that within the new DSM-5 symptom criteria, 636.120 combinations of PTSD symptom profiles are possible. The identification of subgroups characterized by specific profiles may broaden the knowledge on clinical manifestations of responses to trauma and bereavement and may have implications for forming interventions due to potential patterns of comorbidity.

To our knowledge, only two studies evaluated symptom profiles of psychopathology among individuals confronted with a violent loss using latent class analysis. Nickerson et al. (2014) determined subgroups of PGD and PTSD profiles among 248 Mandaean refugees exposed to significant trauma and loss. A four-class solution emerged with a combined PGD/PTSD class, a predominately PTSD class, a predominately PGD class and a resilient class. A relevant factor in predicting membership to the combined PGD/PTSD-class was the exposure to traumatic loss, whereas problems related to adaption difficulties since relocation predicted membership to the PGD-class. Boelen et al. (2016) conducted a similar study identifying subgroups of PGD and depression symptom profiles among 245 individuals confronted with an unnatural or violent death. LCA revealed a three-class solution with a resilient class, a predominately PGD class and a combined PGD/depression class. PGD-class membership was mainly predicted by negative cognitions about the self and life. Thus, although partly focusing on different disorders (PTSD vs. depression), both studies found similar symptom profiles that were not only associated with the overall severity of distress but also with the dominance of a particular syndrome in response to the loss, i.e. some with dominant PGD and others with both elevated PGD and PTSD/ depression (Boelen, Reijntjes, Djelantik, et al., 2016; Nickerson et al., 2014).

To replicate and extend previous findings by Nickerson et al. (2014), the current study seeks to identify differential symptom profiles of PGD and PTSD among individuals who were exposed to both trauma and loss. Similar to these previous results, we expected a four class-solution with classes separable both by symptom severity and disorder-specific response. Participants for this study were Colombian survivors of internal displacement. Colombia has been faced with an armed conflict for 60 years. More than six million people have been forcibly displaced while thousands have been tortured, kidnapped and forcibly recruited to join the armed forces (Internal

Displacement Monitoring Center, 2015). More than 220.000 people have lost their lives in the course of the armed conflict, leaving behind considerable numbers of bereaved individuals (Centro Nacional de Memoria Histórica, 2013).

Our second goal was to identify variables that are associated with group membership by focusing on socio-demographic and loss-related characteristics as predictors. Prior research showed that the loss of a close family member was associated with higher PGD symptom severity than the loss of a distant family member (Neria et al., 2007; Stammel et al., 2013). For PTSD, a dose-response-relationship between the number of traumatic events and PTSD is assumed (Kolassa et al., 2010). However, assaultive traumatic events such as combat experiences or physical attacks are expected to be more harmful than other distressing events such as accidents or natural disasters (Breslau, Peterson, Poisson, Schultz, & Lucia, 2004). The lack of social support has been identified as one of the major risk factors of PGD and PTSD (Brewin et al., 2000; Burke et al., 2010). Its association with specific symptom profiles was assessed in the current study. Finally, forced disappearance is a common phenomenon within armed conflicts, in particular in Colombia. There is, however, inconclusive evidence whether relatives of individuals who have disappeared experience more severe mental health consequences than bereaved individuals do (e.g. Heeke et al., 2015; Lenferink, von Denderen, de Keijser, Wessel, & Boelen, 2017; Powell et al., 2010). Whether the type of loss (deceased vs. disappeared) has an impact on class membership will be explored further on.

In accordance with these previous findings, we hypothesized that classes would differ by trauma exposure and the closeness to the person lost. Individuals exposed to a higher number of assaultive traumatic events would be more likely to exhibit PTSD whereas individuals who had lost a close relative would be more likely to have PGD. Furthermore, we expected that individuals perceiving a high amount of social support would exhibit low PGD and PTSD symptom severity.

7.3 Method section

The current study is part of a larger cross-sectional study on effects of internal displacement on the mental health and readiness to reconciliation among conflict-affected Colombians (Stammel et al., 2012). Data assessment for the current study was conducted in 2012. The study was approved by the ethics commission of the Freie Universität Berlin. Structured face-to-face interviews were conducted by three experienced Colombian clinical psychologists (M.A.) who had received a two-week

training on the use of questionnaire measures and interview techniques and were supervised on a regular basis by the study coordinators (CH).

7.3.1 Participants

Potential participants were randomly selected from a list of 1898 persons affiliated with our partner organization *Tierra y Vida*, a local NGO assisting displaced persons in the process of claiming the restitution of their land. Inclusion criteria required potential participants to be at least 18 years of age and to have experienced internal displacement within the armed conflict. No further exclusion criteria were applied. Of the initially 952 randomly selected persons, 498 persons could not be contacted due to outdated contact information or rejected participation. Participants were provided with a full description of the study and informed consent was obtained. Altogether, 454 persons were interviewed. In accordance with the purposes of this study, only participants who had experienced the loss of a significant other due to the armed conflict were included in the analysis ($N = 308$).

7.3.2 Instruments

7.3.2.1 PGD

Symptoms of prolonged grief were measured using the Prolonged Grief -13 (PG-13), a screening instrument for PGD (Prigerson, Vanderwerker, & Maciejewski, 2008). The PG-13 consists of two separation distress symptoms ("longing and yearning" and "sorrow or pangs of grief") and nine "cognitive, emotional and behavioral" items. Prigerson et al. (2009) provided psychometric validation. As no validated Spanish version of the PG-13 exists, it was translated into Spanish by a Colombian psychologist and back-translated by a psychologist who was unfamiliar with the original version. Discrepancies were discussed within a group of local psychologists and adaptions were made when necessary. Latent class analysis (LCA) uses binary indicators to identify patterns of responses. To this end, items that were originally scaled on a 5 point Likert scale, were dichotomized and a symptom was considered *absent* when occurring "not at all", "at least once/slightly" or "at least once a week/somewhat" and *present* when occurring "at least once a day/quite a bit" or "several times a day/overwhelmingly" as suggested by the authors of the questionnaire (Prigerson et al., 2008). Additionally, a set of loss-specific questions regarding the relationship to the lost person and the time elapsed since the loss were administered.

7.3.2.2 PTSD and traumatic events

PTSD was assessed using the PTSD Checklist-Civilian version (PCL-C), a 17-item self-report questionnaire based on the DSM-IV (Weathers, Litz, Huska, & Keane, 1994). The PCL-C has been proven to be a valid and reliable screening instrument through a number of studies (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Wilkins, Lang, & Norman, 2011). The Spanish version of the instrument was validated for use among Hispanics (Miles, Marshall, & Schell, 2008) and was widely used in different Latin American populations (e.g. Cairo et al., 2010). Originally scaled on a 5 point Likert scale, items were dichotomized and considered as *absent* when occurring *not at all* or *a little bit* and *present* when occurring *moderately*, *quite a bit* or *extremely* in accordance with the authors' guidelines (Weathers et al., 1994).

Traumatic events were assessed using an adjusted list based on two standardized instruments, the Harvard Trauma Questionnaire (Mollica et al., 1992) and the Posttraumatic Diagnostic Scale (Foa, Cashman, Jaycox, & Perry, 1997), altogether assessing 23 traumatic events as reported by Nickerson et al. (Nickerson et al., 2015) and including one item allowing participants to indicate an additional traumatic event. Participants were asked whether they had personally experienced or witnessed the event. Traumatic events were divided into two groups: One group comprised traumatic events that included interpersonal, intentional violence, referred to as "assaultive violence". The second comprised other traumatic events such as "natural disaster" or "serious accident" and was referred to as "other injury or shocking events". This classification was based on a previous approach by Breslau and colleagues (2004).

7.3.2.3 Social support

Perceived social support was measured using the validated Spanish translation of the DUKE-UNC Functional Social Support Questionnaire (DUKE-UNC-11; Bellón Saameño, Delgado Sánchez, Luna del Castillo, & Lardelli Claret, 1996; Broadhead, Gehlbach, De Gruy, & Kaplan, 1988). The instrument comprises 11 items assessed on a 5-point Likert scale ranging from 1 (*much less than I would like*) to 5 (*as much as I would like*).

7.3.3 Statistical analyses

LCA was conducted to identify different subgroups of individuals marked by comparable patterns of PTSD and PGD symptoms. Optimal number of classes was

determined by taking several statistical criteria into account (Nylund, Asparouhov, & Muthén, 2007). For each k class solution, Aikaike Information Criterion (AIC), Bayesian Information Criterion (BIC) and adjusted Bayesian Information Criterion (aBIC) were evaluated with lower values indicating better fit. In addition, bootstrap likelihood ratio test (BLRT) as well as the Vuong-Lo-Mendell-Rubin LRT were performed. A significant LRT for a *k* class solution suggests that the *k* class model describes the data better than the *k-1* class solution (Geiser, 2011). Entropy reflects the indication of classification accuracy of the model with values close to 1 indicating higher accuracy in class assignment. Consideration was moreover given to the size and interpretability of the distinct classes (Muthén & Muthén, 2015). To compare PTSD and prolonged grief symptom severity between classes, variables were treated as outcome measure with unequal means and variances, and were compared using the three-step approach while inaccuracy of class assignment was taken into account (Asparouhov & Muthén, 2014b). Multinomial logistic regression was performed to assess predictors of class membership using the 3-step approach as suggested by Vermunt (Vermunt, 2010). This approach takes inaccuracy of class assignment into account when assessing latent class predictors in multi-nominal regressions (Asparouhov & Muthén, 2014a; Vermunt, 2010). Predictors included sociodemographic characteristics (gender, years of education), the number of assaultive and accidental traumatic events, the relationship to the person lost (close/ first grade vs. distant family member/friend), how the loss happened (deceased vs. disappeared), the time elapsed since the loss (in years) as well as the amount of perceived social support. Analyses were performed using *M*Plus 7 (Muthén & Muthén, 2015).

Missing values on latent class indicators and distal outcomes were dealt with using full information maximum likelihood estimation as implemented in *M*Plus. Missing values on predictors of class-membership were dealt with using EM-based single value imputation as implemented in SPSS to avoid listwise deletion.

7.4 Results

7.4.1 Sociodemographic Characteristics

The sample consisted of $N = 308$ (190 females, 61.7%) internally displaced Colombians who had been exposed to both trauma and loss in the context of the armed conflict. Age ranged from 19 to 85 years ($M = 48.5$, $SD = 12.7$). Three quarters of the sample had lost a relative or friend to conflict-related violence. The remaining cases had lost

a relative or friend to disappearance and did therefore not know whether their loved one was still alive. Participants in the study were highly exposed to traumatic events with an average of six "assaultive" ($SD = 2.7$, range: 1–13) and an average of four ($SD = 1.9$, range: 0–8) "accidental or other shocking events" (see table 5).

Table 5. Sociodemographic Characteristics.

Characteristics		
Gender		
Female	*n* (%)	190 (61.7)
Age	*M* (*SD*)	48.5 (12.7)
Education (years)	*M* (*SD*)	5.5 (3.8)
Relationship to the loss [c]		
Close relative [a]	*n* (%)	214 (69.5)
Distant relative or friend [b]	*n* (%)	94 (30.5)
Time since loss (years) [c]	*M* (*SD*)	12.4 (7.2)
Type of loss [c]		
Deceased	n (%)	231 (75.0)
Disappeared	n (%)	77 (25.0)
Traumatic events		
Assaultive	*M* (*SD*)	6.1 (2.7)
Accidental	*M* (*SD*)	4.3 (1.9)

[a] partner, child, parent, sibling; [b] aunt/uncle, grandparents, good friend;
[c] Number after EM imputation

7.4.2 Latent class analysis

LCA started by fitting a one class solution and successively an increasing number of classes. We stopped with estimating a six-class solution since number of boundaries increased and visual inspection indicated that interpretability and separability of classes was low. In addition, the best loglikelihood value was not replicated. The VLMR-LRT was non-significant when fitting the three-class solution and thus favored the two-class model. However, since AIC, BIC and adjusted BIC decreased successively to higher number of classes, the two-class solution was dismissed. Fit indices did not support a three-class solution compared to other models. Although the five-class solution had lower AIC, adjusted BIC and higher entropy than the three- and four-class solution, it also exhibited a significant amount of boundaries indicating the extraction of too many classes (Geiser, 2011). The BIC showed the lowest value in the four-class solution. The four-class solution showed good interpretability in addition to the absence of boundaries, as well as a good entropy (0.86) and was therefore preferred. Fit indices for the 1 to 5 class solutions are presented in table 6.

Table 6. Goodness of fit statistics for 1 to 5 class solutions

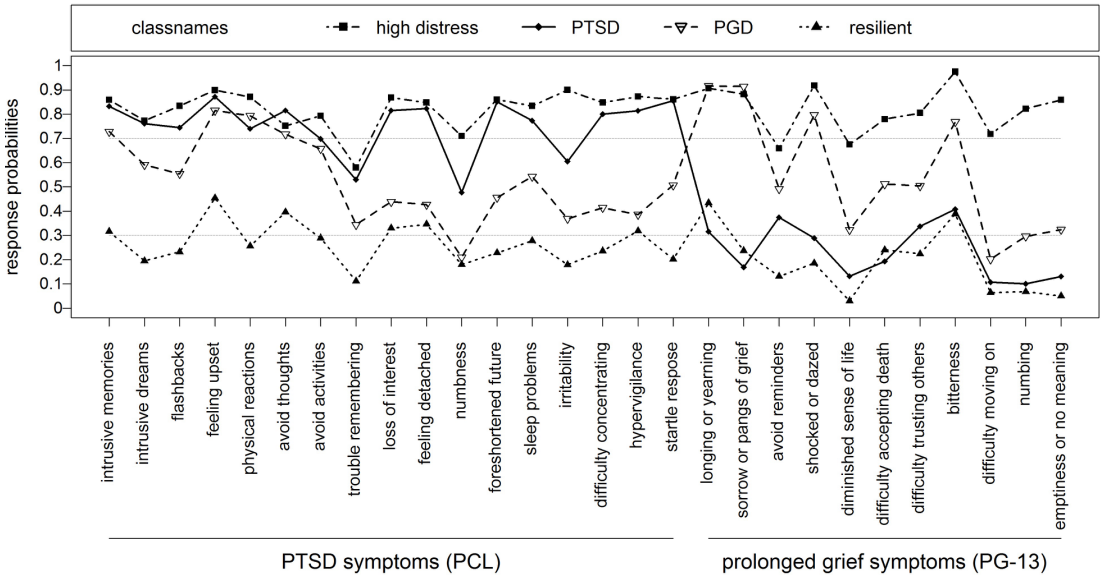
Number of classes	AIC	BIC	a-BIC	VLMR-LRT	BLRT	Entropy
1	11123.51	11227.95	11139.15	na	na	na
2	10123.68	10336.29	10155.51	< .001	< .001	.877
3	9842.82	10163.61	9890.86	ns	< .001	.848
4	**9693.86**	**10122.82**	**9758.09**	**ns**	**< .001**	**.860**
5	9617.64	10154.78	9698.07	ns	< .001	.901

Note. AIC = Aikaike Information Criterion, BIC = Bayesian Information Criterion, aBIC = adjusted BIC, VLM-LRT = Vuong-Lo-Mendell-Rubin likelihood ratio test, BLRT = bootstrap likelihood ratio test.

When interpreting LCA profiles, probabilities of symptom presentation ≥.70 were considered high and ≤.30 as low (Masyn, 2013). Classes were then considered homogenous regarding this symptom.

The four-class solution comprised a predominately PTSD-class (23.3%), a predominately PGD class (25.3%), a high distress class with overall high item probabilities of PGD and PTSD (27.8%) and a resilient class (23.6%). Class 1 (PTSD: 23.3%) had high probabilities for almost all PTSD symptoms with the exception of "trouble remembering", "numbness" and "irritability". Moderate to low probabilities were evidenced for all PGD symptoms. In class 2 (PGD: 25.3%) high probabilities for "longing and yearning", "sorrow or pangs of grief" as well as "shocked or dazed" and "bitterness" in relation to the loss were observed. High probabilities in this class were also found for the PTSD symptoms "intrusive memories", "feeling upset", "physical reactions" and "avoid thoughts". Class 3 (high distress: 27.8%) showed high probabilities for all PTSD symptoms with the exception of "trouble remembering" and almost all PGD symptoms with the exception of "avoidance of reminders" and "diminished sense of life". Class 4 (resilient: 23.6%) was characterized by moderate to low probabilities for all symptoms. Item response probabilities for symptomatic ratings are displayed for each class separately in figure 4.

Figure 4. Estimated class-specific item probabilities



7.4.3 PGD and PTSD symptom severity in classes

The overall test of equality of means using the three-step approach indicated significant differences between the classes for PTSD, $\chi^2(\text{df} = 3) = 525.95$, $p < .001$ and prolonged grief, $\chi^2(\text{df} = 3) = 562.39$, $p < .001$. For PTSD symptom severity, the high distress class showed the highest mean ($M = 61.55$), followed by the PTSD class ($M = 56.62$), the PGD class ($M = 45.49$) and the resilient class ($M = 32.47$). For prolonged grief, the high distress class showed the highest mean ($M = 45.41$), followed by the grief class ($M = 37.23$), the PTSD class ($M = 27.33$) and the resilient class ($M = 22.53$). All pairwise comparisons for both outcomes were significant with $p \leq .001$.

7.4.4 Multinomial logistic regression

Predictors of class membership are displayed in table 7. Compared to the resilient class, the likelihood for membership in the high distress class was higher for females, for those exposed to higher amount of types of assaultive and accidental traumatic events, by the loss of a close family member and less social support. Relative to the resilient class, membership to the PTSD class was predicted by less perceived social support. In contrast, membership to the PGD class was predicted by the number of assaultive traumatic events and members were more likely to have lost a close relative. Finally, comparing membership to the PGD class with the PTSD class, membership to the PGD class was predicted by the loss of a close family member and by less time that had elapsed since the loss.

Table 7. Multinomial regression analysis predicting class membership

	Estimates	SE	OR	95%-CI	Two-tailed *p*
High distress vs. Resilient (reference)					
Male gender[a]	-0.94	0.44	**0.39**	0.17–0.92	.032
Assaultive TE	0.21	0.09	**1.23**	1.04 –1.45	.017
Accidental TE	0.37	0.12	**1.44**	1.14 – 1.83	.003
Time elapsed since loss (years)	-0.06	0.03	0.95	0.89–1.01	.078
Distant family member [b]	-1.46	0.44	**0.23**	0.1 –0.55	.001
Social support	-0.08	0.02	**0.92**	0.89–0.96	<.001
Education (years)	0.03	0.06	1.03	0.92–1.15	.605
Type of loss [c]	-0.19	0.48	0.82	0.32–2.11	.685
PTSD vs. resilient (reference)					
Male gender[a]	-0.36	0.42	0.69	0.3–1.59	.390
Assaultive TE	0.15	0.09	1.16	0.97–1.39	.097
Accidental TE	0.21	0.13	1.24	0.96–1.6	.105
Time elapsed since loss (years)	0.04	0.03	1.04	0.99–1.1	.117
Distant family member [b]	0.50	0.43	1.65	0.71–3.82	.244
Social support	-0.05	0.02	**0.95**	0.92–0.99	.005
Education (years)	0.03	0.05	1.03	0.94–1.14	.530
Type of loss [c]	-0.10	0.48	0.91	0.36–2.3	.840
PGD vs. resilient (reference)					
Male gender[a]	-0.42	0.41	0.66	0.29–1.48	.313
Assaultive TE	0.20	0.09	**1.23**	1.02–1.47	.031
Accidental TE	0.12	0.13	1.13	0.88–1.45	.352
Time elapsed since loss (years)	-0.04	0.03	0.96	0.91–1.02	.230
Distant family member [b]	-1.32	0.47	**0.27**	0.11–0.67	.005
Social support	-0.01	0.02	0.99	0.95–1.03	.479
Education (years)	-0.06	0.07	0.95	0.82–1.08	.418
Type of loss [c]	0.33	0.44	1.39	0.59–3.29	.454
PGD vs. PTSD (reference)					
Male gender[a]	-0.05	0.45	0.95	0.39–2.29	.907
Assaultive TE	0.05	0.09	1.05	0.89–1.25	.556
Accidental TE	-0.09	0.13	0.91	0.7–1.18	.487
Time elapsed since loss (years)	-0.08	0.03	**0.92**	0.87–0.98	.005
Distant family member [b]	-1.82	0.49	**0.16**	0.06–0.42	<.001
Social support	0.04	0.02	1.04	0.99–1.08	.089
Education (years)	-0.09	0.07	0.92	0.8–1.05	.196
Type of loss [c]	0.43	0.48	1.53	0.6–3.93	.377

Note: [a] 0: female, 1: male. [b] 0: close family member (parent, child, sibling), 1: distant family member (aunt/uncle, grandparent, cousin) or friend. [c] 0: deceased within armed conflict, 1: disappeared within armed conflict.

