Feeling Alone in one's Grief: Investigating Social Cognitions in Adaption to Bereavement Using the German Version of the Oxford Grief-Social Disconnection Scale

Caroline Wanza[1], Judith Gonschor[1], Kirsten V. Smith[2], Anke Ehlers[2], Antonia Barke[3], Winfried Rief[1] and Bettina K. Doering[4]

[1]Clinical Psychology and Psychotherapy, Philipps-University Marburg, Marburg, Germany

[2]Department of Experimental Psychology, University of Oxford, Oxford, England

[3]Department of Clinical Psychological Intervention, University Duisburg-Essen, Essen, Germany

[4]Clinical Psychology and Psychotherapy, Medical School Brandenburg Theodor Fontane, Neuruppin, Germany

Author Note

Correspondence to:

Caroline Wanza, Clinical Psychology and Psychotherapy, Philipps-University Marburg, Gutenbergstraße 32, 35032 Marburg, Germany
Email: caroline.wanza@uni-marburg.de

Author contributions

JG, KS, AE and BKD conceptualized the project. JG carried out recruiting and data acquisition. CW conducted the data analysis and interpretation and drafted the article. BKD and AB contributed to data analysis and interpretation. All authors contributed to the article preparation and approved its submission.

Conflict of interest: None

Funding: KS is supported by the Medical Research Council (MR/V001841/1). AE is supported by the Wellcome Trust (200796) and the Oxford Health NIHR Biomedical Research Centre (KS and AE NIHR203316). This work was also supported by a grant from the German Research Foundation (DFG RO 2042/7-1-2). The views expressed are those of the authors and not necessarily those of the DFG, the NHS, the NIHR or the Department of Health.

Abstract

Background: Social support would be expected to influence grief processes positively. However, inconsistent empirical findings suggest the existence of moderating variables that determine whether social contact attenuates grief-related distress. The Oxford Grief-Social Disconnection Scale (OG-SD) measures the subjective experience of social disconnection, i.e. a perceived change in the social self that may diminish the rewarding features of authentic social interaction. The aim of this study was to validate the German version of the OG-SD and to investigate its association with grief severity and perceived social support.

Method: German bereaved adults responded to an online-survey, containing the translated OG-SD and measures of grief severity (ICG), grief-specific avoidance, depressive and posttraumatic stress symptoms and perceived social support (PSS). In this sample of 341 participants (34±15 years; 81% female), the average time since loss was 6.8 (±8.8) years. Item analyses and confirmatory factor analysis (CFA) were conducted. Concerning construct validity, correlations between the OG-SD and the other measures were assessed and an independent sample *t* test compared OG-SD scores of candidates for probable prolonged grief 'caseness' (PGD) and non-candidates.

Results: The OG-SD showed excellent internal consistency (α= 0.94). A CFA replicated the original factorial structure. Higher OG-SD scores were associated with higher grief severity (ICG; $r = 0.61$, $p < .01$) and less perceived social support (PSS; $r = -0.52$, $p < .01$). Persons with probable PGD scored significantly higher on the OG-SD than the remaining sample ($t[239,20] = 9.39$, $p < .001$, $d = 1.11$).

Conclusion: The German version of the OG-SD showed good psychometric properties. Our findings demonstrate a strong cross-sectional association between social disconnection, grief severity, and a perceived lack of adequate social support. Future longitudinal studies are needed

to establish the dynamic relationship between these constructs, e.g., whether social disconnection is a correlate or a risk factor for PGD.

Keywords: Social Support - Bereavement – Social Disconnection – Social Pain – Prolonged Grief Disorder

1. Introduction

While the death of a loved one is a very stressful life event, most bereaved persons recover from their loss without professional help (Kristensen et al., 2012; Stroebe et al., 2007). For a minority, however, grief does not abate and becomes what ICD-11 (World Health Organization, 2019) and DSM-5-TR (American Psychiatric Association, 2022) term prolonged grief disorder (PGD). PGD is characterized by intense yearning for the deceased or persistent preoccupation with the deceased in combination with functional impairment. These core symptoms must be present at least six months (according to ICD-11) or 12 months (according to DSM-5-TR) after the loss.

It is a widely held assumption that social support has a positive influence on bereavement outcomes. A recent micro-sociological theory of grief suggests that the experience of grief will be less distressing for bereaved persons if they are able to satisfy their social needs (Maciejewski et al., 2022). Two theoretical models explain this positive effect of social support (Scott et al., 2020): The main effects model posits that social support directly affects well-being. In contrast, the buffering effect model suggests that social support moderates the negative effect of stressful life events on well-being. Both models can be applied to explain the role of social support in grief recovery.

While social support can improve psychological outcomes following a critical life event or severe distress (e.g., Brewin et al., 2000; Cohen et al., 1986; Holt-Lunstadt et al., 2010), findings regarding its effect on bereavement outcome are inconsistent (Stroebe et al., 2005). A recent systematic review of the influence of informal social support (e.g., support offered by family and friends) on bereavement outcomes after sudden or violent deaths reported that there was conflicting evidence for the hypothesized association between higher social support and decreased PGD severity/risk (Scott et al., 2020).