7.5 Discussion

This study sought to identify classes of symptom profiles among Colombians who were exposed to trauma and loss based on symptoms of PGD and PTSD. Four latent classes fitted the data best: a PTSD class characterized by high item probabilities for almost all PTSD symptoms and none of the PGD symptoms, a predominately PGD class marked by high item probabilities for the PGD separation distress symptoms, two other PGD and four PTSD symptoms, a high distress class with high endorsement for nearly all PGD and PTSD symptoms, and finally, a resilient class characterized by moderate to low item probabilities for all symptoms. The four classes were distributed fairly similarly with the high distress class representing the largest class (27.8%) and the predominately PTSD-class representing the smallest (23.3%). These findings replicate previous results of the study by Nickerson and colleagues (2014) who also found a four-class solution with very similar symptom profiles as the optimal fit for their data. Findings of both studies therefore indicate that among people exposed to trauma and loss, subgroups are separable both by symptom severity and dominance of a particular syndrome (e.g. some with PTSD, others with predominately PGD). Replicating these previous findings suggests that certain symptom profiles may be consistent across different samples.

The PTSD and PGD classes were clearly separable by high item probabilities for the separation distress symptoms in the PGD-class as opposed to low item probabilities for these symptoms in the PTSD-class, with separation distress being the defining and unique feature of PGD (Prigerson et al., 2009). The identification of a PTSD and a predominately PGD class provides further evidence that PTSD and PGD are distinguishable syndromes that can occur independently of each other. The PTSD and the PGD class differed from each other such that members of the PGD class were more likely to have experienced the loss of a close relative and that less time had elapsed since the loss. This was in line with our hypothesis and supports previous evidence that a close relationship to the person lost is one of the major risk factors for the development of PGD rather than for PTSD (Laurie & Neimeyer, 2008; Stammel et al., 2013). Also, the association of time since loss with membership to the PGD-class indicated that PGD in particular may diminish as time progresses which is in accordance with a recent longitudinal study (Tsai et al., 2016).

Contrary to our initial hypothesis that PTSD would be predicted by a higher exposure to traumatic events, membership to the PTSD class was predicted only by less perception of social support in comparison to the resilient class when controlled for

other loss- and trauma-related characteristics. Only a non-significant association ($p <$ .10) with exposure to assaultive traumatic events was found. Given the assumed dose-response relationship between traumatic events and PTSD this preliminary finding is rather surprising and should be addressed in a replication study.

Participants in the high distress class had been exposed to the highest amount of trauma, the loss of a close relative and were likely to not have had access to valuable resources such as social support. Rather than being characterized by symptoms specific to a diagnostic category, participants were marked by intense overall emotional distress. This may be indicative of profound impairment in social, occupational, and potentially interpersonal functioning and stresses the necessity to introduce a disorder category that corresponds to the clinical picture of persons with extreme exposure to adverse events. This clinical picture may be captured by Complex PTSD, a disorder marked by disturbances of affect, self-concept and interpersonal functioning in addition to the core PTSD symptoms and is likely to be introduced as novel clinical category within the ICD-11 (Maercker et al., 2013). Further research on this issue would be necessary.

Despite the atrocities experienced, there was a resilient class comprising about a fifth of the sample. The resilient class showed low item response probabilities for all symptoms. Compared to the high distress class, participants in this class were more likely to be male, perceived more social support, had experienced less assaultive or accidental events and were more likely to have lost a distant family member or friend than a close relative. These findings are in line with previous studies demonstrating that these factors are associated with resilience (Burke & Neimeyer, 2013; Klasen et al., 2010). Nickerson et al. (2014) found their resilient class to comprise nearly half of the sample and concluded that adaption was the normative response to trauma and bereavement. Participants in the current sample were, however, highly exposed to traumatic events as evidenced by an event load twice as high and to an ongoing armed conflict continuing to cause victims and generating fear on a daily basis. Evidence suggests that an ongoing conflict leads to poorer mental health outcomes among trauma survivors (Porter & Haslam, 2005) which may serve as an explanation as to why the resilient class in this sample was smaller.

The beneficial effects of social support in maintaining mental health regardless of stressful experiences have been documented in a number of studies (Brewin et al., 2000; Burke et al., 2010). In line with these findings, less perceived social support was, relative to the resilient class, associated with membership in the PTSD and high

distress class. In both classes, high item probabilities were found for "feeling detached" and "loss of interest". If these symptoms are pervasive, they may limit the individual's social contacts and hence the perception of social support from others. It is also possible that symptom severity increases when no social network is available to process stressful experiences. Contrasting previous findings that show an association between lack of social support and PGD symptom severity (Burke & Neimeyer, 2013; Tsai et al., 2016), the amount of perceived social support did not predict membership to the PGD class in this study.

The type of the loss (deceased vs. disappeared) did not have any effect on class membership. This finding may be attributable to the fact that relatives of disappeared persons and bereaved individuals did not differ from each other with regard to their mental health response in this sample (Heeke et al., 2015). Evidence regarding differences between mental health responses of relatives of disappeared persons and bereaved individuals is, however, still inconclusive and future research should address this issue further.

Unfortunately, we did not assess posttraumatic and grief-related cognitions, which could have provided valuable insights into the role of cognitive appraisals in maladaptive coping with traumatic events and bereavement. A recent study investigating symptom profiles by PGD and depression found that when age, education, and time since loss were controlled for, cognitive variables were the only factors contributing to membership to the symptomatic classes, stressing the importance of cognitions in maintaining elevated distress (Boelen, Reijntjes, & Smid, 2016).

7.5.1 Limitations

Some limitations should be considered when interpreting the results. Data assessment was based on self-report measures rather than clinical interviews allowing for overestimation of symptom severity. The measures were not validated for use in Colombia. However, the instruments have good psychometric properties and have been widely used in different cultural settings. The cross-sectional nature of this study does not allow us to draw conclusions about causal relationships. Furthermore, participants in this study were internally displaced persons affiliated with our partner organization. Findings may therefore not be generalizable to victims of human rights violations in other contexts. Finally, it is possible that the inclusion of other mental disorders that have frequently found to be comorbid with PGD and PTSD (e.g. depression or anxiety) impact the pattern of classes and the allocation of participants to the classes.

Nevertheless, the classes identified are in accordance with previous research in other cultural contexts, which strengthens the validity of the results.

7.5.2 Conclusion

People exposed to trauma and loss are at high risk for the development of mental disorders such as PTSD and PGD. This study shows that subgroups which are separable both by symptom severity and type of emotional response can be identified. The evidence presented suggests an association between class membership and gender, level of exposure to assaultive and other traumatic events, relationship to the person lost (close vs. distant family member/ friend), time elapsed since the loss, and also the amount of social support perceived. These variables represent a range of risk factors that may help identifying subgroups of trauma and loss exposed individuals at high risk for specific symptom patterns. The results also confirm that there is considerable heterogeneity in response to trauma and loss but that certain symptom profiles may be consistent even across different samples.

Extensive research has focused on the treatment of symptoms of PTSD in the aftermath of violent conflicts (Lambert & Alhassoon, 2015; Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004; Nickerson, Bryant, Silove, & Steel, 2011). Considerably less research has engaged in developing and evaluating combined intervention programs for both PTSD and PGD (Kersting et al., 2013; Layne et al., 2008). The high amount of people experiencing PGD and PTSD after exposure to loss and trauma, however, make the current need for interventions addressing both disorders evident. Furthermore, research should investigate the treatment sequencing in comorbid PGD and PTSD (integrated, sequential, parallel or single diagnosis) or whether treatment that helps with PGD may result in an improvement of PTSD (and vice versa). The current findings have valuable implications for identifying distressed subgroups and tailoring interventions to the patient's symptom profile.

8 Article III: Ambiguous loss

Uneindeutiger Verlust: Psychopathologische und psychosoziale Konsequenzen im Kontext gewaltsamer Konflikte

Ambiguous loss:
Psychopathological and psychosocial consequences of ambiguous loss in the context of violent conflicts

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8.1 Zusammenfassung

Hintergrund: Das Verschwinden von Personen ist ein häufiges Phänomen im Kontext gewaltsamer Konflikte. Obwohl davon ausgegangen wird, dass Angehörige Verschwundener besonders komplexen Adaptionsprozessen aufgrund der Ungewissheit über der Schicksal der Verschwundenen ausgesetzt sind, ist bisher nur wenig über die psychopathologischen und psychosozialen Konsequenzen für die betroffenen Angehörigen bekannt.

Zielsetzung: Ziel des vorliegenden Artikels ist es, eine empirische Übersicht über Studien zu geben, die sich den Konsequenzen uneindeutiger Verluste im Kontext gewaltsamer Konflikte für die Hinterbliebenen widmen und aufzuzeigen, welche Risikofaktoren für die psychische Belastung bedeutsam sind.

Ergebnisse: Aufgrund der geringen Anzahl an Studien können bisher nur vorläufige Schlussfolgerungen gezogen werden. Studien zeigen, dass das Verschwinden einer nahestehenden Person bei einem wesentlichen Teil der Betroffenen mit negativen Konsequenzen für die psychische Gesundheit assoziiert ist. Studien weisen darauf hin, dass Angehörige Verschwundener stärker von psychischen Belastungen betroffen sind als Angehöriger Verstorbener, insbesondere in Bezug auf Symptome der Depression und prolongierte Trauer. Als Faktoren, die zu einer stärkeren Belastung beitragen, wird ein erhöhtes Risiko für traumatische Erfahrungen und das Fehlen von sozialer Unterstützung bei Angehörigen von Verschwundenen diskutiert. Das Ausmaß an Hoffnung auf das Überleben der Verschwundenen scheint die Verarbeitung des Verlusts zu verhindern und prolongierte Trauer zu begünstigen. Das Fehlen von Trauerritualen und komplexe Familiendynamiken können die Bewältigung des Verlusts darüber hinaus zu erschweren.

Schlussfolgerungen: Zukünftige Forschung sollte die bisher dargestellten Ergebnisse verifizieren und mögliche Resilienzfaktoren untersuchen, die Betroffene vor psychischer Belastung schützen. Erkenntnisse in diesem Bereich kann die Identifikation besonders vulnerabler Personen erleichtern und ermöglicht die Entwicklung wirksamer Interventionen.

8.2 Abstract

Background: Disappearances are a frequent phenomenon in the context of violent conflicts. Although it is widely assumed that relatives of missing people face particularly complex adaptation difficulties due to the uncertainty regarding the fate of their loved ones, little is yet known about the psychological and social consequences for those left behind.

Objectives: Aim of this article is to provide an empirical overview on studies addressing ambiguous loss in violent conflicts as well as to highlight potential risk factors for negative mental health outcomes relevant in this group.

Results: Due to the limited number of studies, only preliminary conclusions can be drawn. Studies show that the disappearance of a loved one can adversely affect mental health in a substantial number of those left behind. Studies indicate that relatives of disappeared persons suffer from higher psychological distress than bereaved persons with confirmed losses, particularly in terms of symptom severity of depression and prolonged grief reactions. Research on factors contributing to these mental health outcomes suggests an elevated risk for exposure to traumatic events and lack of social support among relatives of disappeared persons. The extent of hope regarding the fate of the disappeared loved one might prevent relatives from achieving closure and facilitate prolonged grief reactions. Lack of grief rituals and complex family dynamics may furthermore exacerbate coping with the loss.

Conclusion: Future research should focus on the verification of these findings and evaluate the impact of resilience factors that can protect relatives from maladaptive mental health consequences. Research in this regard can help identify persons at high risk and allow the development of adequate and effective interventions.

8.3 Einführung

Das Verschwinden von Personen ist ein weltweit auftretendes Problem. Allein in Mexiko sind in den Jahren 2006 bis 2014 im Zuge des Drogenkriegs mit mutmaßlicher Beteiligung des Staatsapparats 29.707 Personen verschwunden (Secretaria de Gobernación & Procuraduría General de la República, 2014). Auch in anderen Ländern, in denen gewaltsame Konflikte herrschen, ist die Anzahl verschwundener bzw. vermisster Personen immens, wie beispielsweise 60.000 in Sri Lanka, 80.000 in Kolumbien und 290.000 im Irak (Human Rights Watch, 2003; Instituto de Medicina Legal y Ciencias Forenses, 2016; Preitler, 2006).
Nur wenige empirische Studien haben sich bisher den Auswirkungen dieser ungeklärten Verluste gewidmet. Ziel dieses Artikels ist es, eine empirische Übersicht über psychopathologische Konsequenzen und mögliche Begleitfaktoren ungeklärter Verluste für Angehörige zu geben.

8.4 Begriffsbestimmungen

Als vermisst gilt eine Person, deren Verbleib unbekannt ist (Inter-Parliamentary Union & ICRC, 2009). Der Begriff des Verschwindens von Personen wird häufig im Zusammenhang mit dem gewaltsamen Verschwindenlassen verwendet, bezieht sich jedoch inhaltlich in gleicher Weise auf eine Person, deren Schicksal nicht bekannt ist. Beide Begriffe sollen hier synonym verwendet werden.
Ein uneindeutiger Verlust (*ambiguous loss*) beschreibt zunächst einen Verlust, der nicht eindeutig klassifizierbar ist. Nach Boss (Boss, 1980) kann dieser zwei Arten der Verlusterfahrung bedeuten: Zum einen ist von einem uneindeutigen Verlust zu sprechen, wenn eine Person körperlich anwesend, aber psychisch abwesend ist. Ebenso beschreibt ein uneindeutiger Verlust einen Verlust, bei dem eine Person körperlich abwesend ist, jedoch gedanklich durch die Familie am Leben gehalten wird und somit psychisch als anwesend empfunden wird.

Ein Beispiel für eine psychische Abwesenheit ist eine fortgeschritten demenziell erkrankte Person, deren Körper zwar existent ist, deren Persönlichkeit jedoch durch eine fortschreitende Erkrankung nicht mehr zugänglich ist. Uneindeutige Verluste mit körperlicher Abwesenheit sind ein häufiges Phänomen im Kontext gewaltsamer Konflikte. Soldaten kehren nach kriegerischen Auseinandersetzungen nicht zurück (sog. Missing in Action) und Familien werden auf der Flucht auseinandergerissen. Das gewaltsame Verschwindenlassen bezeichnet die Entführung oder Verhaftung von

Personen durch Angehörige staatlicher Stellen oder Gruppen, die mit Erlaubnis oder Unterstützung des Staates handeln. Informationen über den Verbleib der Personen werden nicht gegeben, sodass die Angehörigen in Unwissenheit über das Schicksal der verschwundenen Person gelassen werden (Heinz, 2008). Im Rahmen des vorliegenden Artikels steht die körperliche Abwesenheit als Verlusterfahrung im Vordergrund.

8.5 Uneindeutiger Verlust im Kontext gewaltsamer Konflikte

Während im Rahmen des Verschwindens im zivilen Kontext im Normalfall die staatlichen Behörden informiert und eine Fahndung eingeleitet wird, ist im Rahmen gewaltsamer Konflikte meist kein funktionierendes Rechtssystem vorhanden. Ist der Staat bzw. sind Angehörige staatlicher Dienststellen für das Verschwinden verantwortlich, ist es für die betroffenen Familien schwierig nachzuweisen, dass diese Behörden am Verschwinden beteiligt waren (Heinz, 2008). Die Suche nach den Verschwundenen wird von den Betroffenen selbst durchgeführt und geht häufig mit massiven Drohungen seitens staatlicher und parastaatlicher Akteure einher, die ihrerseits bei Eigenbeteiligung, aktiv die Verhinderung der Aufklärung der Schicksale zum Ziel haben (De Alwis, 2009; Quirk & Casco, 1994). Zudem ist meist kein funktionierender Sozialstaat vorhanden, der eventuelle finanzielle Ausfälle der Familie auffangen könnte. Da die Mehrheit der verschwundenen Personen zuvor den Hauptversorger darstellten, sind die Hinterbliebenen neben der Unsicherheit und Trauer häufig auch mit finanziellen Schwierigkeiten konfrontiert (Crettol & La Rosa, 2006). Die konstante Konfrontation mit Gewalt birgt zudem ein höchst traumatisierendes Potential, das zu zusätzlichen psychischen Belastungen über das Verschwinden eines Angehörigen hinaus führen kann. Es ist davon auszugehen, dass der politische Kontext die Psychopathologie maßgeblich beeinflusst.

8.6 Psychopathologische Folgen und Risikofaktoren

Dass der Verlust einer nahestehenden Person durch deren Tod in gewaltsamen Konflikten mit hohen psychischen Belastungsreaktionen einhergeht, konnte bereits vielfach gezeigt werden (u. a. Schaal et al., 2010; Stammel et al., 2013). Während sich Hinterbliebene bei Todesfällen mit der Endgültigkeit ihres Verlusts konfrontiert sehen, sind Personen mit uneindeutigen Verlusten einer anhaltenden Ungewissheit über das Schicksal der verschwundenen Person ausgesetzt. Nur wenige Untersuchungen haben bisher die spezifischen Folgen ungeklärter Verluste untersucht. Die meisten dieser

Untersuchungen behandelten qualitative Einzelfallbeschreibungen und konnten zeigen, dass das Verschwinden für Angehörige mit besonders komplexen Adaptionsprozessen einhergeht (u. a. Becker, 1992; Preitler, 2006; Robins, 2010). Es wurde argumentiert, dass ein Trauerprozess möglicherweise nicht adäquat durchlaufen werden kann und Symptome resultieren, die einer Depression oder prolongierten Trauer ähnlich sind (Pérez-Sales, Durán-Pérez, & Bacic Herzfeld, 2000; Preitler, 2006).

Wie in Tabelle 1 dargestellt, wurde in Studien, die sich speziell mit uneindeutigen Verlusten in gewaltsamen Konflikten beschäftigten, gefunden, dass zwischen 32% und 67% der befragten Angehörigen Depressionen, zwischen 55,8% und 67% PTBS, sowie zwischen 20% und 23% prolongierte Trauer aufwiesen (Baraković et al., 2013, 2014; Heeke et al., 2015; Pérez-Sales et al., 2000). Erste Hinweise auf eine stärkere psychische und körperliche Belastung durch das Verschwinden eines Angehörigen im Vergleich zu einem Todesfall lieferten Quirk und Kollegen in Honduras: Angehörige verschwundener Personen wiesen signifikant mehr Stresssymptome (Schreckreaktionen, Schlaflosigkeit) und physiologische Symptome (Bauch- und chronische Kopfschmerzen) auf als Angehörige verstorbener Personen (Quirk & Casco, 1994).

Ergebnisse von zwei weiteren Studien demonstrierten, dass Frauen mit vermissten Ehemännern und Kinder mit vermissten Vätern signifikant höhere Werte der Depression und traumatischen Trauer aufwiesen als Frauen/ Kinder, die Gewissheit über den Tod des Ehemanns/ Vaters hatten (Powell et al., 2010; Zvizdic & Butollo, 2001). Gleichzeitig hatten Angehörige vermisster Personen mehr traumatische Ereignisse erlebt als Angehörige verstorbener Personen. Eine Übersichtsarbeit weist darauf hin, dass Angehörige von Verschwundenen besonders von Drohungen und körperlichen Misshandlungen seitens staatlicher Akteure betroffen sind und daher mehr traumatische Ereignisse erleben als andere Kriegsbetroffene (Blaauw & Lähteenmäki, 2002). Auch bei Kontrolle der traumatischen Ereignisse konnte demonstriert werden, dass Angehörige von Verschwundenen stärker psychisch belastet waren als Angehörige Verstorbener (Powell et al., 2010). Tabelle 8 gibt eine Übersicht zu quantitativen Studien zu psychopathologischen Konsequenzen uneindeutiger Verluste im Kontext gewaltsamer Konflikte.

Table 8. Übersicht über quantitative Studien zu Angehörigen von Verschwundenen in gewaltsamen Konflikten

Studie	Politischer Kontext – Untersuchte Variablen	Stichprobe	Ergebnisse
Quirk et al. (1994)	Honduras, Betroffene politisch motivierten Verschwindenlassens Somatische und stress-bezogene Symptome	N= 25 Familien (136 Pers.), in denen eine Person verschwunden war N= 24 Familien (186 Pers.), in denen eine Person aufgrund von Krankheit/ Unfall verstorben war (KG) N= 24 Familien (137 Pers.) ohne Verlusterleben in den letzten 10 Jahren (KG)	In Familien mit einem verschwundenen Angehörigen traten signifikant mehr (jeweils mind. die doppelte Anzahl) Arousalsymptome, wie Schreckreaktionen, Schlaflosigkeit und chronische Kopfschmerzen, auf als in den Kontrollgruppen (KG). Der Verlust durch Verschwinden lag im Mittel 6,5 Jahre zurück. Bei Kindern in Familien mit Verschwundenen waren signifikant stärkere Stimmungsänderungen und ein signifikant stärkerer Einbruch ihrer schulischen Leistungen zu verzeichnen als in den KG.
Perez-Sales et al. (2000)	Chile, Betroffene der Pinochet-Diktatur Psychiatric-State-Examination, 10. Ed.	N=75 Angehörige von Verschwundenen N=44 Angehörige von Verstorbenen (davon n=58 Mapuchen (Indigene Einwohnende Chiles) und n=61 Nicht-Mapuchen)	Mehr als 20 Jahre nach dem Verschwinden eines Angehörigen lagen Affektive Störungen (Prolongierte depressive Trauer, Depressive Episode) bei 32% (n=24) und Prolongierte nicht-depressive Trauer bei 20% (n=15) vor, wobei sich keine statistischen Unterschiede zu Angehörigen exekutierter Personen ergaben. Traumatische Reaktionen (PTBS, Akute Stressreaktion) waren bei Angehörigen exekutierter Personen mit 18% (n=8) stärker verbreitet als bei Angehörigen Verschwundener (4%, n=3).
Zvizdic, S. & Butollo, W. (2001)	Bosnien und Herzegowina, Kinder, die vom Krieg betroffen waren, Altersspanne zur Zeit der Interviews: 10–15 Jahre Traumatische Kriegsereignisse (ITRR), Traumatische Nachkriegsereignisse (INRR), Depression (DSRS)	N= 201 Kinder, deren Väter verschwunden waren N= 208 Kinder, deren Väter im Krieg getötet worden waren N= 204 Kinder, die vorübergehend vom Vater getrennt gewesen waren N= 203 Kinder ohne Verlusterleben (KG)	Kinder, deren Väter verschwunden waren, hatten signifikant mehr traumatische Ereignisse sowohl während als auch nach dem Krieg erlebt und hatten signifikant stärkere depressive Symptome als alle anderen Gruppen. Der Verlust des Vaters durch Verschwinden oder Tod lag zwischen 5 und 8 Jahren zurück.
Powell et al. (2010)	Bosnien und Herzegowina, Kriegsüberlebende Allgemeine psychische Gesundheit (GHQ), Traumatische Trauer (UCLA Grief Inventory), PTBS (IES), Traumatische Ereignisse (PDS),	N=56 Ehefrauen vermisster Männer, N=56 Ehefrauen verstorbener Männer (KG)	Frauen mit vermissten Ehemännern wiesen signifikant stärkere Symptome schwerer Depression ($p<.01$) und traumatischer Trauer ($p<.01$) auf als Frauen, die Gewissheit über den Tod des Ehemanns hatten. Diese Ergebnisse blieben auch bei Kontrolle traumatischer Ereignisse bestehen, wenngleich Frauen mit vermissten Ehemännern signifikant mehr traumatische Kriegsereignisse (M=19,6, SD=5,07) erlebt hatten als Frauen mit verstorbenen Ehemännern (M=13,8,

			SD=4,95, p<.001). Die Verluste lagen für beide Gruppen im Mittel 7,5 Jahre zurück. Keine Unterschiede zwischen den Gruppen fanden sich u.a. bezüglich PTBS, Somatisierung und Ängstlichkeit.
Baraković et al. (2013)	Bosnien und Herzegowina, Kriegsüberlebende Depression (BDI-I), Ängstlichkeit (HAM-A), Somatisierung (SSI), Verwandtschaftliche Beziehung	N=120 Frauen mit vermissten Angehörigen, N=40 Frauen ohne Verlust (KG)	15-18 Jahre nach dem Verschwinden eines Familienmitglieds wiesen 47,5% (n=57) der Teilnehmerinnen schwere Depression, 40% (n=48) mittlere bis starke Ängstlichkeit und 50,8% (n=61) mittlere bis starke Somatisierung auf. Frauen mit verschwundenen Söhnen hatten signifikant stärkere Symptome der Depression und Ängstlichkeit als Frauen mit einem vermissten Ehemann, Vater oder Bruder (alle p<.01). Alle Angehörigen von Verschwundenen wiesen signifikant stärkere Symptome der Depression (p<.001), Ängstlichkeit (p<.001) und Somatisierung (p<.05) auf als die KG.
Baraković et al. (2014)	Bosnien und Herzegowina, Kriegsüberlebende PTBS u. Traumatische Ereignisse (HTQ), Verwandtschaftliche Beziehung	N=120 Frauen mit vermissten Angehörigen, N=40 Frauen ohne Verlust (KG)	55,8% (n=67) der Frauen mit einem verschwundenen Familienmitglied erfüllten die Kriterien einer PTBS. Frauen mit verschwundenen Söhnen hatten signifikant stärkere Symptome der PTBS als Frauen mit einem vermissten Vater (p<.001) oder Bruder (p<.05); alle Frauen mit einem verschwundenen Familienmitglied hatten signifikant stärkere Symptome der PTBS (p<.001) und hatten signifikant mehr traumatische Erlebnisse (M=18,43, SD=5,27) als Frauen ohne Verlusterleben (M=6,57, SD=4,34, p<.001). 117 Frauen (97.5%) mussten verschwundene Angehörige für tot erklären lassen, um finanzielle Entschädigungen zu erhalten.
Heeke et al. (2015)	Kolumbien, im bewaffneten Konflikt intern Vertriebene Prolongierte Trauer (PG-13), Depression (HSCL-25), PTBS (PCL-C), Ausmaß Hoffnung	N=73 Angehörige von Verschwundenen, N=222 Angehörige von Verstorbenen	In der Gruppe der Angehörigen von Verschwundenen erfüllten 23% (n=17) die Kriterien der prolongierten Trauer, 69% (n=50) die der Depression und 67% (n=49) die der PTBS, wobei sich keine statistischen Unterschiede bezüglich Symptomstärke und Auftretenshäufigkeit zu Angehörigen Verstorbener ergaben. Der Verlust durch Verschwinden lag im Mittel 13 Jahre zurück. Die Hoffnung auf das Überleben der verschwundenen Person war signifikant mit prolongierter Trauer assoziiert (r=.30, p<.01). Das Ausmaß an Hoffnung erwies sich neben Depression als wichtiger Prädiktor für die Ausprägung prolongierter Trauer.

Obgleich die bisherigen Ergebnisse Hinweise auf eine stärkere Belastung durch das Verschwinden im Gegensatz zu Todesfällen geben, ist bisher noch kaum untersucht, welche Faktoren im Speziellen für die stärkere Belastung Vermissender bedeutsam sind. Übliche Risikofaktoren bei Personen, die Angehörige durch deren Tod verlieren, sind u.a. die Häufigkeit traumatischer Expositionen, eine geringe soziale Unterstützung nach dem Verlust, sowie die Art und Nähe der verwandtschaftlichen Beziehung, wobei der Verlust des Partners, Kindes oder Elternteils mit stärkeren Symptomen prolongierter Trauer einhergehen als der Verlust anderer Familienmitglieder (Lobb et al., 2010; Stammel et al., 2013). Auch bei Angehörigen von Verschwundenen gibt es Hinweise, die in eine ähnliche Richtung weisen: So wiesen Frauen, deren Sohn vermisst war, signifikant stärkere Symptome der Depression, Ängstlichkeit und posttraumatischen Belastungsstörung auf als Frauen, deren Vater oder Bruder verschwunden war (Baraković et al., 2013, 2014). Es gibt zudem Hinweise, dass Familien von Verschwundenen im Gegensatz zu Familien von Verstorbenen besonders wenig soziale Unterstützung in der Gemeinschaft erfahren, da Verwandte und Freunde in einer angespannten politischen Situation negative Konsequenzen für ihre eigene Familie durch den Kontakt mit Familien von Verschwundenen fürchten (Blaauw & Lähteenmäki, 2002; Robins, 2010). Eine Studie demonstrierte, dass sich nach dem Verschwinden eines Familienmitglieds sich in etwa der Hälfte der Fälle eine verschlechterte Einbindung in die Gemeinde zeigte während sich bei Angehörigen von Verstorbenen in fast allen Fällen eine verstärkte moralische und materielle Unterstützung der Gemeindemitglieder nach dem Verlust ergab (Quirk & Casco, 1994). Es ist somit möglich, dass bei Angehörigen von Verschwundenen eine besondere Konstellation von Risikofaktoren vorliegt, die die Vulnerabilität der Betroffenen für psychische Erkrankungen steigert. Darüber hinaus existieren weitere Faktoren, die speziell bei Angehörigen von Verschwundenen zum Tragen kommen und die im Folgenden dargestellt werden.

8.6.1 Hoffnung vs Akzeptanz des Todes

Das Fehlen des Körpers als Beweis für das Schicksal der Verschwundenen lässt den Hinterbliebenen Raum für Fantasien, was ihren Angehörigen passiert sein könnte und somit die Hoffnung, dass die Verschwundenen lebend zurückkehren.
Mehrere qualitative Interviewstudien mit Betroffenen und Personen, die mit Angehörigen von Verschwundenen arbeiten, deuteten darauf hin, dass die

Uneindeutigkeit des Verlusts als Hauptbelastung wahrgenommen wurde und die Aufklärung des Schicksals der Verschwundenen zu den zentralen Bedürfnissen zählte (Andreatta & Oberthaler, 2014; Preitler, 2006; Robins, 2010).

Auch auf quantitativer Ebene konnte der Zusammenhang zwischen der Uneindeutigkeit des Verlusts und psychischer Belastung in einer Studie mit Angehörigen von Verschwundenen im Rahmen des bewaffneten Konflikts in Kolumbien bestätigt werden (Heeke et al., 2015). werden. Das Ausmaß der Hoffnung auf das Überleben der verschwundenen Person war signifikant mit dem Ausmaß prolongierter Trauer assoziiert. Zudem diente das Ausmaß an Hoffnung über die Symptomstärke der Depression hinaus als signifikanter Prädiktor für die Ausprägung prolongierter Trauer. Es ist also möglich, dass das Festhalten an der Hoffnung auf das Überleben der Verschwundenen einem „Feststecken im Trauerprozess" gleichkommt und dies zu einer stärkeren psychischen Belastung führt.

8.6.2 Absenz formalisierter Trauerrituale

Stirbt eine Person, wird im Normalfall eine Reihe klar strukturierter Rituale durchgeführt. Wenngleich interkulturell sehr unterschiedlich, ist es Trauerritualen gemein, dass sie Stabilität schaffen und Trauernden helfen sollen, die Realität des Todes zu akzeptieren (Romanoff & Terenzio, 1998). Sie schaffen einen Raum, in dem der Schmerz über den Verlust öffentlich ausgedrückt werden kann und in dem die Betroffenen meist Beistand in der Gemeinschaft erfahren (Preitler, 2006). Im Fall des Verschwindens von Personen gibt es keine stützenden Rituale, die dem Verlust entgegenzusetzen sind. Da das Verschwinden von Personen speziell in gewaltsamen Konflikten häufig gesellschaftlich negiert wird bzw. sich Freunde und Verwandte aus Sorge um die eigene Sicherheit zurückziehen, fehlt es zusätzlich an gemeinschaftlichem Beistand und gesamtgesellschaftlicher Anerkennung (Blaauw & Lähteenmäki, 2002).

Qualitative Studien mit Angehörigen von Verstorbenen und Verschwundenen in gewaltsamen Konflikten lieferten Hinweise darauf, dass der Umstand, keine Trauer- oder Begräbnisrituale durchgeführt zu haben, sich als äußerst belastend für die Betroffenen auswirken kann und sich in Albträumen, Depressionen und Schuldgefühlen widerspiegelt (Boehnlein, 1987; Robins, 2010). Preitler (2006) beschreibt in ihrer Übersichtsarbeit zur psychotherapeutischen Arbeit mit Angehörigen von Verschwundenen, dass sich die nachträgliche Durchführung von symbolischen Trauerritualen in der therapeutischen Begleitung Angehöriger von Verschwundenen als hilfreich im Sinne der psychischen Verarbeitung erwies.

Im Kontrast zu diesen Befunden konnte im Rahmen einer quantitativer Studie zu prolongierter Trauer nach dem ruandischen Genozid die Teilnahme an einer Beerdigung keinen prädiktiven Beitrag zur Erklärung prolongierter Trauer über andere Faktoren hinaus leisten (Schaal et al., 2010). Allerdings lag der Fokus dieser Studie nicht auf der Analyse der Wirkmechanismen von Trauerritualen, sondern war Ergebnis einer Sekundäranalyse. Es bedarf somit noch weiterer Abklärung im Rahmen zukünftiger Studien.

8.6.3 Ambiguous loss im familiären System

Der Verlust eines nahestehenden Menschen stellt nicht nur eine große Belastung für das Individuum, sondern auch für die Familie als Ganzes dar. Todesfälle werden in der Regel als real erlebt und können betrauert werden (Becker, 1992). Familiensysteme stellen ein komplexes soziales Gefüge mit klaren Rollenverteilungen dar. Gleichzeitig muss ein solches Familiengefüge in der Lage sein, die grundlegende Struktur und Organisation dynamisch an Umgebungsfaktoren anzupassen und zu verändern, um existenz- und funktionsfähig zu bleiben (Boss, 1980). Neuere Studien weisen auf den besonderen Einfluss von gewaltsamen Verlusten auf das familiäre System hin, der sich in der reziproken Beeinflussung der Symptomatik bezüglich Intensität und Verlauf der Erkrankung widerspiegelt (Nickerson, Bryant, Brooks, et al., 2011).

Boss (1980) zufolge werden die in der Familie verteilten Rollen nach dem Verschwinden häufig nicht neu verhandelt, da die Hoffnung bestehen bleibt, dass die Person zurückkehrt und sich mühelos in die bewährten Familienstrukturen einfindet. Es wird argumentiert, dass dies zu massiven Rollenkonflikten führen kann.

Studienergebnisse deuten darauf hin, dass Familien mit der Uneindeutigkeit des Verlusts einen unterschiedlichen Umgang finden: Dies kann sich in unterschiedlichen Überzeugungen der einzelnen Familienmitglieder über das Schicksal der Verschwundenen äußern und zu vermehrten innerfamiliären Konflikten führen (Munczek & Tuber, 1998). Andere Studien geben Hinweise darauf, dass zur Konfliktvermeidung und aus Angst vor politischer Verfolgung jahrelang über das Verschwinden geschwiegen wird (Preitler, 2006; Sluzki, 1990). Den Familien ist dadurch möglichweise eine wichtige Ressource genommen, um ihren Gefühlen Ausdruck zu verleihen und mit dem Verlust umzugehen (Robins, 2009).

Die Studienlage bezüglich familiärer Bewältigungsmechanismen ist noch sehr gering und z. T. nicht eindeutig in ihren Aussagen. Zentrale Fragen zur Bedeutsamkeit von Familiendynamiken und familiärem Kommunikationsverhalten und deren

Zusammenhang mit psychischer Belastung sind daher im Rahmen empirischer Studien mit Vermissenden noch nicht ausreichend geklärt worden und bedürfen weiterer Forschung.

8.7 Diskussion und Ausblick

Der vorliegende Artikel gibt eine empirische Übersicht über die psychopathologischen und psychosozialen Konsequenzen des Verschwindens von Personen für die Angehörigen und weist mögliche Begleitfaktoren auf, die für die psychische Belastung von Bedeutung sind. Insgesamt ist anzumerken, dass die empirische Studienlage noch sehr gering ist und die Ergebnisse aufgrund der kleinen Fallzahlen, der unterschiedlich langen Zeit seit dem Verlust, sowie der unterschiedlichen Konflikte nur eingeschränkt generalisierbar sind.

Die bisherige Studienlage konnte dennoch deutlich machen, dass die Gruppe der Angehörigen von Verschwundenen von besonderen Belastungen und Problemen betroffen ist. Während die vergleichbare Gruppe der Angehörigen von Verstorbenen mit der Endgültigkeit ihres Verlusts konfrontiert ist, sind Personen mit uneindeutigen Verlusten einer anhaltenden Ungewissheit über das Schicksal ihrer Angehörigen ausgesetzt, die sich in den meisten Studien in stärkeren Symptomen der Depression und prolongierten Trauer widerspiegelt (Powell et al., 2010; Zvizdic & Butollo, 2001). Die Gründe für diese spezielle Belastung mögen in der besonders starken Ausprägung von Risikofaktoren für die Entwicklung psychischer Erkrankungen liegen, wie einer geringeren sozialen Unterstützung und dem erhöhten Ausmaß an traumatischer Exposition (Powell et al., 2010; Quirk & Casco, 1994). Spezifische zusätzliche Faktoren kommen darüber hinaus zum Tragen: Eine ausgeprägte Hoffnung auf das Überleben der verschwundenen Person scheint eine erhöhte Symptomausprägung der prolongierten Trauer zu begünstigen (Heeke et al., 2015). Es ist zudem möglich, dass ausbleibende Trauerrituale und familiäre Konfliktdynamiken den Umgang mit dem Verlust eines nahestehenden Menschen durch Verschwinden zusätzlich erschweren (Munczek & Tuber, 1998; Preitler, 2006). Es bedarf zusätzlicher Forschung, um die hier erörterten Ergebnisse zu fundieren. Erkenntnisse dieser Forschung sind zentral, um die Identifikation besonders vulnerabler Personen zu erleichtern und wirksame Interventionen zu entwickeln.

Zukünftige Forschung solle zusätzlich zu den bisher diskutierten Faktoren Persönlichkeits- und Resilienzfaktoren untersuchen. Es gibt Hinweise, dass es bei Betroffenen zu einem hohen Ausmaß an Fixierung auf das Verlusterleben kommen

kann. So kommt es vor, dass Betroffene über Jahrzehnte kaum einen anderen Lebensinhalt haben als die Suche nach ihren verschwundenen Angehörigen (Becker, 1992; Robins, 2010). Jeder Versuch, sich von der Suche nach den Verschwundenen zu lösen wird dem Autor der Übersichtsarbeit zufolge als Entwürdigung der Erinnerung an die Geliebten erlebt (Becker, 1992). Möglicherweise ist auch das Ausmaß der Beschäftigung mit der Suche nach dem Verschwundenen, verknüpft mit ständigen Misserfolgen und Frustration, mit negativen Konsequenzen für die psychische Gesundheit assoziiert.