While these inconsistent findings may partly be due to methodological aspects (e.g., cross-sectional designs or different operationalization of social support; Scott et al., 2020),

there are additional, more complex explanations. First, the effective provision of social support seems to depend on multiple aspects (Logan et al., 2018). Secondly, social support systems can serve as a further source of distress when the contact is experienced as unhelpful and interactions are perceived negatively by the bereaved (Cacciatore et al., 2021). Accordingly, negative interpretations of others' reactions are associated with poorer health outcomes in bereaved individuals (van der Houwen et al., 2010). Thus, whether enacted social support is perceived subjectively as helpful seems to depend on several factors, including social cognitions of the bereaved (e.g., interpretations, subjective perceptions). The loss of a significant person in ones' life can influence cognitive processes on different levels (cognitive behavioral model, Boelen et al., 2006) and result in negative cognitions, including negative evaluations of the (availability of) social support after the loss (Doering et al., 2021).

In line with these findings, Smith et al. (2020) introduced the concept of grief-related social disconnection: Social disconnection describes a state in which bereaved individuals feel alienated from people around them and do not feel they can openly express their grief. The concept was derived from interviews with bereaved adults, which explored different cognitive processes that may prevent natural recovery after the loss of a significant other (Smith, 2018). Many bereaved individuals reported experiencing changes in their impressions of, and attitudes towards, their social environment after the loss. Some reported that they had experienced negative reactions when they expressed their grief, and this had subsequently led them to conceal their grief. Many bereaved people described avoiding emotional expressions in the company of others because they anticipated negative reactions from them. These impressions increasingly led to a reduction, if not avoidance, of social contact, especially in bereaved persons with a diagnosis of PGD (Smith, 2018). There are two related well-established concepts in recovery from (traumatic) loss. The first is social acknowledgement, which describes the extent to which trauma survivors feel socially acknowledged by their social environment (Maercker & Müller, 2004). A (perceived) lack of social

acknowledgement or even social rejection can have a negative impact on emotional and cognitive adaptation processes related to the trauma and result in avoidance behaviors (Maercker & Müller, 2004; Wagner et al., 2012). In contrast, positive social acknowledgement – especially early after the potential traumatic experience – can promote psychological recovery (van der Velden et al., 2019). Accordingly, in a recent cross-cultural study social acknowledgement following loss was found to be negatively associated with symptoms of prolonged grief disorder (Zhou et al., 2022) . The second concept is disenfranchised grief, which accounts for a process in which the loss is felt as not being openly acknowledged and grief reactions being thus not socially accepted or validated (Doka, 2002). In contrast to the aforementioned concepts, social disconnection assesses social cognitions comprehensively, referring to both antecedents (e.g., beliefs precipitating avoidance) and consequences (e.g., change in social self and behavioral preferences). Social disconnection may be one reason why not all bereaved individuals experience social support as helpful and might contribute to the development and maintenance of prolonged grief symptoms.

To investigate social disconnection, the Oxford Grief-Social Disconnection Scale (OG-SD; Smith et al., 2020) was developed based on the qualitative interviews mentioned above. The content of the items reflects the antecedents of social disconnection, such as negative beliefs about others that may lead to avoidance of social settings or emotional expressions, and the consequences of social disconnection, namely the perceived change in the social self and the preference for dealing with one's grief alone. These content areas form the three subscales of the questionnaire. Up to this point, the OG-SD has been used in two studies of the original authors (Smith & Ehlers, 2021; Smith et al., 2020): It was validated initially in a sample of bereaved adults, recruited in the first months after the loss of a significant other and showed promising psychometric properties. A three-factor model and a higher-order solution (with one higher-order factor and three intercorrelated first-order factors) showed the same

goodness of fit. Thus, the total score of the three subscales can be interpreted as the extent of perceived social disconnection. The subscales were interpreted as *Negative Interpretation of Others' Reactions to Grief Expression, Altered Social Self, and Safety in Solitude*. Reliability measures indicated that the total score provides reliable and relatively stable assessment of social disconnection (Cronbach's $\alpha = 0.94$; 7-day Retest-Reliability: $r_{tt} = 0.80$). Similar results were obtained for the subscales. In line with construct validity, the OG-SD was positively associated with measures of PGD, posttraumatic stress (PTSD) and depressive symptoms. Correlations with avoidant coping strategies were also moderate to strong. Perceived social disconnection at baseline predicted psychological distress in the first six months after the loss (Smith et al., 2020). In a separate sample of 647 individuals bereaved at least 6 months, Smith and Ehlers (2021) investigated cognitive and behavioral correlates of PGD and PTSD and found that social disconnection predicted a probable diagnosis of PGD and/or PTSD. They further demonstrated that individuals reporting both prolonged grief and posttraumatic stress symptoms following a loss reported higher social disconnection than individuals allocated to only one of the symptom areas (PGD or PTSD; Smith & Ehlers, 2021). These results demonstrate the negative impact of grief-related social disconnection on various psychopathological outcomes and its clear association with prolonged grief disorder.

These findings suggest that the OG-SD is a reliable and valid instrument to assess perceived social disconnection after bereavement. A particular strength of this scale is the comprehensive assessment of both antecedents (e.g., beliefs precipitating avoidance) and consequences (e.g., change in social self and behavioral preferences) of social disconnection after bereavement, which has, to the best of our knowledge, not been assessed before by any other scale. It may contribute to explaining some of the inconsistent empirical findings on whether or not social support is beneficial. Additionally, it may help identify bereaved persons who may be at an elevated risk of developing PGD; difficulties in reintegrating into social relationships and in trusting others may be etiological and maintaining factors of PGD

(Prigerson et al., 2009). The English original scale has not yet been translated or validated in other languages. To facilitate international research on social disconnection and to broaden our understanding of this important social facet of bereavement, validated translations of the OG-SD are needed. This will also allow the investigation of culture-specific differences and influences regarding social disconnection after bereavement in future research.