Auch die Wirkung staatlicher Aufarbeitungsmanahmen im Sinne der Transitional Justice sollten auf Ihre Wirkung überprüft werden. Der Fokus von Aufarbeitungsmaßnahmen lag bisher fast ausschließlich in der Aufklärung des Schicksals Verschwundener mithilfe von Exhumierungen. Der Erfolg dieser Maßnahmen war allein aufgrund der Menge an Betroffenen in der Vergangenheit nur sehr eingeschränkt gegeben (Stover & Shigekane, 2002). Inwiefern andere Aufarbeitungsmaßnahmen, wie die Konstruktion von Gedenkstätten oder die Einrichtung eines Gedenktags, wie von einigen Betroffenen gefordert [ebd.], sich als hilfreich im Sinne der Verlustbewältigung erweisen, sollte ebenfalls im Rahmen zukünftiger Studien untersucht werden.

Aufgrund der bisher unzureichenden Evidenz lassen sich keine definitiven Handlungsempfehlungen für die psychotherapeutische Begleitung Betroffener geben. In einer kürzlich erschienenen Studie zu Interventionsmaßnahmen bei Frauen mit vermissten bzw. verstorbenen Ehemännern fanden sich moderate Effekte zur Reduktion vermeidenden Verhaltens und prolongierter Trauer-Symptomatik durch dialogische Traumatherapie (Hagl, Powell, Rosner, & Butollo, 2014). Dies deutet darauf hin, dass sich Betroffene mithilfe der Methode des „leeren Stuhls“ ihrer inneren Dialoge bezüglich des traumatischen Verlusts bewusst werden und sich dies als hilfreich im Sinne der Symptomverbesserung trotz Ungewissheit über das Schicksal der Verschwundenen erweisen kann.

9 Article IV: When hope and grief intersect

When hope and grief intersect: Rates and risks of prolonged grief disorder among bereaved individuals and relatives of disappeared persons in Colombia

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9.1 Abstract

Background: Forced disappearance is a frequent phenomenon in violent conflicts and regimes, yet little is known about unresolved grief processes as a possible outcome of the disappearance of a loved one. This study investigates prolonged grief disorder (PGD) and its risk factors in a sample of persons who lost a significant other to disappearance as compared with a sample of bereaved individuals, both groups having experienced displacement due to the armed conflict in Colombia.

Method: In a cross-sectional study conducted in four Colombian provinces, 73 persons who lost a significant other to disappearance and 222 bereaved individuals completed measures of PGD (PG-13), depression (HSCL-25), and PTSD (PCL-C) via face-to-face interviews. Trauma- and loss-related variables, including the extent to which significant others of disappeared persons hoped that their loved one was still alive, were assessed.

Results: Results indicated that 23% of participants who lost a significant other to disappearance met criteria for PGD as compared to 31.5% in bereaved participants. No differences were found between the two groups in terms of symptom severity of PGD, depression, posttraumatic stress disorder, or traumatic exposure. Regression analysis indicated that, among relatives and friends of disappeared persons, the extent of hope predicted PGD above and beyond depression severity whereas among bereaved persons, PGD was predicted by time since the loss, the number of traumatic events and symptom severity of PTSD and depression.

Limitations: The instruments were not validated for use in Colombia; generalizability of findings is limited.

Conclusion: Forced disappearance is related to prolonged grief reactions, particularly when those left behind maintain hope that the disappeared person is still alive.

9.2 Introduction

After more than 50 years of armed conflict, millions of Colombians have experienced severe human rights violations. About one tenth of the Colombian population has been displaced by paramilitary or guerilla groups. According to recent data, about 80,000 persons are unaccounted for, 25,000 of whom are known to be victims of forced disappearance (Centro Nacional de Memoria Histórica, 2013; Instituto de Medicina Legal y Ciencias Forenses, 2013).

Many people go missing during acts of war, conflict, or natural disasters. Forced disappearance is an exceptional form of disappearance involving forced abduction by agents of the state, followed by the refusal to acknowledge the abduction or to provide any information about the fate of the disappeared person (United Nations, 2007). In several countries, forced disappearance is used as an instrument of political repression to weaken political opponents and to create an atmosphere of silence and fear (De Alwis, 2009; Rozema, 2011).

The loss of a significant other represents one of the most painful experiences in human life. Although most persons who experience a significant loss are capable of adjusting well, a significant number of bereaved individuals develop symptoms of depression or prolonged grief as a consequence of their loss (Stroebe, Stroebe, & Hansson, 1988). Prolonged grief disorder (PGD) has been defined as a maladaptive grief reaction following loss. It is characterized by intense longing and yearning for the lost person as well as by feelings of hopelessness and emptiness over a period of at least 6 months (Prigerson et al., 2009). Although PGD and depression share certain symptoms and are therefore often comorbid, research has shown that the two disorders are distinguishable in terms of clinical course and response to treatment (Boelen et al., 2006; Jacobs, Nelson, & Zisook, 1987). Especially after exposure to the violent death of a significant other, PTSD can occur together with PGD (Nickerson et al., 2014). However, avoidant symptoms in PGD rather refer to reminders of the loss and moving on without the deceased than the avoidance of fear-inducing stimuli as in PTSD (Prigerson et al., 2008).

Persons who lose a significant other to disappearance may experience grief differently from those mourning a deceased loved one, as they have to cope with constant uncertainty about his or her fate (Blaauw & Lähteenmäki, 2002). They are often preoccupied with the potential whereabouts of their significant other and, in repressive states, with the fear of that he or she has been subjected to torture as well as the fear of being subjected to torture or other human rights violations themselves as a form of

kin liability (Blaauw & Lähteenmäki, 2002; Centro Nacional de Memoria Histórica, 2013). These preoccupations may exacerbate the processing of the loss. Families of disappeared persons are often confronted with financial hardships as in most cases the person sustaining the family is the one being disappeared (Haugaard & Nicholls, 2010). Without the verification of death, families often have to cope with confusion about roles in the family system (Boss, 2004). Social marginalization and a decline of social support by the community have also been reported to result from disappearance of a significant other (Quirk & Casco, 1994; Robins, 2010). It has therefore been proposed that relatives of disappeared persons experience more severe mental health consequences than do bereaved individuals (Quirk & Casco, 1994). Powell et al. (2010) found higher levels of traumatic grief and severe depression in a group of 56 women whose husband was missing after the war in Bosnia and Herzegovina than among widows who knew their husbands had died in the conflict. Quirk and colleagues (1994) interviewed Honduran families in the aftermath of the forced disappearance of a family member and found them to experience higher levels of psychological and physiological distress than families who had lost a family member to accident or illness or than families who had not lost a family member in the last 10 years. In a study on the differential effects of parental loss due to war, early adolescents whose fathers were missing expressed significantly higher levels of depression than did those whose fathers were killed during the war in Bosnia and Herzegovina (Zvizdic & Butollo, 2001).

The uncertainty regarding the whereabouts of a loved one may constitute an important risk factor for mental health problems. After a certain time, some relatives assume the death of the disappeared person, while others continue to believe or maintain hope that the disappeared person is still alive (Robins, 2014; Sluzki, 1990). This belief may prevent them from achieving closure and eventually contribute to the development of prolonged grief reactions (Blaauw & Lähteenmäki, 2002). The idea that hope in the disappeared person returning is associated with increased psychological distress has been suggested elsewhere (Robins, 2010), but has not yet been empirically tested.

A growing body of literature has addressed risk factors of PGD—that is, factors that increase the likelihood of PGD emerging. Recent studies in the context of war and definite loss have shown that PGD is more likely to develop when the death was relatively recent and due to violent causes (Schaal et al., 2010). Concurrent symptoms of depression and PTSD have also been found to constitute a higher risk for PGD (Morina et al., 2011; Stammel et al., 2013). Findings on gender effects have been mixed: Some studies have found that women are more likely to develop PGD; others did not

find this association (Morina et al., 2010; Stammel et al., 2013). Whether these risk factors also apply in the context of the disappearance of a significant other has not yet been investigated.

The aim of the present study was to investigate PGD in a sample of persons who lost a significant other to disappearance and in a sample of bereaved individuals. Both groups were victims of displacement due to the armed conflict in Colombia. The first goal was to explore whether psychological distress among persons who lost a significant other to disappearance can be captured by PGD, to determine the rates of PGD, depression, and PTSD and to compare them with the respective rates among persons bereaved through the armed conflict. In accordance with previous findings, we expected persons who had lost a significant other to disappearance to experience more severe mental health distress than bereaved persons. Second, we examined the specific impact on PGD symptom severity of the extent to which relatives or friends of disappeared persons hoped their loved one to be alive. Finally, we sought to gain a more comprehensive understanding of potential risk factors that influence PGD. Based on previous findings, we expected severity of symptoms of depression and PTSD as well as time since the loss to form predictors of PGD among bereaved individuals. Whether these risk factors also applied in persons having lost a significant other to disappearance was subject of research in this article.

9.3 Method

The study utilizes data from a survey on the mental health of internally displaced Colombians and their attitudes to the current reparation program. The cross-sectional study was carried out in four districts of Colombia between September and December 2012. The study was reviewed and approved by the ethics commission of the Freie Universität Berlin. Participants were identified by linear systematic sampling (Chang & Huang, 2000) from a list of N= 1898 displaced persons affiliated with our partner organization Tierra y Vida in the four districts. Tierra y Vida is a local NGO assisting displaced persons in the process of claiming the restitution of their land. After their selection, potential participants were contacted via phone and invited to participate in the study. Of the initially 952 selected persons, 498 persons could not be contacted or rejected participation. The main reason stated for rejecting participation was lack of time. Potential participants were provided with a full description of the study and informed about the voluntary nature of participation, the principles of confidentiality and anonymity, and the right to refuse answers to any question at any time. Informed

consent was then obtained from all participants. Structured face-to-face interviews were conducted by three Colombian psychologists (M.A.) who had previously participated in a 2-week training course on the assessment of relevant concepts and the use of questionnaire measures. The interviewers received weekly supervision. The interviews took place in office rooms obtained with the support of our partner organization and lasted about 80 minutes on average. Transport expenses were reimbursed and participants received information about psychosocial service facilities in their department. All participants were provided with contact information of the study coordinators.

In total, N=454 persons were interviewed. For the purposes of the present study, only participants who had experienced the death or disappearance of at least one family member or friend in the Colombian armed conflict were included (n=309). A further 14 participants were excluded because essential data were missing; the final sample thus comprised 295 participants.

9.3.1 Instruments

Socio-demographic information was obtained, including gender, age, marital status, and educational background. Traumatic events were measured using an extended checklist based on the first part of the Harvard Trauma Questionnaire (Mollica et al., 1992). In total, 24 traumatic events were assessed.

PGD was assessed using the Structured Prolonged Grief Interview (PG-13), a clinical rating scale screening for elevated symptom levels of prolonged grief (Prigerson et al., 2009). Participants who reported more than one loss were asked to specify which loss was most difficult to cope with at the time of the interview, and to answer the PG-13 questions in relation to that significant loss. The questionnaire consists of two separation distress and nine cognitive, emotional and behavioral symptoms. Two additional items refer to the duration of symptoms and the impairment in social and occupational or other areas of functioning. The criteria for a PGD diagnosis were met if the participant reported at least one separation distress symptom and ratings of at least 4 (at least daily) on at least five of the nine "cognitive, emotional, or behavioral" symptoms for a period of six months or longer. Symptoms caused impairment in significant areas of functioning. An overall symptom score was calculated by summing the symptom scores of the 11 grief symptoms. The PGD was translated into Spanish by a Colombian psychologist and back-translated by bilingual psychologists unfamiliar with the original version. Discrepancies were discussed with a group of local

psychologists and adaptations were made when necessary. The internal consistency of the PG-13 in this study was α=.89.

A set of loss-specific questions assessed the relationship to the lost person, the cause of loss (disappearance, violent loss, illness), and the time (in months) elapsed since the loss. The extent to which relatives or friends of disappeared persons still hoped their loved one to be alive was assessed on a 5-point Likert-type scale ranging from 0 (not at all) to 4 (a lot) by asking them "How much hope do you have that your loved one is still alive? – Que tanta esperanza tiene usted que su ser querido puede estar vivo?"

The Hopkins Symptom Checklist-Depression Subscale was used as a screening instrument for the detection of increased symptom levels of depression (Derogatis, 1974). Each item was scored on a 4-point Likert-type scale ranging from 1 (not at all) to 4 (extremely). Depression severity scores were computed by forming the average of all symptom scores, with a cut-off point of 1.75 indicating 'caseness'. The Spanish items of the HSCL-25 were adopted from the Spanish version of the SCL-90 (González de Rivera et al., 1989). Cronbach's α for the depression scale was α=.88.

Symptoms of PTSD were assessed using the Spanish version of the PTSD Checklist–Civilian Version (PCL-C), a 17-item self-report rating-scale instrument that corresponds to the DSM-IV symptoms of PTSD (Miles et al., 2008; Weathers et al., 1994). Each item was scored on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (extremely). The PTSD severity score was computed by summing up all symptom scores. An overall cut-off score of 44 for meeting symptom criteria of PTSD was applied based on previous studies demonstrating good performance in diagnostic efficiency (Blanchard et al., 1996; Sonis et al., 2009). Internal consistency in the present study was α=.89.

9.3.2 Statistical analyses

The prevalence of mental disorders (PGD, depression, PTSD) was calculated in terms of the percentage of participants with a positive diagnosis at the time of the interview. T-tests and chi-square tests were applied to test whether the two subgroups ('disappeared'; 'deceased') differed in terms of sociodemographic and loss-related variables and with regard to prevalence or symptom severity of PGD, depression, and PTSD. All tests were two-tailed.

To explore whether the extent of hope impacted PGD symptom severity, we used the Kruskal-Wallis test to explore whether mean PGD symptom severity varied depending on the extent to which relatives or friends of disappeared persons hoped that their

significant other was still alive. We calculated group-separate multiple regression analyses to examine whether variables predicting PGD symptom severity differed between the two groups. To this end, variables showing a statistically significant correlation with PGD symptom severity were included stepwise in multiple regression analyses.

Data analysis was carried out using SPSS, version 22.

9.4 Results

9.4.1 Sociodemographic characteristics and psychopathology

The sample consisted of n=181 (61.4%) female and n=114 (38.6%) male participants aged M=48.60 (SD=12.50) years on average. Of these, n=73 participants had lost a significant other due to forced disappearance, and n=222 had lost a significant other due to death in relation with the armed conflict.

The two loss groups ('disappeared' vs. 'deceased') were comparable with regard to sociodemographic variables and did not differ from each other in terms of traumatic exposure, time since loss, or relationship to the lost person. Descriptive data and statistics are displayed in table 9. The primary cause of bereavement in the 'deceased' group was murder (92.8%; n=206), followed by illness resulting from the armed conflict in (4.5%; n=10).

Table 9. Sociodemographic Characteristics by Group

	Disappeared (*n*=73)	Deceased (*n*=222)	*t* or X^2
Female gender, *n* (%)	50 (68.5)	131 (59.0)	2.08 (n. s.)
Age, *M* (*SD*)	48.27 (12.78)	48.70 (12.43)	0.25 (n. s.)
Education, years, *M* (*SD*)	4.64 (3.64)	5.67 (3.98)	1.94 (n. s.)
Marital status, *n* (%)			3.21 (n. s.)
Single	19 (26.0)	40 (18.0)	
Married	15 (20.5)	59 (26.6)	
In relationship	22 (30.1)	78 (35.1)	
Divorced	7 (9.6)	18 (8.1)	
Widowed	10 (13.7)	27 (12.2)	
Relation to person lost, *n* (%)			10.20 (n. s.)
Partner	12 (16.4)	31 (14.0)	
Child	17 (23.3)	43(19.4)	
Parent	4 (5.5)	28 (12.6)	
Sibling	24 (32.9)	47 (21.1)	
Other family member	10 (13.7)	58 (26.1)	
Friend	6 (8.2)	15 (6.8)	
Time since loss, years, *M* (*SD*)	13.38 (6.88)	12.12 (7.34)	–1.28 (n. s.)
Number of traumatic events, *M* (*SD*)	10.55 (3.80)	10.39 (3.85)	–.31 (n. s.)

Of the entire sample, 29.5% (n=87) fulfilled the diagnostic criteria for PGD and 71.2% (n=210) scored above the cut-off for depression. Of the participants meeting diagnostic criteria for PGD, n=78 (89.7%) also scored above the cut-off for depression. The prevalence of PTSD was 68.1% (n=201). Of those meeting diagnostic criteria for PGD, n=81 (93.1%) also met criteria for PTSD. The prevalence rates of PGD, depression, and PTSD observed in the two groups are shown in table 10. Neither prevalence rates nor symptom scores for PGD, depression, and PTSD differed significantly across the two groups.

Table 10. PGD, Depression, and PTSD Prevalence Rates and Symptom Scores by Group

	Disappeared	Deceased	*t* or X^2
PGD diagnosis, n (%)	17 (23.29)	70 (31.50)	1.67 (n. s.)
PGD score, M (*SD*)	34.44 (*10.25*)	33.69 (*10.85*)	–.46 (n. s.)
Depression diagnosis, n (%)	50 (68.49)	160 (72.07)	.34 (n. s.)
Depression score, M (*SD*)	2.12 (*0.62*)	2.13 (*0.58*)	.12 (n. s.)
PTSD diagnosis, n (%)	49 (67.12)	152 (69.47)	.05 (n. s.)
PTSD score, M (*SD*)	49.25 (*14.22*)	49.18 (*13.50*)	–.36 (n. s.)

9.4.2 PGD and extent of hope

To explore whether the extent of participants' hope that their loved one was still alive (extent of hope) affected PGD symptom severity, we applied a Kruskal-Wallis test in

the 'disappeared' group. Results revealed a significant effect, $H(4)=11.18$, $p<.05$, showing that PGD severity differed depending on the extent of hope. Pairwise comparisons demonstrated that participants reporting "quite a bit" of hope experienced significantly higher average PGD symptom severity than did participants reporting no hope "at all," $U=-20.47$, $p<.05$. In contrast, participants who believed "a lot" that their significant other was still alive had comparably low average PGD symptom scores, but did not differ significantly from the other groups. To correct for p-value inflation associated with multiple comparisons, a Bonferroni correction was applied with the effects reported at a 0.005 level of significance. One-way ANOVA (Kruskal-Wallis) using depression severity as dependent variable did not yield significant results ($H(4)=1,5$, $p=.83$), hence, extent of hope was rather uniquely associated with symptoms of PGD.

Figure 5 illustrates the variation in mean PGD symptom scores depending on the extent of hope. The graphic representation of data suggests a potential curvilinear trend, with an increase in PGD severity from respondents believing "not at all" or "a little" in the survival of their disappeared loved one to respondents believing "moderately". The values of PGD severity then decrease again in respondents reporting "quite a bit" and "a lot" of hope. The curvilinear trend was further analyzed in a subsequent regression analysis.

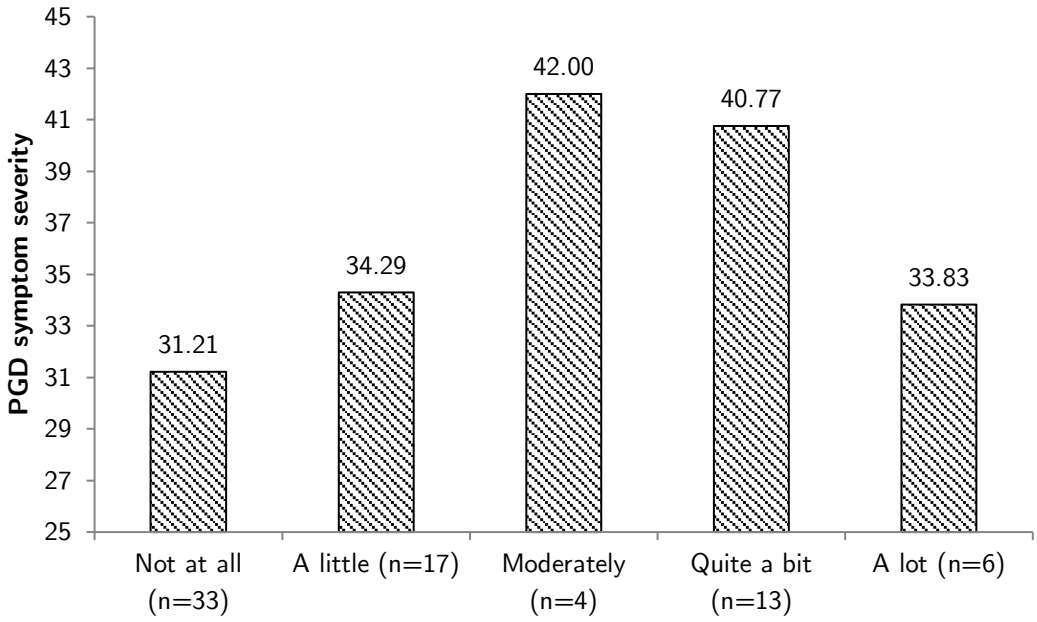

Figure 5. Mean PGD symptom severity by extent of hope

9.4.3 Covariates and risk factors of PGD

Correlates of PGD were calculated prior to the regression analysis. Table 11 displays the correlation matrix for associations of PGD symptom severity with sociodemographic, psychopathological, and loss-related variables.

Table 11. Spearman Correlation Coefficients Between PGD Severity and Sociodemographic, Psychopathological, and Loss-Related Variables by Group

	PGD severity	
	Disappeared	Deceased
Gender (0: female; 1: male)	−.08	−.16*
Age	.07	.09
Education, years	.03	−.02
Depression	.49***	.57***
PTSD	.43***	.50***
Number of traumatic events	.30**	.33***
Time since loss, months	−.31**	−.15*
Extent of hope	.30**	–

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

We next calculated group-separated multiple regression analyses with variables showing a significant correlation with PGD as independent variables to investigate potential predictors of PGD severity: the sociodemographic variable gender was entered in a first step of the analysis, the psychopathological variables depression and PTSD severity in a second step, and the loss- and trauma-related variables 'number of traumatic events' and 'time since loss' were entered in a third step to determine whether these variables had an additional impact on PGD beyond psychopathology. Indices of tolerance and variance-inflation factor (VIF) among potential predictor variables did not indicate multicollinearity. Results showed that in the 'deceased' group, depression and PTSD severity as well as the number of traumatic events and time since the loss significantly predicted PGD (Radj2=.37). In the 'disappeared' group, only depression severity significantly predicted PGD (Radj2=.22).

In an additional step (step 4), we entered extent of hope into the analysis to test whether it impacted PGD symptom severity when the other variables were controlled. As mentioned before, the graphical representation of PGD severity by extent of hope (see Fig. 1) suggested a potential curvilinear trend. To explore this trend, we also entered the variable 'extent of hope squared' in step 4. Results showed an increased accuracy of prediction (Radj2=.27, change in F=3.42, p<.05), but only extent of hope reached significance as predictor. Thus, the data were more accurately described by a

linear trend, indicating that participants who believed more strongly that their disappeared loved one was still alive also experienced greater PGD symptom severity. In the 'disappeared' group, severity of depression and extent of hope were uniquely associated with PGD symptom severity in the final step of the model. Regression coefficients of all predictors are displayed in table 12.

Table 12. Hierarchical Multiple Regression Analysis Predicting PGD

		B	SE B	ß	ΔR_{adj}^2
Group: Deceased (*n*=222)					
Step 1	Gender [a]	-3.44	1.47	-.16*	.02*
Step 2	Depression severity	7.26	1.37	.39***	.33***
	PTSD severity	.21	.06	.26***	
Step 3	Number of traumatic events	.33	.16	.12*	.02**
	Time since loss, months	-.01	.01	-.12*	
Group: Disappeared (*n*=73)					
Step 1	Gender [a]	-1.78	2.61	-0.81	.00
Step 2	Depression severity	6.36	2.60	.38*	.22***
	PTSD severity	.10	.12	.13	
Step 3	Number of traumatic events	.09	.33	.03	.01
	Time since loss, months	-.02	.01	-.18	
Step 4	Extent of hope	2.98	.1.16	.41*	.05*
	Extent of hope squared	-1.10	.76	-.22	

Note. *p<.05, **p<.01, ***p<.001. Depression and PTSD severity were included as sum score; [a] 0: female; 1: male. Model "Deceased" total R_{adj}^2=.37; Model "Disappeared" total R_{adj}^2=.27.

9.5 Discussion

The aim of this study was to investigate PGD in a sample of persons who had lost a significant other to disappearance and in a sample of bereaved individuals, both of which had been affected by displacement due to the armed conflict in Colombia.

High levels of psychological distress were found across the sample (depression: 71.2%, PTSD: 68.1%). These findings may be attributable to several factors, including the wide range of traumatic events to which participants had been exposed, the horrors and fears accompanying forced displacement, and the ongoing armed conflict that may prevent them from feeling secure. Research on mental health of victims of the Colombian armed conflict is scarce, however, Richards et al. (2011) also reported high levels psychological distress with a PTSD rate of 88% and depression rates of 44% in a sample of internally displaced persons. Earlier research on consequences of bereavement resulting from civil conflict or warfare reported PGD rates ranging

between 14.3% and 38.3% (Morina et al., 2010; Morina et al., 2011; Stammel et al., 2013). Moderate rates of PGD (29.5%) broadly in line with this existing research were found among participants in the present study. However, in contrast to our initial hypothesis that participants with a disappeared significant other would experience more severe mental health distress than bereaved participants, we found no differences between the two groups in either prevalence rates or symptom severity of PTSD, depression, or PGD. A possible reason for this inconsistency with previous findings is that relatives of disappeared persons in other studies also reported significantly more exposure to traumatic events as well as a more stressful current living situation than did bereaved persons (Powell et al., 2010; Zvizdic & Butollo, 2001), which may have contributed to their more impaired mental health. Another potential reason is that it is impossible to detect a significant additive effect of the disappearance of a significant other within the highly traumatized and psychologically distressed sample of the present study.

The second main purpose of the study was to explore whether the extent to which participants in the 'disappeared' group still hoped that their loved one was alive impacted PGD symptom severity. Results showed that the majority of participants had no or only little hope that their disappeared loved one was still alive. Experiencing no hope was associated with significantly lower PGD symptom severity than was experiencing "quite a bit" of hope. Continued hope might make them resistant to closure and therefore reinforce the grieving process (Boss, Beaulieu, Wieling, Turner, & LaCruz, 2003). These respondents may try to maintain their relationship with the disappeared person but, at the same time, suffer from the absence of their loved one (ASFADDES, 2003).

A further goal was to determine risk factors for the development of PGD among participants in the 'disappeared' group and among bereaved participants, respectively. In line with previous studies with bereaved survivors of conflict (Schaal et al., 2010; Stammel et al., 2013), our findings confirmed depression, PTSD symptom severity, and time since loss to be associated with PGD severity in the group of bereaved participants. Additionally, number of traumatic events was identified as predictor of PGD. Exposure to traumatic events including the violent loss of a significant other may lead to vulnerability for both PGD and PTSD. It is possible that the presence of concurrent PTSD symptomatology may hinder bereaved individuals from coping with their loss and prevent them from achieving closure. It also became evident that time

since loss was a significant predictor beyond symptom severity of PTSD and depression, indicating that symptoms may decrease over time.

Among participants who lost a significant other to disappearance, however, only depression was found to predict PGD; PTSD symptom severity, exposure to traumatic events, and time since loss failed to reach significance as predictors. It seems plausible that the link between PGD and PTSD plays a more prominent role in the group of bereaved participants because the primary cause of the death in this group was by violent means. Although the time elapsed since the loss was significantly correlated with PGD symptom severity, it did not reach significance as a predictor when the other variables were accounted for, indicating that time since disappearance is less critical when depressive symptoms are prevalent.

In an additional step of the hierarchical regression analysis, extent of hope explained a significant amount of variance in PGD beyond severity of depression. This finding suggests that pronounced hope in the survival of the disappeared loved one may constitute a considerable risk factor of PGD. The association between hope and PGD symptom severity was more accurately described by a linear trend, indicating that the more strongly persons hope that their loved one is still alive, the greater the severity of PGD symptoms. However, the type of trend should be addressed in future research using larger sample sizes, as the failure of the curvilinear trend to reach significance may be due to the small number of participants at the higher end of the "hope" distribution. A curvilinear trend would imply that persons unsure of whether to believe that their disappeared loved one is dead or alive—i.e., placing themselves in the middle of the hope scale and therefore experiencing the highest ambiguity about the fate of their loved one—are those most affected by their loss, whereas persons who are convinced of either death or survival of the disappeared person are able to cope better.

Our analyses demonstrated that depression and PGD were closely interlinked across both loss groups. However, as some participants met criteria for PGD exclusively it also became evident that these individuals and their psychological distress would be missed by focusing on depression solely. Furthermore, the extent of hope representing the key difference between definite bereavement and uncertain loss was not associated with depression but uniquely with symptom severity of PGD.

Our data showed that loss- and trauma-related factors that predicted PGD in bereaved individuals did not predict PGD among participants who lost a significant other to disappearance, suggesting that the two groups differ with regard to the risk or accompanying factors of PGD, a finding that also has important clinical implications.

Knowledge of additional factors that may contribute to or protect against the development of adverse mental health outcomes among relatives and friends of disappeared persons is crucial for gaining a more comprehensive understanding of their mental health situation and the development of appropriate interventions. Relevant factors in this regard might be the amount of perceived social support and societal acknowledgment as a victim or intrapersonal factors, such as the ability to live with ambiguity. Some of these factors have been mentioned in surveys on forced disappearance and should be included in future research (Blaauw & Lähteenmäki, 2002; Haugaard & Nicholls, 2010).

9.5.1 Limitations

The limitations of the present study include that the instruments were not validated for use in Colombia. Second, although we used a randomized sampling procedure to recruit participants, generalizability of findings is limited as only persons affiliated with our partner organization were included. The usage of screening instruments to assess psychological distress may have resulted in an overestimation of symptoms as these are based on subjective ratings by the participants themselves.

9.6 Conclusion

This study investigated prolonged grief disorder in a sample of persons who had lost a significant other to disappearance and in a sample of bereaved individuals; both groups had been displaced due to the armed conflict in Colombia. Results showed that persons who lost a significant other to disappearance did not differ from bereaved individuals in terms of traumatic exposure, PGD, depression, or PTSD symptom severity. We further addressed the specific impact on PGD severity of the extent to which a family member or friend of a disappeared person hoped that their loved one is still alive. Results suggested that pronounced hope may constitute an important risk factor of PGD beyond depression. Future research on additional risk and protective factors for PGD among persons who lost a significant other to disappearance is crucial, as it can help identify individuals and subgroups most vulnerable to adverse mental health outcomes.

10 Discussion

10.1 Summary of findings

The loss of a significant other is a painful experience that almost everyone will encounter throughout life. An extensive body of research was devoted to the study of the bereavement process. Based on clinical observations, patterns of maladjustment to loss were identified in a significant minority of bereaved individuals. Compared to a normal bereavement process, these maladaptive patterns are characterized by the lack of integration of the loss into the autobiographic knowledge base. Intensive yearning for the person lost, preoccupation with thoughts of the deceased, and difficulties moving on are only some of the consequences. These complications are currently subsumed under the term 'prolonged grief disorder' and are of clinical relevance. Consequently, the inclusion of PGD as a clinical disorder into the diagnostic systems has been proposed and PGD is to be included in the forthcoming International Classification of Diseases-version 11 (ICD-11).

The prevalence of PGD tends to be higher among persons exposed to a violent loss, i.e. a loss through homicide, suicide, accidents, including acts of warfare and natural disaster. Rates of PGD vary across studies of violent loss survivors, which indicates that the exposure to a violent loss does not necessarily lead to the development of PGD. However, it has been shown that that certain risk factors play a role in explaining the emergence of the disorder. A clear understanding of potential antecedents of PGD is crucial to gain deeper insights into processes leading up to complications in the bereavement process, and, also to help identify distressed individuals who are most in need for help. A number of gaps were identified in the literature on prolonged grief, among which a major was the lack of a systematic review and meta-analysis on risk factors of prolonged grief among adults exposed to the violent loss of a significant other. The following paragraphs briefly present the main findings from the papers included in this dissertation. Hereafter, a thorough discussion of the implications of these findings will be provided.

10.1.1 Main findings from paper I – Meta-Analysis

The first study sought to provide a systematic review and meta-analysis of risk factors for PGD among adults exposed to the violent loss of a significant other. To identify eligible studies, a broad search strategy through multiple data bases (PsychInfo, PsychARTICLES, PubMed, Web of Science, Scopus) was applied. Across 36 studies that were published between 2003 and 2017, 29 potential risk factors examined by at least two studies were identified. Of these, 19 factors had significant associations with PGD. On the one hand, sociodemographic characteristics, such as female gender, education, employment, and having another child showed small associations with PGD. On the other hand, large associations were found for psychological disorders, suicidality and rumination. Furthermore, small associations were further found for multiple losses, religious beliefs and somatic/physical symptoms. Finally, three risk factors showed medium-sized associations, namely the exposure to traumatic events, the presence of attachment anxiety, and a close relationship to the deceased. Several of the identified risk factors showed significant heterogeneity, which may limit the interpretability of the mean effect sizes. However, subgroup analyses based on the quality of study, the type of loss studied, and on data assessment could not explain the heterogeneity.
We descriptively evaluated the quality of the included studies. Fifteen studies were classified as having a medium quality, while nine of the studies (25.0%) had low quality and 12 (33.3%) had high quality. The most common flaws were the non-use of random selection of participants, as well as insufficient precision of data analysis reporting.

10.1.2 Main findings from paper II – Symptom profiles

Violent losses are particularly common in the scope of human rights violations (e.g., bombings, killings, torture) in war and violent conflicts. Due to the frequent combination of both trauma and loss in the context of warfare, a complex interplay between prolonged grief and posttraumatic stress disorder is suggested. The meta-analysis found a high association between PGD and PTSD, but little is known about the boundaries between PGD and PTSD in the context of warfare. Based on a sample of Colombian survivors of the armed conflict, the second study aimed at exploring clinical manifestations of PGD and PTSD among persons exposed to both trauma and loss. This goal was achieved by using latent class analysis, a person-centered approach, which identifies classes or subgroups of persons sharing similar characteristics.

Furthermore, we examined whether certain loss- or trauma-related variables, or the amount of perceived social support could predict differential clinical manifestations.
A four-class solution best fitted our data: the first was a PTSD class characterized by high item probabilities for almost all PTSD symptoms and none of the PGD symptoms, the second was a predominately PGD class marked by high item probabilities for the PGD separation distress symptoms, two other PGD and four PTSD symptoms; the third was a high distress class with high endorsement for nearly all PGD and PTSD symptoms, and, the fourth consisted of a resilient class characterized by low to moderate item probabilities for all symptoms. Compared to the resilient class, participants in the high distress class were more likely to be female, to have lost a close relative, to have been exposed to a higher number of traumatic events and to have perceived less social support. The PGD- and PTSD classes differed from each other such that members of the PGD class were more likely to have experienced the loss of a close relative and that less time had elapsed since the loss. These results regarding risk factors for PGD symptoms were broadly consistent with findings on relevant risk factors derived from the meta-analysis.

10.1.3 Main findings from paper III – Ambiguous loss

A particular form of violent loss is the loss of a significant other to disappearance. It leaves family and friends wondering about the fate of the missing person and it is assumed that such circumstances prevent them from processing the loss and finding closure (Blaauw & Lähteenmäki, 2002; Clark, 2010). Despite the large number of persons globally affected by the disappearance of a loved one due to war or state terrorism, the scientific evidence about the psychological consequences among relatives of missing persons remains limited. Therefore, the aim of paper III was to provide an overview of research on psychosocial and psychopathological consequences of the disappearance of a significant other for relatives in order to identify relevant research gaps. Furthermore, we presented findings on factors that may facilitate adverse mental health outcomes among relatives of disappeared persons.
In the studies we reviewed regarding adverse mental health outcomes among relatives of disappeared persons, we found rates of depression and PTSD between 32 und 67% among this population, while between 20 and 23% suffered from PGD (Baraković et al., 2013, 2014; Heeke et al., 2015; Powell et al., 2010; Zvizdic & Butollo, 2001). The assumption that relatives of disappeared persons might experience more severe degrees of depression, posttraumatic stress or grief than individuals bereaved by the death of

a significant other were confirmed for some indicators in three out of four studies (Heeke et al., 2015; Powell et al., 2010; Quirk & Casco, 1994; Zvizdic & Butollo, 2001). In terms of risk factors for adverse mental health outcomes, relatives of disappeared persons were at higher risk for the exposure to traumatic events in two studies (Powell et al., 2010; Zvizdic & Butollo, 2001). Furthermore, preliminary evidence suggests that the role of stigmatization and the lack of social support were of major concern among relatives of disappeared rather than among bereaved individuals, a finding that was qualitatively assessed (Quirk & Casco, 1994; Robins, 2010).

10.1.4 Main findings from paper IV – When hope and grief intersect

In conjunction with findings from paper III, paper IV aimed at contributing to research among relatives of disappeared persons by comparing prolonged grief, depression and PTSD rates between relatives of disappeared persons and bereaved individuals who knew that their relative was deceased. We, furthermore, explored the relationship between the extent to which relatives of disappeared hoped that their disappeared loved one was still alive and the severity of prolonged grief. Last, we investigated risk factors of PGD among both relatives of disappeared persons and bereaved persons.
In a sample of Colombian survivors of the armed conflict, we found that PGD was prevalent among 23% of relatives of disappeared persons and among 31.5% among bereaved persons. No differences in the rates or symptom levels in neither prolonged grief, nor depression, or PTSD were detected. The extent to which participants remained hopeful that their loved one was still alive was significantly associated with PGD symptom severity. Regression analyses examining risk factors of PGD showed that the severity of depression and the extent of hope contributed to higher symptom levels of PGD. In comparison, among bereaved persons, depression and PTSD severity as well as the number of traumatic events and time since the loss were identified as significant contributors to variance in PGD.

10.2 General discussion and implications

10.2.1 Clinical manifestations of PGD and PTSD

Both the exposure to multiple trauma and loss of a significant other are common experiences within violent conflicts. Typically, loss by violent means is conceptualized as a traumatic event, which can lead to the development of PTSD. However, recent studies also show substantial rates of PGD in the aftermath of violent loss (Currier et

al., 2015; Morina et al., 2011). It is rather important to highlight that the boundaries between prolonged grief and PTSD in the context of violent loss have not yet been fully understood. While paper I (meta-analysis) is the first to quantify the association of PTSD and PGD across multiple studies, paper II (symptom profiles) contributed to knowledge on how PGD and PTSD manifest in a population exposed to both trauma and loss.

In paper I, our meta-analysis emphasized that PGD was highly associated with PTSD (r=.59, 95%CI [.50; 67]). However, the results found in paper II (symptom profiles) showed that yet distinct clinical manifestations emerge among a population exposed to multiple trauma and loss. It became evident that there was a group marked by high PTSD symptomatology but almost no comorbid PGD symptomatology. By contrast, also a class emerged with predominate PGD symptomatology and only few comorbid PTSD symptoms. Furthermore, there were two classes that differed from each other primarily with regard to the severity of symptoms: namely, a high distress class with overall high symptom endorsement of all PGD and PTSD symptoms and a resilient class marked by overall low symptom endorsement. Thus, it became evident that even in a highly traumatized and bereaved population, psychological responses are distinguishable in terms of symptom severity and type of emotional response. The ability to separate classes based on type of emotional response (PGD vs PTSD) supports the distinctiveness of these disorders. A methodologically similar approach has recently been used to separate PTSD and complex PTSD from each other (Cloitre, Garvert, Brewin, Bryant, & Maercker, 2013; Elklit, Hyland, & Shevlin, 2014; Knefel, Garvert, Cloitre, & Lueger-Schuster, 2015). In our study, the PTSD and PGD-class were not only separable by specific symptom endorsement but also by the membership to the symptom classes. To explain this, the latter was predicted by factors associated with the relationship to the deceased and loss-related characteristics (i.e., the relationship to the deceased and the time elapsed since loss). The results are consistent with theoretical models highlighting the importance of the relationship with the lost person for the development of PGD in particular and not other disorders (Boelen et al., 2006). The finding that within the PGD-class, high item probabilities for some intrusive symptoms (“intrusive memories”) and some avoidance symptoms (“avoid thoughts”) were found, is unsurprising as intrusions and avoidance similarly represent important features of PGD as outlined in chapter 2.2.2. By contrast, hyperarousal as a characteristic the disorders do not share, only had low to medium item-probabilities in the PGD-class. This finding is consistent with theories postulating that PGD is not

characterized by the fear networks, which determine PTSD (Maccallum & Bryant, 2018; Maercker & Znoj, 2010).