The first aim of this study was to establish and validate a German version of the OG-SD. In this validation process, we aimed to expand previous findings on the association of social disconnection and prolonged grief symptoms by adding measures of social support. We hypothesized that individuals who experience social disconnection also perceive their environment as less socially supportive and predicted that the OG-SD would be negatively associated with perceived social support. We also expected the OG-SD to be positively associated with grief-specific avoidance. In terms of construct validity, we predicted that the OG-SD would be positively associated with grief severity, posttraumatic stress, and depressive symptoms. We expected these associations as a replication of the results from the original scale (Smith et al., 2020). We further hypothesized that the OG-SD would be strongly related to probable caseness of PGD (i.e., persons having a higher risk of developing PGD). Exploratorily, we investigated the association of OG-SD and the reported contact frequency of the bereaved with family, friends, and acquaintances.

2. Method

2.1 Ethical aspects

The ethics committee at the Department of Psychology, Philipps-University Marburg, approved this study (reference: 2020-48k). The study adheres to the Declaration of Helsinki (World Medical Association, 2013). Participants received information about the study aims and procedure before providing informed consent.

2.2 Procedure

Recruitment lasted from November 2020 to December 2021 and took place online on grief-related websites (e.g., peer support groups, Facebook) and via mailing lists of the university. Having obtained the permission of the respective responsible party (e.g., university, group moderator), the first author distributed a standardized advertisement among these sources roughly once a month during the time of recruitment. The online survey was hosted on the SoSci Survey platform and accessed directly via a web-link. As compensation for completing the survey, respondents could participate in a voucher prize draw or receive university credit points. Participants were also invited to complete a second survey one week later (containing only the OG-SD). If they agreed, they were asked to provide an email address where they could receive the second study link. Mean time for completing the first survey (including OG-SD and all symptom measures) was M = 18.4 min (SD = 6.9 min). Mean time for completing the retest survey (only OG-SD, no symptom measures) was M = 4 min (SD = 2.2 min).

2.3 Measures

2.3.1 Demographic and loss-related variables

Participants provided basic demographic information (age, gender, educational level) and answered loss-related questions. They indicated how many losses they had experienced, and which loss had been most distressing to them. For this most distressing loss, they stated the date, the cause of death (natural vs. unnatural [accident, suicide, homicide, other]), and their relationship to the deceased (spouse, child, parent, grandparent, sibling, or other). Furthermore, participants indicated whether they had perceived the loss as expected or unexpected.

2.3.2 Oxford Grief-Social Disconnection Scale (OG-SD)

The OG-SD (Smith et al., 2020) was translated into German in a translation-back-translation process following the guidelines by the International Test Commission (2017). Two psychologists (BD and JG) independently translated the OG-SD into German, compared the versions for differences and merged them by consensus into one German questionnaire. This final version was then back-translated by another psychologist (AB). The back-translated version was discussed with the original authors (AE & KS) for equivalence who are native German and English speakers respectively. If translations differed from the original scale, they were reviewed again and if necessary, the German item was adapted to ensure semantic and content equivalence. According to the senior author's expertise as a researcher in the field of grief and bereavement, the items of the original OG-SD fit the cultural background of the general German population and no culture-specific aspects of the German culture of grief and morning were missing. Therefore, there was no need for an adaption of items. The German OG-SD is available upon request from the corresponding author. The OG-SD consists of 15 items concerning bereaved persons' perceptions, thoughts, and feelings in social interactions. Three subscales measure the degree to which the individual interprets others' reactions to their grief expression negatively (Subscale 1; e.g., "Others would judge me if I were to speak openly about my grief."), the perceived change in the social self (Subscale 2; e.g., "I don't fit in socially the way I used to."), and the preference of dealing with grief alone due to the expected difficulties in social contact (Subscale 3; e.g., "I can only let my true feelings show when I am on my own."). Participants indicate to what extent they agree with each statement on a scale from 1 (*totally disagree*) to 7 (*totally agree*). A sum score is calculated with higher scores indicating more perceived social disconnection.

2.3.3 Inventory of Complicated Grief (ICG-D)

The German version of the Inventory of Complicated Grief (ICG-D, Lumbeck et al., 2012) was used to measure grief severity. The questionnaire consists of 19 items that assess

grief-related emotions, thoughts, and behaviors (e.g., “Memories of the person who died upset me.”). Statements are rated on a 5-point scale ranging from 0 (*never*) to 4 (*always*) and are summed to form an overall grief severity score. The ICG-D showed excellent internal consistency (Cronbach’s $\alpha = 0.94$) and good validity (Lumbeck et al., 2012). In our study, Cronbach’s α was 0.92. The authors of the original scale established a cut-off (>25) indicating a more impairing state of grief (Prigerson et al., 1995). In combination with a time criterion, this cut-off can be used to identify probable prolonged grief caseness (Doering et al., 2021; Kristensen et al., 2010).

2.3.4 Depressive and Anxious Avoidance in Prolonged Grief Questionnaire (DAAPGQ)

The DAAPGQ (Boelen & van den Bout, 2010) was used in its German version (Treml et al., 2021). It consists of nine items with five items measuring depressive avoidance (DA, e.g., “Since […] is dead, I do much less of the things that I used to enjoy.”) and four items measuring anxious avoidance (AA, e.g., “I avoid situations and places that confront me with the fact that […] is dead and will never return.”) in prolonged grief. Statements are rated on an 8-point scale ranging from 1 (“*not at all true for me*”) to 8 (“*completely true for me*”). Sum scores of each subscale are calculated separately. Higher scores indicate higher levels of DA or AA respectively. With a Cronbach’s α of 0.90 for DA and 0.77 for AA, the original scale showed acceptable to excellent internal consistency (Boelen & van den Bout, 2010) and good construct and concurrent validity (Boelen & van den Bout, 2010; Eisma et al., 2013). In our study, Cronbach’s Alphas were for DA $\alpha = 0.94$ and for AA $\alpha = 0.85$.