The classes were not only separable by the type of emotional response but also by the severity of symptom endorsement as evidenced by the high-distress and the resilient class. The finding of a high-distress indicates that there is a group of individuals who develop pervasive distress across several symptom domains. According to the vulnerability-stress model, each person is equipped with an individual vulnerability for developing a disorder. Then, when a certain level of stress is exceeded, the individual will develop a psychological disorder (Wittchen & Hoyer, 2011). In contrast to the resilient class, participants in the high distress class had been exposed to a higher number of traumatic events, had been more likely to have lost a close relative, and perceived less social support. The multitude of stressful life events and the low availability of resources to cope with these life events may have a detrimental impact on the survivor and result in an emotional burden affecting various domains of mental health. This finding is also in line with existing studies indicating a dose-response relationship between traumatic events and the severity of symptomatology (Kolassa et al., 2010; Sunderland et al., 2016).

To sum up, the findings of paper II show that classes distinguishable by PGD and PTSD symptom endorsement can be identified. To date, altogether six studies have been published that examined latent classes of PGD and PTSD and/or depression (Boelen, Reijntjes, Djelantik, et al., 2016; Djelantik, Smid, Kleber, & Boelen, 2017; Heeke, Stammel, Heinrich, & Knaevelsrud, 2017; Lenferink, de Keijser, Smid, Djelantik, & Boelen, 2017; Maccallum & Bryant, 2018; Nickerson et al., 2014). All six studies found a class of combined symptomatology, a resilient class, as well as a class characterized by primarily high endorsements of PGD symptoms. This suggests that symptom profiles may be consistent across different populations.

The findings have several important implications for diagnostics. PGD is an important psychological disorder that can emerge after loss in the context of traumatic circumstances. However, among persons exposed to trauma, PGD often goes unrecognized as the focus on PTSD prevails (Higson-Smith, 2014; Morina, Malek, Nickerson, & Bryant, 2017; Silove, Ventevogel, & Rees, 2017; Steel et al., 2009). For clinicians, it will be necessary to acquire the knowledge to differentiate between PTSD and PGD, which will be more difficult since similarities on the symptom level between PGD and PTSD (e.g. avoidance, intrusions) exist. Our findings indicate that, in line with theoretical approaches, separation distress, defined as a person experiencing

yearning (craving or longing for the deceased) to a disabling degree (Prigerson et al., 2009) is the feature of PGD that best differentiates between PGD and PTSD.

A substantial challenge for the diagnosis of PGD lies in the fact that several competing criteria sets of a prolonged or complicated grief response exist. Both diagnostic systems, DSM-5 and ICD-11, made adaptions to the criteria set of Prigerson et al. (2009) in their propositions for the clinical disorder of 'persistent complex bereavement disorder' (see table 13, appendix) and 'prolonged grief disorder' (see table 14, appendix) by taking up some of the symptom criteria proposed by Shear et al. (2011). They did not, however, provide evidence why these particular symptoms were adopted. While all criteria sets show consensus about the inclusion of separation distress as a core feature of PGD, disagreement is primarily found in regards to the cognitive, emotional and behavioral symptoms. Our findings from paper II correspondingly show that the high endorsement of separation distress clearly differentiated the PGD and high distress class from the PTSD and resilient class. However, some cognitive, emotional and behavioral symptoms did not differentiate as clearly between the classes, indicating that some of the proposed PGD symptoms may not be as indicative or unique to PGD. Which conclusions can be drawn from our findings regarding the defining features of PGD? Paper II showed that the two symptoms "shocked or dazed since the loss" and "bitterness" were highly endorsed by the high distress and PGD class. This is in accordance with prior evidence that these items were indicative of PGD (Boelen, Reijntjes, Djelantik, et al., 2016; Cozza et al., 2016; Nickerson et al., 2014). However, "shocked or dazed since the loss" have neither been adopted as symptom criterion by the ICD-11 nor the DSM-5 symptom set despite having been proposed by both working groups of Shear (2011) and Prigerson (2009). Embitterment has been identified as an important predictor of PGD in the context of violent loss (Morina et al., 2010). Bitterness can be defined as feeling let down and treated unfairly and is associated with feelings of anger and resentment (Znoj, 2011). It is possible that bitterness is also related with shattered assumptions about the world as a safe place and may therefore be a particular characteristic of grief after a violent loss. This item was only adopted by the DSM-5 proposal for 'persistent complex bereavement disorder', but may be a vital component of PGD that should also be addressed by the ICD-11 symptom criteria. Results of our meta-analysis further show that rumination, suicidality, and anger were highly associated with PGD. Anger and rumination have been included in the criteria set by Shear et al. (2011). A study on the performance of the different criteria sets for the diagnosis of PGD revealed that the items addressing rumination and anger

performed well in the diagnosis of PGD and differentiation from normal grief reactions (Cozza et al., 2016). Furthermore, an item addressing physical or emotional reactions similarly performed well and was also found in the meta-analysis to be associated with PGD. To conclude, the diagnosis of PGD is a "work in progress" and shortcomings in the consensus of defining PGD criteria exacerbate the diagnostic process. Clinicians need a gold standard for the assessment and diagnosis of PGD. Hence, refinements of the defining criteria of PGD are still necessary.

These questions will most likely be addressed in the course of the ICD revision process which is currently taking place. As a part of the ICD case-controlled field studies, clinicians were instructed to diagnose case vignettes using diagnostic guidelines for ICD-10 and ICD-11 separately (Keeley, Reed, Roberts, Evans, Robles, et al., 2016). While the PGD vignette received a variety of diagnoses under ICD-10 guidelines (among others, 'PTSD', 'Enduring Personality Change after Catastrophic Experience' and 'Adjustment Disorder'), PGD was nearly always (92%) correctly diagnosed under ICD-11. Hence, with the support of a diagnostic system, these cases have a higher likelihood to be properly diagnosed. Including PGD as a distinct clinical disorder has significant advantages: first, it will allow to give an accurate diagnosis for individuals suffering from prolonged difficulties in their adjustment to loss. Second, it will allow the provision of specific treatment to those who need it. A second phase of the World Health Organization (WHO) field testing will address the ecological implementation by testing the application of ICD guidelines to patients in practice settings (Keeley, Reed, Roberts, Evans, Medina-Mora, et al., 2016; Keeley, Reed, Roberts, Evans, Robles, et al., 2016). A refinement of the diagnostic criteria is a possible outcome of this phase. The proposition of the WHO to include PGD as clinical disorder in the ICD-11 sets an important mark in acknowledging grief reactions that go beyond the social or religious norms of the individual's culture and context.

Our findings also have implications for clinical practice. Patients with undiagnosed PGD after trauma and loss may not benefit enough from regular PTSD treatment (de Heus et al., 2017). In fact, individuals with both PGD and PTSD may require different treatment than those with only PTSD or PGD only (Smid et al., 2015). Research in this regard indicates that PGD-tailored interventions focusing on psychoeducation, confrontation and reinterpretation of the cognitions and perceptions related to the loss are effective in reducing symptoms of PGD (Rosner, Bartl, Pfoh, Kotoučová, & Hagl, 2015; Wittouck et al., 2011). For individuals with both PTSD and PGD, preliminary evidence found that patients benefitted from Brief Eclectic Psychotherapy for

Traumatic Grief, which consists of information about cognitive processing and attachment reactions, grief-focused exposure with writing assignments, and finally, a treatment stage that aims to resolve maladaptive negative appraisals of the traumatic loss and to diminish the effect of triggers (de Heus et al., 2017; Smid et al., 2015). Similar effects were found for a combined PGD and PTSD therapy consisting of psychoeducation, exposure to both grief and fear-related stimuli, discussion of thoughts related to the deceased, and imaginal conversation with the deceased (Asukai, Tsuruta, & Saito, 2011). While future research is necessary to evaluate the efficacy of the individual components in reducing PGD and PTSD symptoms, these results indicate that targeting triggers to reduce PTSD-related intrusions may be a crucial additional component of PGD-tailored interventions in order to treat both PGD and PTSD.

10.2.2 Risk factors of PGD

Identifying risk factors that increase the vulnerability for the development of PGD will contribute to the understanding of the processes underlying complications in the bereavement process. It may, furthermore, be an effective strategy to direct professional help to those who need it. Grief-specific interventions are more effective among grievers with marked difficulties in their adaption to loss (Currier, Neimeyer, & Berman, 2008). A meta-analysis reported that preventive interventions did not have a significant effect for the reduction of PGD. However, there is evidence of large effect sizes for indicated programs for persons at risk for the development of PGD (Litz et al., 2014; Wittouck et al., 2011). Knowing reliably about factors associated with PGD will help identify those individuals at risk for later PGD.

Paper I, II and IV contribute to this field of research. Due to the high number of identified risk factors, only a selection of risk factors will be discussed in more detail. The meta-analysis (paper I) is the first to quantitatively synthesize research on risk factors of PGD. Sociodemographic characteristics were frequently assessed and female gender, education, employment, and having another child/remaining child were associated with PGD. Findings from paper IV accord with these findings as female gender was similarly related with PGD. The finding that being employed and having another child (either born after the loss of a child or having remaining children) were protective against the development of PGD suggests that having a daily structure and task in life may offer distraction and provide a sense of meaning (Chidley et al., 2014). In accordance with theoretical frameworks of PGD (Boelen et al., 2006; Maccallum & Bryant, 2013), factors related to the specific bond with the deceased, namely

attachment style and relationship to the deceased, were important correlates of PGD. More precisely, the meta-analysis found a medium-sized association between attachment anxiety and PGD. Current research states two primary dimensions of adult attachment: Attachment anxiety and attachment avoidance (Bartholomew & Horowitz, 1991; Sibley et al., 2005). Attachment anxiety is described as an individual's predisposition to be vigilant and insecure with regard to the accessibility and availability of their attachment figure (Fraley & Bonanno, 2004). Individuals with marked levels of attachment anxiety are assumed to be overly dependent on the attachment figure. Once the attachment system is activated due to separation or loss, they engage in vigorous attempts to achieve closeness and are assumed to be more easily reminded of the loss, which is assumed to result in heightened distress (Maccallum & Bryant, 2013). In contrast, the meta-analysis revealed a non-significant association of attachment avoidance with PGD. This goes in line with previous theoretical outlines and preliminary findings among non-violently bereaved individuals: avoidant attachment is characterized by withdrawal from social situations and reluctance towards intimacy with others. It had been hypothesized that avoidant attachment does not result in difficulties in bereavement adjustment as it may help regulate attachment-related distress (Fraley & Bonanno, 2004; Fraley & Shaver, 1999; Sibley et al., 2005).

Attachment tendencies can occur both on a relationship-specific and on a global attachment style level (Jerga, Shaver, & Wilkinson, 2011). It seems likely that the strength of the attachment depends on the closeness of the relationship with the deceased and that the disruptive quality of an attachment style may therefore only take effect in close relationships. This may be one of the explanations for the association of a close relationship with the deceased and PGD. However, the interaction between attachment style and relationship to the deceased could not be investigated within the meta-analysis. There is cumulative evidence that the risk factors attachment style and relationship to the deceased are not only important among violent loss survivors but also among persons exposed to non-violent loss (Fraley & Bonanno, 2004; Jerga et al., 2011; Maccallum & Bryant, 2013), an observation that should be corroborated in future meta-analyses focusing among non-violently bereaved individuals.

Risk factors specific to violent loss may be the higher likelihood of the occurrence of multiple loss and the exposure to traumatic events. This is particularly the case in the context of warfare or natural disaster: while in a representative survey in the German population, only 23.8% reported having been exposed to at least one traumatic event

(Hauffa et al., 2011), an average of eight war-related traumatic events has been reported in a representative study among Syrian refugees and only 5% reported to not have been exposed to traumatic events during the war (Chung et al., 2018). Bereaved survivors of the Khmer Rouge (KR) regime had lost an average number of four closely related family members during the KR period (Stammel et al., 2013). The meta-analysis showed that individuals exposed to multiple losses and to a higher number of traumatic events were more likely to develop PGD. It is possible that when an individual is confronted with a number of losses simultaneously or in rapid succession, these losses cannot be adequately processed or integrated into the self-identity before another loss occurs (Neimeyer & Holland, 2004). The exposure to a high number of traumatic events may exceed an individual's capacity to process atrocities and render the person more vulnerable to develop not only PTSD but also PGD (Kolassa et al., 2010). While paper II showed that the exposure to traumatic events was associated with PGD symptoms, it also became evident that a particularly high exposure to traumatic events may result in overall distress affecting several mental health domains.

The violent nature of the loss is furthermore likely to trigger intrusive memories of the circumstances of the death (Maccallum & Bryant, 2013). The high association of intrusion with PGD identified in the meta-analysis may be specific to violent loss survivors. It will be worthwhile for future research to examine whether the association of intrusions with PGD is as high among non-violently bereaved persons.

To sum up, the results of the presented papers contribute significantly to the knowledge on factors associated with PGD among violent loss survivors. The findings will help researchers and clinicians to gain a better understanding of specific risk factors associated with PGD. Also, research efforts on developing therapeutic interventions can benefit from the results as the large association of rumination with PGD supports a cognitive approach to understanding PGD and interventions can specifically target this domain. Nevertheless, there is still limited research about factors that are amenable to change. Most of the investigated risk factors are invariant factors (e.g. gender, relationship to the deceased) or systemic in nature (e.g., time since loss, age). Processes in the aftermath of loss, such as coping strategies, appraisals of the loss, or posttraumatic growth, to name a few, were rarely investigated and need clarification in the scope of future research.

10.2.3 Loss to disappearance

A particular type of loss is the disappearance of a loved one, also referred to as "ambiguous loss" (Boss, 2002). It has been postulated that loss due to disappearance is one of the most painful losses due to the uncertainty regarding the whereabouts of the loved one and that an ambiguous loss is associated with more severe mental health distress compared to the death of a loved one (Boss, 1980, 2004). The results of paper III (overview) and of paper IV do not unequivocally support this claim. While three studies found that relatives of disappeared persons had higher levels of psychopathology than individuals who knew that their loved one was deceased, the results of paper IV did not show a difference between the two groups. A recent study moreover showed that relatives of missing persons scored significantly lower than homicidally bereaved individuals on PGD and PTSD symptoms (Lenferink, von Denderen, et al., 2017).

There may be several explanations for the inconsistency between the study findings: Two studies, which found that relatives of disappeared persons were more affected by adverse mental health outcomes also reported that relatives of disappeared persons had experienced significantly more traumatic events (Powell et al., 2010; Zvizdic & Butollo, 2001). This may have contributed to increased mental health distress among relatives of disappeared persons in these studies. By contrast, in paper IV, both groups did not differ with regard to exposure to traumatic events. Second, some studies comparing relatives of disappeared persons with bereaved persons recruited relatives of disappeared persons from victims' organizations (e.g., Baraković et al., 2013; Munczek & Tuber, 1998; Quirk & Casco, 1994). It is likely that these organizations attract the attention of persons who differ from those who do not engage in activism or who do not seek support (Ellis et al., 2016). For example, there is evidence that those more affected by adverse mental health outcomes are also more likely to engage in help-seeking behavior, for instance through victim's support organizations (Takaoka et al., 2017). The comparison groups (bereaved controls) in these studies, however, had been recruited in the general population. The results of these studies may therefore have been biased due to methodological flaws in the selection process. Third, it is possible that within the group of disappeared persons, subgroups of persons exist that cope particularly well while others do not.

A further goal was to understand how the extent that relatives hoped their missing loved one was alive related to the severity of PGD levels. The finding of a significant association between hope and PGD was consistent with previous notions that by maintaining hope, relatives of disappeared persons are kept from achieving closure and

processing their loss (Boss & Yeats, 2014; Hollander, 2016). While hope is generally understood as a positive emotion providing strength in the wake of challenging situations (Wayland, Maple, McKay, & Glassock, 2016), our results support its rather impairing effect for relatives of the disappeared. These results are supported by recent findings that participants who believed their missing loved one would still be alive had significantly higher PGD and PTSD levels than those who believed their missing loved one had died (Lenferink, Keijser, Wessel, & Boelen, *in press*). As Hollander (2016) proposed in his qualitative study with relatives of disappeared persons in Uganda, hope may have a soothing effect due to a potential prospect of reunification with the disappeared loved one while at the same time worries and anxiety always accompany these hopeful thoughts. We unfortunately did not assess these differentiated facets of hope, which should be more thoroughly addressed in future studies.

In addition to the exposure to traumatic events and the extent of hope in the missing person returning, other potential risk factors of psychological symptoms in relatives of missing persons were explored. The review showed that a close kinship-relationship to the missing person was a correlate of psychopathology and having lost a partner or a child was associated with more severe psychopathology than the loss other family members (Baraković et al., 2013, 2014). Results of paper IV showed a medium-sized effect for time since loss, but this finding was no longer significant, when other factors were controlled. These findings accord with earlier studies among bereaved individuals exposed to violent loss as outlined within the meta-analysis (paper I).

The review suggested some further risk factors of psychopathology with yet only little empirical basis. Qualitative evidence indicated that stigma and a low degree of social support may be more prevalent among relatives of disappeared persons than among bereaved persons (Quirk & Casco, 1994; Robins, 2010). Stigma was found to have a particularly disruptive quality associated with severe mental health distress among individuals who lost a significant other to suicide (Feigelman et al., 2009). The disappearance of a loved one prohibits the performance of funeral rituals and qualitative interviews with relatives of disappeared persons showed that the distress of not having performed funeral rituals was reflected in nightmares and feelings of guilt (Boehnlein, 1987; Robins, 2010). Some preliminary evidence additionally found that the ambiguity surrounding the fate of the lost person complicates family dynamics and may contribute to increased conflicts and adverse mental health outcomes (Munczek & Tuber, 1998).

To sum up, the findings of paper III and IV do not unequivocally support the assumption that the disappearance of a loved one is inevitably associated with more

mental health distress than the loss of a loved one to confirmed death. The findings do, however, support the argument that hope in the disappeared person returning plays a role in the development of adverse mental health outcomes. It is possible that those relatives of missing persons who continue to hope in their missing loved one returning, constitute a subgroup that is particularly distressed and is also more likely to be exposed to other risk factors contributing to psychopathology. For example, extensive hope may lead to increased efforts to search for the missing loved one, which, in turn, may lead to less capacities for work, family and social relationships. Searching for a missing loved in the context of a violent conflict is likely to lead to threats by those who do not want their crimes uncovered and several threats and violent assaults on searching relatives have been reported (Blaauw & Lähteenmäki, 2002; Misereor & Brot für die Welt, 2015; Observatorio de derechos humanos y derecho humanitario, 2012; Quirk & Casco, 1994). The presented findings highlight several relevant factors contributing to adverse mental health outcomes and reveal further research gaps that should be addressed by future research. This will help gain a more thorough understanding of the complex dynamics contributing to psychopathology among relatives of disappeared persons. The findings furthermore have a socio-political implication as they contribute to the visibility of mental health distress among disappeared persons.

Given the number of persons confronted with the loss of a significant other to disappearance, research efforts should be directed to the development of adequate interventions. Some clinical implications can be derived from our results. In PGD-tailored therapy, usually a focus is set on the acceptance of the finality of the loss (Rosner, Pfoh, et al., 2015). In comparison, an intervention for relatives of disappeared persons should rather focus on strengthening the ability to cope with the uncertainty regarding the whereabouts of the missing person. While hope is often seen as a positive resource, clinicians should be aware that holding on to hope may serve as a strategy to avoid painful emotions associated with the potentially permanent separation from the loved one (Lenferink, Wessel, de Keijser, & Boelen, 2016). Although we did not assess feelings of guilt, it is conceivable that techniques enabling imaginal conversations with the disappeared loved one help target feelings of guilt among relatives of disappeared persons. Preliminary evidence found this technique to be moderately effective in reducing symptoms of PGD among relatives of missing persons (Hagl et al., 2014).

10.3 Critical reflection of the concept of PGD

Complications in the bereavement process have been acknowledged since the works of Freud (1917) and research on development, course and treatment was especially endorsed throughout the last 25 years. Reluctance to acknowledge these complications as a clinical disorder is noticeable not only among the public, but also in the scientific discourse (e.g., Bandini, 2015; Frances, Pies, & Zisook, 2010; Wakefield, 2013).

General preoccupations are that normal grief reactions in response to the loss of a significant other may be misdiagnosed as a mental disorder. This debate became even more fueled since the APA removed the bereavement-exclusion criterion from the diagnostic criteria for major depressive episode, allowing clinicians to diagnose a major depressive episode as early as two weeks of experiencing symptoms after the death of a loved one (American Psychiatric Association, 2013a). It is feared that clinicians prescribe medications that have not yet been proven effective in treatment of grief to individuals who actually show a normative grief response (Pasternak et al., 1991; Reynolds, Miller, et al., 1999). A common assumption is that medicalizing normal grief may increase stigmatization of a normal reaction and reduce the "normalcy and dignity of the pain" (Frances et al., 2010, p. 1). Further concerns address that considering grief as a mental disorder may limit the use of traditional coping mechanisms, such as spiritual guidance and social support (Bandini, 2015). Others question the time criteria (6 or 12 months after bereavement) as too short to provide evidence of "frozen grief" (Wakefield, 2013, p. 171).

The consequences of not recognizing prolonged grief as a clinical disorder should similarly be pointed out. In the aftermath of the loss of a significant other, the majority of bereaved individuals cope well (Bonanno et al., 2002; Kersting et al., 2011). Yet, about one in ten bereaved individuals show severe preoccupations with the loss of a loved one, feelings of guilt, as well as prolonged and marked functional impairment in the form of prolonged grief disorder (Lundorff et al., 2017). The meta-analysis showed that, at least among adults exposed to a violent loss, these symptoms do not decrease as time goes by. PGD is a recognizable syndrome that can be identified with validated rating scales. PGD differs from normative grief on the symptom level, the ability of the person to engage in relationships, and on the physical level.

The reluctance to acknowledge PGD as a clinical entity may result in misdiagnosing complications in the bereavement process as a variety of disorders that do not capture the cognitive-emotional condition of the patient. The patient will thus not receive treatment tailored to his/her problem (Keeley, Reed, Roberts, Evans, Robles, et al.,

2016; Shear et al., 2011). Evidence from a treatment study for PGD highlights that although the majority of patients (85%) had previously sought treatment for grief, only few had actually received it (Shear et al., 2011). Many bereaved persons may therefore not realize that their grief has taken up a pathological form and that they may benefit from psychological support.

If diagnosis and treatment are delayed, the suffering and the impairment may become more severe; including broken relationships, job loss, and deterioration in health. The risk of treatment, on the other hand, is relatively small. A meta-analysis on interventions for PGD showed that preventive grief interventions have no effect on PGD, whereas treatment interventions among persons with PGD resulted to be efficacious (Wittouck et al., 2011). Little evidence exists that psychopharmacological treatment for this subpopulation is effective, which reduces the risk of medicalization of the condition (Bui, Nadal-Vicens, & Simon, 2012; Reynolds, Frank, Perel, & et al., 1999).

The use of mental health care services is a complex interplay between the availability of resources, knowledge about mental health consequences and their treatment, as well as individual and social characteristics (Kapadia, Nazroo, & Tranmer, 2018; Liu et al., 2018; Morina & Emmelkamp, 2012). The use of mental health services among bereaved persons is low, particularly in war-affected regions (Lichtenthal et al., 2011; Morina & Emmelkamp, 2012). The only significant predictor of using mental health care services among bereaved persons was having discussed psychological concerns in relation with bereavement with a health care professional when the patient was ill (Lichtenthal et al., 2011). It, therefore, also depends to a large extent on the healthcare professional's ability to recognize complications in the bereavement process. Providing professional training and guidelines to clinicians to increase their knowledge on diagnostics and treatment of PGD will thus be important.

10.4 Limitations

Despite the merits of the findings and the various strengths of the presented articles, a number of limitations should be discussed that might have an impact on the interpretation of results.

10.4.1 Meta-analysis (paper I)

The meta-analysis was based on cross-sectional studies mostly with non-randomly selected samples; and, most data relied on self-report measures. Hence, these studies can be prone to bias in sample selection and recall. Moreover, the cross-sectional design hinders the possibility of drawing conclusions about causal relationships. However, several of the examined risk factors are invariant factors, namely, gender, age of deceased and bereaved person, ethnicity, mode of death, relationship to the deceased, and time since loss. Causal relations can therefore be assumed.

The meta-analysis was furthermore accompanied by various challenges. Due to the lack of consensus on criteria for PGD, researchers based their data on various definitions of the disorder, different time criteria, and multiple assessment instruments. In order to increase the comparability between the included studies, we used stringent inclusion criteria with regard to the qualifying assessment instruments of PGD. Consequently, this may have resulted in the exclusion of some articles assumed to be relevant to the field. The meta-analysis is limited by the heterogeneity of several of the examined risk factors. It was not possible to determine moderators that caused the heterogeneity. Several variables included in this meta-analysis have only been measured in two studies, which, as a result, limits the conclusions that can be drawn about these risk factors.

10.4.2 Ambiguous loss (paper III)

The review revealed that only a limited number of studies investigated psychopathology and potential risk factors among relatives of missing persons. Furthermore, the majority of these studies were characterized by severe methodological drawbacks, such as small sample sizes and the use of qualitative interviews to assess risk factors and psychopathology. The conclusions drawn from the current empirical basis should therefore be interpreted with caution.

The limitations of the review article include a non-systematic approach to the search strategy. It may therefore not give a complete and valid overview about the existing literature. Furthermore, the review lacked a quality assessment of the included articles, which may have provided additional opportunities to weigh the study results according to the quality of the research.

10.4.3 Paper II and IV

The following limitations are based on article II and IV which both relied on data collected within the study "Justice and Reconciliation" in Colombia. The recruitment procedure resulted in a selective sample as we only included persons who were affiliated with our partner organization "Tierra y Vida". Tierra y Vida supports internally displaced persons in claiming the restitution of their land. They primarily offer peer-support in addition to some legal support. It is possible that support organizations appeal to a particular subgroup of persons. This subgroup may differ from the general population of persons affected by the armed conflict in their level of self-organization, distress, or exposure to stressful experiences. The generalizability of our results is therefore limited to persons affiliated with our partner organization.

Second, we randomly selected potential participants from a list that we received from our partner organization. About half of the selected potential participants either could not be contacted or rejected participation. We unfortunately were not able to assess the reasons for rejection for all participants, but some stated that they did not have time due to work and others said they did not want to talk about their experiences. The reluctance to talk about the experiences is likely due to the high degree of distrust within the Colombian subpopulation of persons affected by the armed conflict. Picón and Plazas (2008) describe how the permanence of the armed conflict resulted in a Colombian society highly impacted by silence and distrust in interpersonal relationships. It is possible that participants and non-participants differed from each other in the level of traumatic exposure or psychopathology. However, recommendations state that when surveying a random sample of N=1000 persons, a response rate of 41% is required to receive accurate results (Nulty, 2008), a criterion fulfilled within our study.

Furthermore, the clinical assessment was based on self-report measures assessed in interviews with clinical experts. Self-report measures rely on the participants' subjective perspective and may diminish the accuracy of the diagnosis. Although participants were informed that they would not receive any additional benefits from partaking in the study, it is possible that some inflated their emotional distress. However, the questionnaires showed satisfactory psychometric properties and the results are in line with previous studies concerning risk and protective factors contributing to the development of mental health distress. Furthermore, the interviewers received extensive training on the use of questionnaire measures and may therefore have been of additional help to reduce effects of exaggeration by participants.

Although some instruments used for the clinical assessment had been validated for use in Spanish-speaking countries, they were not validated for use in Colombia. The translation process included a back-translation and a thorough discussion of discrepancies between translation and back-translation with a team of local experts, which complies with recommendations for cross-cultural research (Guillemin, Bombardier, & Beaton, 1993). Moreover, in a pilot study, the feasibility of the included measures was tested. It can be assumed that comprehension problems could be reduced due to interview-based data assessment. However, certain cultural differences in the interpretation of items cannot be precluded.

In relation to paper IV, it is important to note that the sample of relatives of disappeared persons was relatively small. The extent of hope was measured with only one item developed for this study, which limits the validity of the measurement. The result is therefore preliminary and should be interpreted with caution. However, a recent study similarly found that the belief that the missing person is still alive was associated with higher PGD and PTSD levels among relatives of disappeared persons (Lenferink et al., *in press*), which supports the findings presented here.

Finally, the reported results are based on cross-sectional assessment, which prohibits conclusions about causal relationships. It remains therefore unclear, whether the factors identified as risk factors are cause or an effect of low or high prolonged grief symptom severity and in how far these symptoms change over time. Longitudinal studies would therefore be a desirable research approach for future studies.

10.5 Directions for future research

10.5.1 Diagnostics

Due to the lack of consensus criteria for prolonged grief, researchers rely on a diverse set of scales to assess PGD. These scales differ with regard to symptoms and time criteria. Clinicians attempting to diagnose PGD need a standardized diagnostic algorithm to distinguish between normal and pathological grief. Future research should identify valid symptom criteria by measuring the sensitivity and specificity of all proposed items in large representative, population-based studies of bereaved persons.

A vital component of the dissemination of the diagnosis will lie in professional training and guidelines for clinicians to diagnose PGD and differentiate between normal and prolonged grief. Results of a survey among German mental health professionals pointed out that it would be particularly important to address clinician's fear of disrupting the

normal grieving process and of pathologizing normal grief (Dietl, Wagner, & Fydrich, 2018). Given the current state of research proposing a PGD prevalence rate of 9.8% among the bereaved subpopulation (Lundorff et al., 2017) and the fact that the loss of a significant other is a universal experience that almost everyone will experience throughout life, it seems vital to have skilled mental health practitioners who can identify and treat patients with prolonged grief disorder.

10.5.2 PGD after violent loss and in the context of warfare

It is assumed that individuals who lost a significant other to violent loss have a higher risk for the development of PGD than individuals who lost a significant other to non-violent loss. However, to date, no epidemiological study exists for the prevalence of PGD among individuals exposed to a violent loss. It would be desirable for future research to conduct population-based, epidemiological studies on the incidence and prevalence of PGD in the aftermath of violent loss.

Loss and grief have been identified by several authors as a main challenge within the current refugee crisis (Hassan et al., 2015; Higson-Smith, 2014; Silove et al., 2017). While there is robust evidence that PTSD and depression are each endorsed by about 30% of individuals exposed to mass conflict and displacement (Steel et al., 2009), no reliable evidence exists on the PGD prevalence among survivors of war-related atrocities. A particular focus on the prevalence of PGD in the context of warfare would be desirable to increase the visibility of grief-related problems in this vulnerable population. This may furthermore encourage research on PGD-tailored interventions among survivors of war.

10.5.3 Risk factors

Results of the meta-analysis showed that sociodemographic and health-related characteristics are frequently assessed whereas factors that can potentially be modified during (preventive) treatment were less often reported. It would be desirable for future research to address factors that may increase risk, resilience and recovery from violent loss that are amenable to change. The meta-analysis suggested that having a regular task in life and a daily structure may help dealing with bereavement. Future studies should therefore also address the role of activities and social functioning for the development or prevention of PGD. Furthermore, based on yet only two studies, the meta-analysis found a large effect for rumination. Theoretical models of PGD suggest that cognitive factors play an important role in the development of PGD (Boelen et

al., 2006; Stroebe et al., 2007), but these factors have seldom been investigated in the context of violent loss or warfare. Grief-specific cognitions, for instance, may play a vital role in the development of PGD (Boelen & Lensvelt-Mulders, 2005; Boelen, Reijntjes, Djelantik, et al., 2016). It is hoped that recent validations of the 'Grief Cognitions Inventory' in diverse samples will encourage future research in this domain (Spuij, Prinzie, & Boelen, 2017; Yu, Wang, He, Xie, & Tang, 2014). There is evidence that feelings of guilt predict the intensity of grief among individuals exposed to non-violent loss (Duncan & Cacciatore, 2015). It is likely that feelings of guilt play a particular role in the context of warfare. In a study with tortured war survivors, many stated that they had directly witnessed the violent deaths of their loved ones and were subsequently privately or publically blamed for the deaths (Higson-Smith, 2014). Feelings of guilt and self-blame should therefore be addressed in future research especially since they may inhibit the effect of interventions. Longitudinal studies are desirable to clarify the temporal precedence of these risk or protective factors. The use of population-based studies would furthermore facilitate the generalizability of the results to the respective population.

As a secondary result of the meta-analysis it became evident that the percentage of female participants within the included studies was disproportionally high (range: 51.5 -100%). The overrepresentation of women is a phenomenon that can not only be observed in studies of violent loss survivors, but in virtually all grief-related studies including validation studies of assessment instruments (Bui et al., 2015; Prigerson et al., 2009; Wittouck et al., 2011). The predominance of women already in the development phase of the symptom criteria and assessment instruments may have resulted in an overrepresentation of emotional, behavioral and cognitive symptoms that are more likely to be endorsed by women. Male forms of grief may be different with socially constructed ideals encouraging stoic behavior or expression of grief as anger (Creighton et al., 2013). Future research should clarify whether gender-specific forms of prolonged grief exist. There is evidence that men are at risk for increased alcohol use after bereavement while women are not (Pilling, Thege, Demetrovics, & Kopp, 2012). While not all men align with societal norms of masculinity, some may engage in alcohol use in order to numb the emotional consequences of bereavement (Creighton, Oliffe, Matthews, & Saewyc, 2016). Furthermore, it would be desirable that researchers increase efforts to include men in grief-research to a gender-balanced level.

10.5.4 Future directions concerning relatives of the disappeared

The findings from paper III and IV contributed significantly to research on psychological distress among relatives of disappeared persons and identified several research gaps. In contrast with earlier findings, we did not find that relatives of disappeared persons were more severely affected by PGD, depression or PTSD than bereaved individuals. Future research should clarify whether there are particular subgroups of disappeared persons, which are characterized by intense distress. In contrast, there may also be subgroups characterized by adaptive response patterns. This research question could be accompanied by in-depth qualitative interviews of missing persons in order to identify coping strategies involved in adaptive responses to the disappearance of a loved one. On the other hand, maladaptive coping strategies and risk factors could be identified among subgroups characterized by intense distress. Furthermore, future research should focus on long-term response patterns following disappearance using longitudinal study designs.

Second, our findings show that the extent to which individuals hoped that their loved one was still alive was associated with PGD symptom severity. It would be desirable for future research to develop a valid and reliable instrument to assess hope among relatives of disappeared persons. Moreover, it would be important to gain a thorough understanding of the construct of hope, thereby examining its relationship with rumination about the whereabouts of the missing person, as well as with avoidance of potentially painful emotions. Third, the findings of the aforementioned directions for future research should be used for the development of a treatment approach tailored to the needs of relatives of missing persons.

After violent conflicts, many resources are directed into the clarification of the fate of the disappeared persons with the help of truth commissions and exhumations (Stover, Haglund, & Samuels, 2003; Stover & Shigekane, 2002). Apart from the fact that these measures show only limited success, it is not yet clarified whether the return of human remains after successful identification leads to an improvement in the mental health of those affected. This should be addressed in future research.

10.6 Conclusion

Prolonged grief disorder is an important psychological disorder that can emerge in response to the loss of a significant other and is associated with detrimental effects on a psychological, social and physical level. PGD seems to be particularly common among

persons exposed to violent loss. This dissertation contributes significantly to the knowledge on risk factors and clinical manifestations of prolonged grief disorder among individuals bereaved by violent loss. It comprises the first systematic review and meta-analysis to synthesize and summarize risk factors for PGD. This is relevant in the light of the inclusion of PGD in the forthcoming ICD-11 as it will be important for clinicians to identify bereaved adults at risk for PGD, particularly in the subgroups of survivors of violent loss. PGD is an important facet after exposure to trauma and loss in the context of warfare. It became evident that even in a highly traumatized and bereaved population, psychological responses are distinguishable in terms of symptom severity and type of emotional response. The identified clinical manifestations were predicted by different loss- and trauma-related variables, indicating differential pathways to psychopathology.

The dissertation furthermore added to the under-researched field of psychological distress among relatives of disappeared persons. The findings did not unequivocally support the assumption that the disappearance of a loved one is inevitably associated with more mental health distress than the loss of a loved one to confirmed death. The findings do, however, support the idea that hope in the disappeared person returning plays a role in the development of adverse mental health outcomes.

The findings offer important directions for future research. They furthermore implicate several directions for the development of interventions to prevent or reduce mental health distress among persons exposed to the violent loss of a significant other.

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12 Appendix

12.1 List of publications in this dissertation

Heeke, C., Kampisiou, C., Niemeyer, H., Knaevelsrud, C. (submitted). A systematic review and meta-analysis of risk factors for prolonged grief disorder in adults exposed to violent loss.

Heeke, C., Stammel, N., Heinrich, M., & Knaevelsrud, C. (2017). Conflict-related trauma and bereavement: exploring differential symptom profiles of prolonged grief and posttraumatic stress disorder. *BMC Psychiatry, 17*(1), 118. doi:10.1186/s12888-017-1286-2

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Heeke, C., Stammel, N., & Knaevelsrud, C. (2015). When hope and grief intersect: Rates and risks of prolonged grief disorder among bereaved individuals and relatives of disappeared persons in Colombia. *Journal of Affective Disorders, 173*(0), 59-64. doi:10.1016/j.jad.2014.10.038

12.2 Zusammenfassung

Der Verlust einer nahestehenden Person durch gewaltsame Umstände (d. h. durch Tötung, Selbstmord, Unfall) ist mit einer hohen Ausprägung der anhaltenden Trauerstörung (ATS) assoziiert. Die anhaltende Trauerstörung ist eine psychische Erkrankung, die als maladaptive Reaktion auf den Verlust einer nahestehenden Person definiert ist. Sie ist geprägt von anhaltender Sehnsucht, Gefühlen der Leere, sowie Schwierigkeiten, den Verlust zu akzeptieren über. Diese Symptome müssen über die Dauer von mindestens 6 Monaten vorliegen. Bisher liegt noch keine metaanalytische Evidenz zu Risikofaktoren für die ATS nach einem gewaltsamen Verlust vor. In von kriegerischen Konflikten betroffenen Regionen sind gewaltsame Verluste besonders häufig. Verluste im Rahmen von Kriegen sind dabei oft mit traumatischen Erlebnissen verbunden und es wird von einer hohen Komorbidität zwischen ATS und posttraumatischer Belastungsstörung (PTBS) ausgegangen. Bislang ist jedoch nur wenig über klinische Manifestationen der beiden Störungsbilder in diesen Populationen bekannt. Eine weitere Form des gewaltsamen Verlusts im Kontext von kriegerischen Konflikten ist der Verlust einer nahestehenden Person durch deren Verschwinden, bei dem die Angehörigen über das Schicksal der vermissten Person im Unklaren bleiben. Trotz der großen Zahl von Menschen, die weltweit vom Verschwinden einer nahestehenden Person betroffen sind, sind die wissenschaftlichen Erkenntnisse über die psychologischen Folgen von Angehörigen vermisster Personen begrenzt.