2.3.5 Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)

To assess posttraumatic stress regarding the loss, the German version of the Posttraumatic Stress Disorder Checklist for DSM–5 (PCL-5; Krüger-Gottschalk et al., 2017) was used. It consists of 20 items that correspond to the DSM-5 diagnostic criteria for PTSD. Participants report the severity of symptoms within the past month on a 5-point-scale ranging

from 0 (*not at all*) to 4 (*extremely*). Accordingly, a higher sum score indicates higher symptom severity. The original scale shows excellent reliability (Cronbach's α = 0.90 - 0.96) and validity (Blevins et al., 2015; Wortmann et al., 2016). In our study, Cronbach's Alpha was α = 0.94.

2.3.6 Patient Health Questionnaire (PHQ-9)

The Patient Health Questionnaire (PHQ-9) was used in its German version (Kroenke et al., 2001). It consists of nine items corresponding to the diagnostic criteria for major depressive disorder (MDE) as stated in the Diagnostic and Statistical Manual of Mental Disorders (DSM–IV, First & Gibbon, 2004). Each item is rated on a 4-point scale from 0 (*not at all*) to 3 (*nearly every day*) indicating the occurrence of the respective symptom within the last two weeks. Higher scores indicate a greater symptom severity, with a cut-off >10 indicating a moderate MDE. Good reliability (Cronbach's α = 0.89) and excellent validity are reported by Kroenke et al. (2001). Cronbach's α in our sample was α = 0.91.

2.3.7 Perceived Social Support (PSS)

The Perceived Social Support questionnaire (Lin et al., 2019), was used in its German short version (PSS/K-14, Fydrich et al., 2009). Its 14 items explore the participant's general perception of social support in everyday life (e.g., "There are people who take me as I am without restriction."). Items are rated on a 5-point scale from 1 (*does not apply at all*) to 5 (*completely applies*). A sum score is calculated with higher values indicating higher perceived social support. The short version of the PSS (K-14) showed excellent internal consistency (Cronbach's α = 0.94) and excellent item characteristics (Fydrich et al., 2009). In our study, Cronbach's α was α = 0.94.

2.3.8 Frequency of social contact

To investigate the extent of social contact before and after the loss, participants reported how frequently they typically met with family, friends, and acquaintances before the

loss (i.e., retrospectively, e.g., “How often did you typically meet with your family members before the loss?”). In addition, we asked them how frequently they would like these encounters to take place now, after the loss (independent of the current COVID-19-restrictions, e.g., “If you could decide, regardless of Corona restrictions, how often would you currently want to meet with your family members?”). This question was used to reduce the possible distortion caused by alternating contact restrictions due to the COVID-19 pandemic. For each contact group, the retrospective and desired frequency of meetings was indicated on a visual analogue scale with the opposing poles of least frequent contact 0 (*never*) to most frequent possible contact 100 (*everyday*).

2.4 Participants

Inclusion criteria for participation were age ≥18 and having experienced the death of a significant other. In line with ethical guidelines on conducting research with bereaved populations (Smith et al, 2018) a self-estimated exclusion criterion was feeling too distressed by grief to answer loss-related questions: Participants judged for themselves whether answering loss-related questions would be too distressing for them and were asked to refrain from participation if that was the case. A total of 475 participants accessed the online survey, 454 gave informed consent. Answering less than 85% of the survey was considered insufficient, leading to the exclusion of 104 participants. Of the remaining 350 participants, nine had to be excluded due to implausible answering (e.g., year of death = “2050”). The final sample consisted of 341 participants. Of these, 82 participants showed missing values on the questions concerning the frequency of social contact. They remained in the general sample but were excluded when analyses involved social contact. **Table 1** presents the sample characteristics. The majority of the sample was female (80.8%) and on average 34 years old (SD = 15; range 18-80). Concerning loss-related characteristics, most participants had lost a grandparent (33.1%) or a parent (23.6%). On average, the loss dated back 6.8 years (SD = 8.8;

range 0.16-51.0). The majority of the deaths (73.4%) were due to a natural cause. There were no significant associations between demographic or loss-related sample characteristics and the OG-SD or other symptom measures.

After the first online survey, 72 participants completed the OG-SD again one week later. The retest sample did not differ significantly from the sample who only participated in the initial survey in terms of age, gender, loss-related characteristics, or symptom measures. **Table 1** presents the characteristics of the re-test sample.

[Insert Table 1 here]

2.5 Statistical Analyses

Statistical analyses were conducted using IBM SPSS 21. Only one missing value was found on the OG-SD scale (item 6). Two single missing values were found in all other questionnaires and were replaced by the mean score of items of the respective scale. To investigate the psychometric properties of the German version of the OG-SD, the following item characteristics were calculated: item means and standard deviations, item difficulty, item-total correlations, and the estimated Cronbach's α if the item was excluded. Reliability analyses were conducted and standardized Cronbach's α was used as an estimation of the OG-SD's internal consistency for the total scale and the three subscales. Retest reliability was investigated by inspecting Pearson correlations between the first and the second measurement. Independent *t*-tests (two-tailed) compared the retest-sample and the sample participating only in the initial survey regarding baseline differences in demographic data, loss-related data, and symptom measures.

The factorial structure of the OG-SD was investigated by confirmatory factor analyses (CFA) using SPSS AMOS version 28.0.0 (Wexford PA, USA). Smith et al. (2020) found a three-factor solution (model 1) to form the best fit to the data. An equally good fit was reported for the higher-order model with one higher-order factor and three intercorrelated

latent factors (model 2). Because of the practical benefit of having a total score and subscale-scores, we investigated model 2 in our analysis. To explore goodness of fit, we inspected the following indices: χ^2-test, comparative fit index (CFI), root mean square error of approximation (RMSEA), standardized root mean squared residual (SRMR), and Tucker-Lewis -Index (TLI). Cut-off values indicating a good fit are as follows: χ^2/df ratio of $\leq$2 or 3, CFI $\geq$ 0.95, RMSEA < 0.06 to 0.08, SRMR < 0.08, and TLI $\geq$ 0.95 (can be 0>TLI>1 for acceptance, Schreiber et al., 2006).

Zero-order correlations of the OG-SD with measures of grief severity, depressive, posttraumatic stress symptoms, grief-specific avoidance and perceived social support were calculated to inspect convergent validity. All significance levels were Bonferroni-corrected to avoid possible alpha error inflation due to multiple testing. To investigate discriminant construct validity of the OG-SD, we compared the OG-SD scores of potential candidates for PGD caseness with those of non-candidates using independent sample *t* test. The subsample with time since loss over six months (time criterion for PGD in ICD-11; World Health Organization, 2019) was dichotomized based on the ICG cut-off (>25; Prigerson et al., 1995). To explore potential changes in the frequency of social contact, a 2x2x3 mixed ANOVA was calculated with the within-subject factors *time* (before vs. after the loss) and *type of contact* (family vs. friends vs. acquaintances), and the between-subject factor *OG-SD level* (high vs. low). Since there is no cut-off distinguishing between levels of OG-SD, we compared the group with the highest reported OG-SD levels (upper quartile) to the group reporting the lowest OG-SD levels (bottom quartile). When the Levene Test suggested unequal distribution of variance, the Welch Test is reported. Effect sizes are reported using Cohen's *d* and partial η^2 as appropriate.

3. Results

3.1 Item Analysis

Table 2 presents the individual item characteristics. Mean item difficulty was p_i = 0.32, with a range from p_i = 0.19 (item 2) to p_i = 0.44 (item 15). The mean item-total correlation was r = 0.74, ranging from r_{itc} = 0.57 (item 2) to r_{itc} = 0.78 (items 6, 12).

[Insert Table 2 here]

3.2 Reliability

The internal consistency for the OG-SD was Cronbach's α = 0.94 (**Table 2**). The internal consistency would not have improved by the deletion of any item (standardized alpha if an item was removed was α = 0.94 for all items). Cronbach's Alpha for the three subscales were: *Negative Interpretation of Others' Reactions to Grief Expression* α = 0.80; *Altered Social Self* α = 0.93; *Safe in Solitude* α = 0.90. None of the subscales would have improved by the exclusion of any item.

The 7-day retest reliability for the total scale was r_{tt} = 0.84 ($p < 0.001$). Similar results were found for the subscales: *Negative Interpretation of Others' Reactions to Grief Expression* (r_{tt} = 0.75, p <0.001); *Altered Social Self* (r_{tt} = 0.80, $p < 0.001$); and *Safe in Solitude* (r_{tt} = 0.73, $p < 0.001$).

3.3 Confirmatory Factor Analysis

The CFA tested the higher-order model with one higher-order factor and three intercorrelated latent factors. **Figure 1** illustrates the path diagram. All regression weights were significant ($p < 0.001$). The fit statistics indicated an acceptable to good fit for the model: $\chi^2(87) = 262.202$ and $\chi^2/df = 3.01$ indicated acceptable fit; fit indices RMSEA = 0.077, SRMR = 0.04 and CFI = 0.95 indicated a good fit to the data.

[Insert Figure 1 here]

3.4 Indicators of Validity

Table 3 presents the zero-order-correlations between OG-SD, grief severity (ICG), posttraumatic stress symptoms (PCL), depressive symptoms (PHQ), grief-specific depressive and anxious avoidance (DAAPGQ) and perceived social support (PSS). Confirming convergent validity, the OG-SD total score and its subscales showed moderate to strong positive correlations with measures of grief severity, depressive and posttraumatic stress symptoms and grief-specific avoidance and a negative correlation with perceived social support.

[Insert Table 3 here]

With regard to discriminant construct validity, participants who potentially fulfill a PGD diagnosis (n=127) scored higher on the OG-SD than the remaining sample (n=165): $t[239,20]=9.39$, $p<.001$, $d=1.11$. A mixed ANOVA investigated the changes in the reported frequency of social contact. It showed a significant interaction effect between levels of OG-SD and time (before vs. after the loss): $F(1, 129) = 11.75$, $p < .001$, partial $\eta^2 = .08$ (**Figure 2, (A)**). Participants with the highest levels of OG-SD (n=66) reported a significant reduction in the reported frequency of social contact, whereas participants with the lowest OG-SD levels (n=65) reported an increase in the frequency of social contact in comparison from before to after the loss. The three-way interaction with *type of contact* was not significant: $F(2, 128) = 1.83$, $p = .165$, partial $\eta^2 = .03$ (**Figure 2, (B-D)**).