Die vorliegende Dissertation greift die oben genannten Forschungslücken auf. Die erste Studie gibt eine systematische Übersicht und meta-analytische Evidenz zu Risikofaktoren für die anhaltende Trauerstörung (ATS) bei Personen, die einem gewaltsamen Verlust ausgesetzt waren. Über 36 Studien (N = 5911) hinweg wurden 29 potenzielle Risikofaktoren identifiziert. Große Effektstärken wurden für psychische Störungen, Suizidalität und Grübeln gefunden. Mittlere Effektgrößen erwiesen sich für traumatische Ereignisse und Faktoren im Zusammenhang mit der Beziehung zu den Verstorbenen. Kleine Effektstärken ergaben sich für soziodemografische Merkmale, multiplen Verlust, körperliche Symptome und religiöse Überzeugungen. Zehn Variablen zeigten keinen signifikanten Zusammenhang mit der ATS. Heterogenität zeigte sich für einige Risikofaktoren, die durch Subgruppenanalysen jedoch nicht erklärt werden konnte.

Die Meta-Analyse identifizierte unter anderem einen hohen Zusammenhang zwischen ATS und PTBS nach einem gewaltsamen Verlust. Die zweite Studie befasste sich folglich mit der Frage, welche klinischen Manifestationen der ATS und PTBS nach

kriegerischen Konflikten identifiziert werden können. Die Ergebnisse zeigten, dass klinische Manifestationen von ATS und PTBS bei Überlebenden eines bewaffneten Konflikts durch vier Klassen von Symptomprofilen charakterisiert werden können: eine resiliente Klasse, eine PTBS - Klasse, eine überwiegend ATS – Klasse, sowie eine Klasse mit ausgeprägter Belastung, die sich durch übergreifend hohe Ausprägungen der ATS und PTBS auszeichnet. Im Vergleich zur resilienten Klasse waren die Personen in der Klasse mit hoher Belastung überwiegend weiblich, hatten einen nahen Verwandten verloren, waren einer größeren Anzahl traumatischer Ereignisse ausgesetzt und nahmen weniger soziale Unterstützung wahr. Verglichen mit der PTBS-Klasse war die ATS-Klasse durch weniger Zeit seit dem Verlust und eine höhere Wahrscheinlichkeit, einen nahen Verwandten verloren zu haben, gekennzeichnet.

Der dritte und vierte Artikel befassten sich mit den psychologischen und psychosozialen Folgen des Verschwindens einer nahestehenden Person. Der dritte Artikel gibt einen Überblick über den aktuellen Stand der Forschung. Der vierte Artikel umfasst eine vergleichende Analyse von Angehörigen verschwundener Personen und Angehörigen verstorbener Personen. Der Überblicksartikel zeigte, dass Depression, PTBS und ATS bei Angehörigen von Verschwundenen häufig auftretende Erkrankungen sind. Während in drei Studien festgestellt wurde, dass Angehörige von Verschwundenen eine ausgeprägtere Psychopathologie aufwiesen als Angehörige verstorbener Personen, zeigte der vierte Artikel keine signifikanten Unterschiede zwischen den beiden Gruppen in der Schwere der ATS, der Depression oder der PTBS-Symptomatik. Die Ergebnisse des vierten Artikels zeigten darüber hinaus, dass das Ausmaß, in dem Angehörige von Verschwundenen hoffen, dass die verschwundene Person noch am Leben ist, signifikant mit der Schwere der ATS-Symptomatik in Verbindung steht.

Zusammenfassend lässt sich sagen, dass die anhaltende Trauerstörung als wichtige psychische Störung in Reaktion auf einen gewaltsamen Verlust anzuerkennen ist. Die vorliegende Dissertation trägt wesentlich zum Wissen über Risikofaktoren und klinische Manifestationen der ATS bei Personen mit gewaltsamem Verlusterleben bei. Dies ist im Hinblick auf den Einzug der ATS in das Internationale Klassifikationssystem der Krankheiten (ICD-11) als eigenständiges Störungsbild besonders wichtig: Für Kliniker·innen ist es zentral, Hinterbliebene mit einem Risiko für ATS identifizieren zu können. Diese Dissertation leistet zudem einen Beitrag zur Forschungslage über psychische Folgeerkrankungen und deren Risikofaktoren im bislang noch wenig erforschten Feld der Belastungen von Angehörigen von Verschwundenen.

12.3 Other tables

Table 13. Criteria for Persistent Complex Bereavement-Related Disorder (DSM-5)

A. Death of a close other
B. Since the death, at least one of four symptoms experienced on more days than not and that have persisted for at least 12 months after the death: 1. Persistent yearning/longing for the deceased 2. Intense sorrow and emotional pain in response to the death 3. Preoccupation with the deceased 4. Preoccupation with the circumstances of the death
C. Since the death, at least six of the following 12 symptoms experienced more days than not and that have persisted for at least 12 months after the death: 1. Marked difficulty accepting the death 2. Disbelief or emotional numbness over the loss 3. Difficulty with positive reminiscing about the deceased 4. Bitterness or anger related to the loss 5. Maladaptive appraisals about oneself in relation to the deceased or the death (e.g., self-blame) 6. Excessive avoidance of reminders of the loss 7. A desire to die to be with the deceased 8. Difficulty trusting other people since the death 9. Feeling alone or detached from other people since the death 10. Feeling that life is meaningless or empty without the deceased or the belief that one cannot function without the deceased 11. Confusion about one's role in life or a diminished sense of one's identity 12. Difficulty or reluctance to pursue interests or to plan for the future (e.g., friendships, activities) since the loss
D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
E. The bereavement reaction must be out of proportion or inconsistent with cultural or religious norms

Table 14. Prolonged grief disorder criteria proposed for ICD-11 (WHO, 2018)

A disturbance in which, following the death of a partner, parent, child, or other person close to the bereaved, there is persistent and pervasive grief response characterized by longing for the deceased or persistent preoccupation with the deceased accompanied by intense emotional pain (e.g. sadness, guilt, anger, denial, blame, difficulty accepting the death, feeling one has lost a part of one's self, an inability to experience positive mood, emotional numbness, difficulty in engaging with social or other activities)
The grief response has persisted for an atypically long period of time following the loss (e.g., more than 6 months at minimum), and clearly exceeds expected social, cultural or religious norms for the individual's culture and context.
The disturbance causes significant impairment in personal, family, social, educational, occupational or other important areas of functioning.

Table 15. Sensitivity analyses of risk factors excluding Field et al. (2014)

	k	N	r	95% confidence interval of r		p-value	r_{pb} CI 95%	Q	p-value (Q)	I^2
				Lower limit	Upper limit					
Health-related characteristics										
Depression	14	2980	.59	.55	.66	<.001		82.74	<.001	84.29
PTSD	13	3100	.57	.48	.65	<.001		100.53	<.001	89.06
Anxiety	7	2298	.52	.43	.60	<.001		28.92	<.001	79.25

Note. k=number of studies; N=sample size per risk factor estimate; r=Pearson's r; $r_{pb=}$Pearson's r corrected for publication bias; Q=Q-statistic for heterogeneity, I^2= estimate of ratio of true heterogeneity

Table 16. Individual item-based rating of the quality of included studies

Author (year)	Study objectives and hypotheses	Eligibility criteria	Recruitment	Setting	Representative sample	Missing data	Power calculation	Demographic and clinical characteristics	Study limitations	Quality (sum)	Quality rating
Anderson, A. J. (2010)	reported	reported	reported	unclear	unclear	reported	reported	reported	reported	16,00	high
Aronson, K. R., S. J. Kyler, N. R. Morgan, D. F. Perkins and L. Love (2017)	unclear	reported	reported	unclear	unclear	not reported	not reported	reported	reported	11,00	medium
Burke, L., R. Neimeyer and M. McDevitt-Murphy (2010)	reported	reported	reported	unclear	not reported	not reported	not reported	reported	reported	11,00	medium
Capitano, C. (2013)	reported	reported	reported	unclear	not reported	not reported	reported	reported	reported	13,00	high
Craig, C. D., M.-A. Sossou, M. Schnak and H. Essex (2008)	reported	not reported	unclear	reported	not reported	reported	reported	not reported	reported	11,00	medium
Currier, J. M., J. E. F. Irish, R. A. Neimeyer and J. D. Foster (2015)	reported	reported	unclear	not reported	not reported	not reported	not reported	reported	reported	9,00	low

Dyregrov, K., A. Dyregrov and P. Kristensen (2015)	unclear	reported	reported	unclear	unclear	not reported	not reported	reported	reported	11,00	medium
Dyregrov, K., D. Nordanger and A. Dyregrov (2003)*	unclear	not reported	reported	reported	reported	not reported	not reported	reported	reported	11,00	medium
Feigelman, W., J. Jordan and B. Gorman (2008)	reported	unclear	reported	not reported	not reported	not reported	not reported	reported	reported	9,00	low
Field, N. P., Strasser, J., Taing, S., Horiuchi, S., Chhim, S. and Packman, W. (2014)	reported	reported	unclear	unclear	reported	not reported	not reported	reported	reported	12,00	medium
Harris, R. E. (2016)	reported	unclear	reported	reported	not reported	reported	reported	reported	reported	15,00	high
Heeke, C., N. Stammel and C. Knaevelsrud (2015)	reported	unclear	reported	reported	not reported	not reported	not reported	reported	reported	11,00	medium
Hu, X. L., Li, X. L., Dou, X. M., & Li, R. (2015)	reported	reported	reported	reported	not reported	not reported	not reported	reported	reported	12,00	medium
Huh, H. J., S. Huh, S. H. Lee and J. H. Chae (2017)	unclear	not reported	reported	unclear	unclear	reported	not reported	reported	reported	11,00	medium

Kristensen, P., Lars, W., & Heir, T. (2010)	unclear	reported	reported	reported	reported	not reported	not reported	reported	reported	13,00	high
Kristensen, P., Tonnessen, A., Weisaeth, L., & Heir, T. (2012)	unclear	reported	reported	reported	reported	not reported	not reported	reported	reported	13,00	high
McDevitt-Murphy, M. E., Neimeyer, R. A., Burke, L. A., Williams, J. L., & Lawson, K. (2012)	unclear	unclear	reported	not reported	not reported	reported	not reported	reported	reported	10,00	medium
Mitchell, A. M. and L. Terhorst (2017)	reported	reported	unclear	not reported	not reported	not reported	not reported	reported	reported	9,00	low
Mitchell, A. M., Kim, Y., Prigerson, H. G., & Mortimer-Stephens, M. (2004)	unclear	not reported	reported	not reported	not reported	not reported	not reported	reported	unclear	6,00	low
Moore, M. M. (2013)	reported	reported	reported	reported	not reported	reported	reported	reported	reported	16,00	high
Morina, N. (2011)	reported	reported	reported	reported	not reported	not reported	not reported	reported	reported	12,00	medium
Morina, N., Rudari, V., Bleichhardt, G., & Prigerson, H. G. (2010)	reported	not reported	reported	not reported	unclear	not reported	not reported	reported	reported	9,00	low

Morina, N., von Lersner, U., & Prigerson, H. G. (2011)	reported	reported	reported	reported	unclear	unclear	not reported	reported	reported	14,00	high
Mutabaruka, J., Séjourné, N., Bui, E., Birmes, P., & Chabrol, H (2012)	reported	reported	not reported	unclear	not reported	not reported	not reported	reported	reported	9,00	low
Neimeyer, R. A., & Burke, L. A. (2011) [1]	reported	not reported	reported	unclear	not reported	not reported	not reported	reported	reported	9,00	low
Neria, Y., Gross, R., Litz, B., Maguen, S., Insel, B., Seirmarco, G., . . . Marshall, R. D. (2007)	unclear	reported	reported	reported	not reported	not reported	not reported	reported	reported	11,00	medium
Rheingold, A. A., & Williams, J. L. (2015)	unclear	reported	reported	unclear	unclear	unclear	not reported	reported	reported	12,00	medium
Schaal, S., Dusingizemungu, J.-P., Jacob, N., Neuner, F., & Elbert, T. (2012)	reported	reported	reported	reported	reported	not reported	not reported	reported	reported	14,00	high
Schaal, S., Elbert, T., & Neuner, F. (2009)	reported	reported	reported	reported	not reported	not reported	not reported	reported	reported	12,00	medium

Schaal, S., Jacob, N., Dusingizemungu, J.-P., & Elbert, T. (2010)	unclear	reported	reported	reported	reported	not reported	not reported	reported	reported	13,00	high
Stammel, N., Heeke, C., Bockers, E., Chhim, S., Taing, S., Wagner, B., & Knaevelsrud, C. (2013)	reported	reported	reported	reported	not reported	reported	not reported	reported	reported	14,00	high
Tolstikova, K., Fleming, S., & Chartier, B. (2005)	reported	reported	reported	unclear	not reported	not reported	not reported	reported	not reported	9,00	low
van Denderen, M., de Keijser, J., Gerlsma, C., Huisman, M., & Boelen, P. A. (2014)	reported	reported	reported	reported	not reported	reported	not reported	reported	reported	14,00	high
Weder, N., García-Nieto, R., & Canneti-Nisim, D. (2010)	reported	unclear	reported	reported	not reported	not reported	not reported	unclear	not reported	8,00	low
Williams, J. L., Burke, L. A., McDevitt-Murphy, M. E., & Neimeyer, R. A. (2012)	reported	reported	reported	unclear	not reported	not reported	not reported	reported	reported	11,00	medium
Xu, Y., Herrman, H., Bentley, R., Tsutsumi, A., & Fisher, J. (2014)	unclear	reported	reported	reported	unclear	not reported	reported	reported	reported	14,00	high

Table 17. Identified and selected grief assessment instruments

Instruments	Authors	year	Subscales	# of Items	Focus
Bereavement Experience Questionnaire (BEQ-revised)	Guarnaccia & Hayslip	1998	3: Existential Loss/Emotional Needs, Guilt/Blame/Anger, Preoccupation with Thoughts of Deceased	24	general extent of grief
Bereavement Phenomenology Questionaire	Byrne & Raphael	1994		22	general extent of grief: focus on male grief experience
Bereavement Risk Index	Parkes	1993		8	asks for general risk factors, such as demographic information, some psychological symptoms (anger, social contacts)
Brief Grief Questionnaire	Shear et al.	2006		5	screening for complicated grief
Complicated Grief Assessment Self Report	Prigerson	2001		10	complicated grief
Complicated Grief Module	Langner & Maercker	2005		7	complicated grief
Core Bereavment Items (CBI)	Burnett	1997	images and thoughts; acute separation', 'grief'	17	General extent of bereavement induced phenomenons?
Expanded Texas Inventory of Grief	Zisook & DeVaul	1984	2	58	general extent of grief
Grief Avoidance and deliberate grief avoidance	Bonnano, Zhang	2005		13	general extent of grief

Grief Experience Inventory (GEI)	Sanders. Mauger, & Strong	1979	16	135	general extent of grief
Grief Experience Questionnaire	Barrett & Scott	1989		55	extent of suicide-induced grief
Grief Measurement Scales	Jacobs	1987	4: sadness, loneliness and crying; numbness and disbelief; perceptual set and search; distressful yearning	38	general extent of unresolved grief
Grief Reaction Index	Lennon MC, Martin JL, Dean L.	1990		12	general grief
Grief Reaction Measure	Vargas, L. A., Loya, F., & Hodde-Vargas, J.	1989	4: depressive symptoms, preservation of lost object, suicidal ideation, decedent-directed anger	20	general grief reactions to loss induced by sudden death
Grief Resolution Index	Remondet et al	1987		7	general extent of grief of husband loss
Grief Screening Scale	Putman et al.	2009		10	general extent of grief: intrusive or unpleasant thoughts, yearning, difficulties carrying on daily activities
Grief symptoms measure	Casarett	2001		14	general extent of grief
Hogan Grief Reaction Checklist	Hogan	2001		61	general extent of grief
ICD-11 Prolonged Grief Disorder Scale (PGDS)	Xiu, D., Maercker, A., Woynar, S., Geirhofer, B., Yang, Y., & Jia, X.	2016		23	prolonged grief according to ICD-11 (not validated)

Inventory of Complicated Grief	Prigerson, H. G., Frank, E., Kasl, S. V., Reynolds, C. F., Anderson, B., Zubenko, G. S., . . . Kupfer, D. J	1995		19	complicated grief
Inventory of Complicated Grief-Revised	Prigerson, H.G.	1999		34	complicated grief
Inventory of Traumatic Grief	Prigerson, H.G.	1999		19	complicated grief
PG-13	Prigerson	2009		13	prolonged grief
Present Feeling about Loss	Singh & Raphael:	1981			general extent of unresolved grief
Prolonged Grief Disorder Scale	Boelen et al.	2012		11	short version of the Inventory of Complicated Grief (not validated)
Reactions to Loss Scale	Cooley, E., Toray, T., & Roscoe, L	2010	3	65	assessment of grief in college students including non-death losses
Response to Loss Instrument	Deutsch	1982		37	general extent of grief
Structured Clinical Interview for Complicated Grief	Bui, E., Mauro, C., Robinaugh, D. J., Skritskaya, N. A., Wang, Y., Gribbin, C., . . . Shear, M. K. (2015).	2015	5	31	complicated grief

Structured Grief Symptom Interview	Bonanno, G. A., Keltner, D., Holen, A., & Horowitz, M. J.	1995		30	complicated grief: intrusive experiences, behaviors that delay or minimize the finality of the loss, difficulties adapting to the loss
Texas Inventory of Grief	Faschingbauer	1977		13	general extent of grief
Texas Revised Inventory of Grief (TRIG)	Faschingbauer	1987	(1) Past behavior, (2) present emotional feelings	21	general extent of grief
The Grief Reaction Assessment Form	Ho, S. M. Y., Chow, A. Y. M., Chan, C. L. W., & Tsui, Y. K. Y.	2002		16	A Chinese measure to indicate grief reactions. The GRAF can discriminate between the grief reaction of people experiencing anticipated and those experiencing unanticipated death
Tübingen Grief Scale	Stroebe, M. S., Abakoumkin, G., Stroebe, W., & Schut, H.	2012		13	general extent of grief
Widowhood Questionnaire	Zisook & Shuchter	1985		19	general extent of grief in widowhood

Note. Instruments in grey were included.

12.4 List of tables

12.5 List of figures

12.6 List of abbreviations

AIC	Aikaike Information Criterion
A-BIC	Adjusted Bayesian Information Criterion
APA	American Psychiatric Association
ATS	Anhaltende Trauerstörung
BIC	Bayesian Information Criterion
BLRT	Bootstrapped likelihood ratio test
DSM	Diagnostic and Statistical Manual of Mental Disorders
e.g.	exempli gratia (for example)
HIV	Human immunodeficiency virus
i.e.	id est (that is)
ICD	International Classification of Diseases
ICG/ ICG-R	Inventory of Complicated Grief (-Revised)
LCA	Latent Class Analysis
LRT	Likelihood Ratio Test
MDD	Major Depressive Episode
MEA	Mixed Effects Model
NGO	Non-Governmental Organization
OR	Odds Ratio
PCL-C	PTSD Checklist-Civilian version
PG-13	Prolonged Grief Disorder Scale
PGD	Prolonged grief disorder
PTBS	Posttraumatische Belastungsstörung
PTSD	Posttraumatic stress disorder
REM	Random Effects Model
SE	Standard Error
STARD	Standards for Reporting Diagnostic Accuracy Studies
VLMR-LRT	Vendell-Lo-Mendell-Rubin Likelihood Ratio test
WHO	World Health Organization

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12.8 Curriculum Vitae

Der Lebenslauf ist in der Online-Version aufgrund des Datenschutzes nicht enthalten

12.9 Selbstständigkeitserklärung

Ich erkläre, dass ich diese Dissertation selbstständig verfasst, keine anderen als die angegebenen Quellen benutzt und die den benutzten Quellen wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht habe.

Diese Arbeit ist in keinem früheren Promotionsverfahren angenommen oder abgelehnt worden.

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Ort, Datum

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