[Insert Figure 2 here]

4. Discussion

The present study validated the German version of the Oxford Grief-Social Disconnection Scale in a sample of bereaved adults. The OG-SD and its subscales showed very good item properties, internal consistency, and retest-reliability. The German OG-SD demonstrated an identical factorial structure to the original scale. The results support all hypotheses concerning the scale's construct validity. Importantly, the present study showed a strong association between level of social disconnection and probable caseness of PGD, as hypothesized. Social disconnection was also associated with a subjective reduction of social contact after the loss.

The internal consistency was excellent for the total scale and all subscales and virtually identical to the English version (Smith et al., 2020). In our sample, the OG-SD showed a good 7-day-retest reliability across the total and subscales, indicating a temporally stable assessment of perceived social disconnection.

The German OG-SD replicated the factor structure of the original scale. The three-factor solution (*Negative Interpretation of Others' Reactions to Grief Expression, Altered Social Self,* and *Safe in Solitude*) with one higher-order factor (OG-SD) showed a good fit to the data. The OG-SD showed good construct validity. As expected and similar to the findings in the validation of the English version, strong associations were found between social disconnection and symptom measures of PGD, PTSD, and depression, which support the validity of the OG-SD.

Participants with probable PGD (ICG > 25, time since loss ≥ 6 months) showed significantly higher levels on the OG-SD than the other participants. Bereaved persons who experienced higher social disconnection may be at a greater risk for PGD. This provides support for the recent micro-sociological theory of grief which posits that the more effectively bereaved persons are able to satisfy their social needs (i.e., enhancing social connectedness), the less distressing and disabling they will experience their grief (Maciejewski et al., 2022).

Our findings suggest a possible way in which such failure can occur: social needs may remain unmet because some people prefer to keep to themselves following their bereavement, especially when expressing grief-related emotions. Self-disclosure after a loss can be a protective factor against PGD symptoms in suicide survivors (Levi-Belz & Lev-Ari, 2019), a group that might be at special risk for public stigma (Evans & Abrahamson, 2020) and therefore also more likely to feel socially disconnected. The grievers' perception of their grief not being socially acknowledged or even disenfranchised may account for this behavioral tendency to conceal their grief in the company of others. Accordingly, avoidance behaviors and suppression of emotional reactions to the loss when in the company of others may prevent successful adaption and pave the way for prolonged grief. While the present data are cross-sectional and therefore allow no causal interpretation, this possible pathway certainly warrants future research.

Furthermore, supporting convergent validity, the German version of the OG-SD demonstrated moderate correlations with grief-related avoidance and a high negative correlation with perceived social support. Bereaved persons who felt more socially disconnected avoided activities that could foster adjustment (depressive avoidance) and stimuli that are associated with the loss (anxious avoidance). Importantly, when feeling socially disconnected, bereaved individuals also reported receiving less social support. While this finding follows closely from the theoretical conception of social disconnection, our study is the first to provide quantitative empirical evidence for this implication. Feeling socially disconnected after bereavement can result from negative beliefs concerning the reactions of others. This might also be related to a perceived lack of social acknowledgement or disenfranchising of the loss by others. Theorizing about certain principles, i.e. "grieving norms", that attempt to specify who should grieve when, how, for how long and for whom, Doka (1989) introduced the provision of social support as a function of these principles. Whether or not social support is offered depends on the appraisal of the loss or grieving

process as (il-)legitimate. For disenfranchised loss/grief, support is offered more infrequently (Doka, 1989). One's own appraisal concerning existing "grieving norms" and beliefs that the social network is disenfranchising the grief or loss might further both avoidance tendencies and the perception of a lack of adequate support in bereaved individuals. In addition, bereaved individuals who feel socially disconnected may experience social encounters as stressful situations, thus reducing their feeling of belongingness. Attempts to conceal emotional grief expressions in the presence of others require repeated effort to manage upcoming emotions, thereby consuming the person's resources (Gross, 2002) and increasing discomfort. Emotional suppression has also been shown to disrupt social communication (Butler et al., 2003) which itself may contribute to a perceived lack of social support on part of the bereaved. Most importantly, while the perception of social support is a relevant correlate of social disconnection, our data also show that social disconnection was accompanied by a self-reported overall reduction in social contact (family, friends, and acquaintances), i.e., an intention to withdraw socially. While bereaved individuals with low OG-SD levels reported that they would like to engage more frequently in social contacts following the loss, bereaved individuals with high OG-SD levels reported a significantly reduced desire for social contact. This finding supports the theorized behavioral preference of some bereaved individuals to deal with grief on their own as a relevant part of the concept of grief-related social disconnection.

4.1 Strengths and Limitations

This is the first study to validate the OG-SD in a German sample. The questionnaire was established in a high-quality translation process in cooperation with the authors of the original scale. Importantly, this study is also the first to investigate the associations of social disconnection in bereavement with measurements of social support and the frequency of social contact. At the same time, certain limitations pertain to the interpretation of its results.

First, in terms of generalizability, our convenience sample showed appropriate heterogeneity in age and loss-related variables. Concerning gender, however, the present study shares the common difficulty of recruiting male participants in bereavement studies (Stroebe et al., 2003). Female participants were clearly overrepresented. Second, concerning the assessment of social contact, participants estimated how frequently they typically met with family, friends, and acquaintances before the loss, i.e., retrospectively. In order to capture the possible change in frequency of social contact, participants indicated how often they would like to meet with family, friends, and acquaintances after the loss (independently of the current restrictions during the COVID-19 pandemic). This format accounted for the constantly changing COVID-19 contact restrictions during the data collection in 2021, which would have otherwise constituted an external influence on contact behavior. However, the results thus only provide insights into the self-estimated frequency (retrospectively) and desire for social contact. Objective measurements of social contact frequency, ideally assessed via ecological momentary assessment (Liu et al., 2019) could corroborate these associations. Generally, conducting this study over the period of a global pandemic might have affected the present data. Measures to curb the pandemic, such as contact restrictions and stay-at-home-policies are associated with greater loneliness and higher psychological distress (Tull et al., 2020; Xiong et al., 2020). With respect to the interpretability of the data, reported scores might represent an elevated level due to the pandemic. The generalizability of the reported associations between measurements and group differences remains to be tested and should be replicated under non-pandemic circumstances. Third, the sole reliance on self-reported outcomes also limits the interpretability of grief symptom levels in our sample. Even though the ICG is the best-established and most-used instrument to assess pathological grief symptoms, no clinical diagnosis can be made based relying exclusively on self-report. Similarly, as in most online surveys, the eligibility assessment of the participants relies on the accurateness of their self-report and could not be ascertained independently. Lastly, as this

study was cross-sectional, reported associations rely on concurrent correlations. Therefore, no causal interpretations of the results are possible.

4.2 Implications for future research and clinical practice

Despite these limitations, this study offers important insights into the features and influences of social disconnection after bereavement that can stimulate future research and suggest clinical implications. While longitudinal data indicate that social disconnection can contribute to later grief-related and psychological distress (Smith et al., 2020), future research should ideally investigate the dynamics in the developmental process of social disconnection and grief-related distress in bereaved samples with regard to the reciprocal relationship between both constructs. Previous meta-analytic and longitudinal research on the influence of social disconnection on other mental and physical health issues (i.e., mortality risk, depression, coronary heart disease) has already identified social disconnection and loneliness as risk factors for a range of negative health outcomes (Holt-Lunstad et al., 2015; Holt-Lunstadt et al., 2010; Rnic et al., 2021; Valtorta et al., 2016). Our results demonstrate a concurrent association between social disconnection, reduced social support and social contact, and a higher risk for PGD. However, the temporal relationship remains unclear, e.g., whether social disconnection is a consequence of, or a risk factor for, social withdrawal and the development of PGD. If social disconnection proves to be a risk factor, targeting it preventively at beginning of the grief process could minimize the risk of developing severe mental health issues. If it is a consequence of PGD, addressing it therapeutically could decrease the social impairment that accompanies severe grief reactions. The OG-SD can serve as a diagnostic tool in the therapeutic context to identify problematic assumptions and beliefs that might counteract the positive influence of social support on grief-related distress. It can also contribute important information to therapeutic interventions such as cognitive restructuring or behavioral experiments in the treatment of PGD. Some treatment programs

for PGD already target difficulties in social relationships or dysfunctional beliefs about the contact to others (Rosner et al., 2014; Shear & Gribbin Bloom, 2017). Yet, implementing specific interventions regarding feelings of social disconnection for patients experiencing social impairment after bereavement might further increase the therapeutic success and reduce mental health issues.

5. Conclusion

The German OG-SD showed excellent psychometric properties and is a reliable instrument to assess social disconnection in bereaved German-speaking samples. Our findings demonstrated a strong cross-sectional association between grief severity, social disconnection, and a perceived lack of adequate social support, corroborating the scale's validity. Investigating social disconnection processes in bereavement can help identify etiological and maintaining factors of severe grief reactions such as PGD. This offers a chance to establish a better understanding of social cognitive processes after bereavement. The OG-SD has the potential to contribute to this better understanding and identify obstacles that stand between grief and its relief through social and emotional support.

References

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders: DSM-5-TR* (5th ed.). American Psychiatric Association Publishing.

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Development and Initial Psychometric Evaluation. *Journal of Traumatic Stress*, *28*(6), 489–498. https://doi.org/10.1002/jts.22059

Boelen, P. A., & van den Bout, J. (2010). Anxious and Depressive Avoidance and Symptoms of Prolonged Grief, Depression, and Post-Traumatic Stress Disorder. *Psychologica Belgica*, *50*(1-2), 49. https://doi.org/10.5334/pb-50-1-2-49

Boelen, P. A., van den Hout, M. A., & van den Bout, J. (2006). A Cognitive-Behavioral Conceptualization of Complicated Grief. *Clinical Psychology: Science and Practice*, *13*(2), 109–128. https://doi.org/10.1111/j.1468-2850.2006.00013.x

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for post-traumatic stress disorder in traumaexposed adults. *Journal of Consulting and Clinical Psychology*(68), 748–766. https://doi.org/10.1037//0022-006X.68.5.748

Butler, E. A., Egloff, B., Wilhelm, F. H., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion (Washington, D.C.)*, *3*(1), 48–67. https://doi.org/10.1037/1528-3542.3.1.48

Cacciatore, J., Thieleman, K., Fretts, R., & Jackson, L. B. (2021). What is good grief support? Exploring the actors and actions in social support after traumatic grief. *PLOS ONE*, *16*(5), e0252324. https://doi.org/10.1371/journal.pone.0252324

Doering, B. K., Boelen, P. A., Eisma, M. C., & Barke, A. (2021). Validation of a German Version of the Grief Cognitions Questionnaire and Establishment of a Short Form. *Frontiers in Psychology*, *11*, 620987. https://doi.org/10.3389/fpsyg.2020.620987

Doka, K. J. (Ed.). (1989). *Disenfranchised grief: Recognizing hidden sorrow*. Lexington Books.

Doka, K. J. (2002). *Disenfranchised grief: New directions, challenges, and strategies for practice*. Research Press.

Eisma, M. C., Stroebe, M. S., Schut, H. A. W., Stroebe, W., Boelen, P. A., & van den Bout, J. (2013). Avoidance processes mediate the relationship between rumination and symptoms of complicated grief and depression following loss. *Journal of Abnormal Psychology*, *122*(4), 961–970. https://doi.org/10.1037/a0034051

Evans, A., & Abrahamson, K. (2020). The Influence of Stigma on Suicide Bereavement: A Systematic Review. *Journal of Psychosocial Nursing and Mental Health Services*, *58*(4), 21–27. https://doi.org/10.3928/02793695-20200127-02

First, M. B., & Gibbon, M. (2004). The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and the Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II). In M. J. Hilsenroth & D. L. Segal (Eds.), *Comprehensive handbook of psychological assessment, Vol. 2. Personality assessment* (pp. 134–143). John Wiley & Sons, Inc.

Fydrich, T., Sommer, G., Tydecks, Stefan, & Brähler, E. (2009). Social Support Questionnaire (F-SozU): Standardization of short form (K-14). *Zeitschrift Für Medizinische Psychologie*(1), 43–49.

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*(3), 281–291. https://doi.org/10.1017/s0048577201393198

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science : A Journal of the Association for Psychological Science*, *10*(2), 227–237. https://doi.org/10.1177/1745691614568352

Holt-Lunstadt, J., Smith, T. B., & Layton, J. B. (2010). Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Medicine.* e1000316. https://doi.org/10.1371/journal. pmed.1000316

International Test Commission. (2017). *The ITC Guidelines for Translating and Adapting Tests (Second edition)* [www.InTestCom.org]

Kristensen, P., Weisaeth, L., & Heir, T. (2010). Predictors of complicated grief after a natural disaster: A population study two years after the 2004 South-East Asian tsunami. *Death Studies*, *34*(2), 137–150. https://doi.org/10.1080/07481180903492455

Kristensen, P., Weisæth, L., & Heir, T. (2012). Bereavement and mental health after sudden and violent losses: A review. *Psychiatry*, *75*(1), 76–97. https://doi.org/10.1521/psyc.2012.75.1.76

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a Brief Depression Severity Measure. *JGIM*(16).

Krüger-Gottschalk, A., Knaevelsrud, C., Rau, H., Dyer, A., Schäfer, I., Schellong, J., & Ehring, T. (2017). The German version of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Psychometric properties and diagnostic utility. *BMC Psychiatry*, *17*(1), 379. https://doi.org/10.1186/s12888-017-1541-6

Levi-Belz, Y., & Lev-Ari, L. (2019). "Let's Talk About It": The Moderating Role of Self-Disclosure on Complicated Grief over Time among Suicide Survivors. *International Journal of Environmental Research and Public Health*, *16*(19), 3740. https://doi.org/10.3390/ijerph16193740

Lin, M., Hirschfeld, G., & Margraf, J. (2019). Brief form of the Perceived Social Support Questionnaire (F-SozU K-6): Validation, norms, and cross-cultural measurement invariance in the USA, Germany, Russia …, *31*(5), 609–621. https://doi.org/10.1037/pas0000686

Liu, H., Xie, Q. W., & Lou, V. W. Q. (2019). Everyday social interactions and intra-individual variability in affect: A systematic review and meta-analysis of ecological momentary assessment studies. *Motivation and Emotion*, *43*(2), 339–353. https://doi.org/10.1007/s11031-018-9735-x

Logan, E. L., Thornton, J. A., & Breen, L. J. (2018). What determines supportive behaviors following bereavement? A systematic review and call to action. *Death Studies*, *42*(2). https://doi.org/10.1080/07481187.2017.1329760

Lumbeck, G., Brandstätter, M., & Geissner, E. (2012). Erstvalidierung der deutschen Version des „Inventory of Complicated Grief" (ICG-D). *Zeitschrift Für Klinische Psychologie Und Psychotherapie*, *41*(4), 243–248. https://doi.org/10.1026/1616-3443/a000172

Maciejewski, P. K., Falzarano, F. B., She, W. J., Lichtenthal, W. G., & Prigerson, H. G. (2022). A micro-sociological theory of adjustment to loss. *Current Opinion in Psychology*, *43*, 96–101. https://doi.org/10.1016/j.copsyc.2021.06.016

Maercker, A., & Müller, J. (2004). Social acknowledgment as a victim or survivor: A scale to measure a recovery factor of PTSD. *Journal of Traumatic Stress*, *17*(4), 345–351. https://doi.org/10.1023/B:JOTS.0000038484.15488.3d

Prigerson, H. G., Horowitz, M. J., Jacobs, S. C., Parkes, C. M., Aslan, M., Goodkin, K., Raphael, B., Marwit, S. J., Wortman, C., Neimeyer, R. A., Bonanno, G. A., Bonanno, G., Block, S. D., Kissane, D., Boelen, P., Maercker, A. , Litz, B. T., Johnson, J. G., First, M. B., & Maciejewski, P. K. (2009). Prolonged grief disorder: Psychometric validation of criteria proposed for DSM-V and ICD-11. *PLOS Medicine*, *6*(8), e1000121. https://doi.org/10.1371/journal.pmed.1000121

Prigerson, H. G., Maciejewski, P. K., Reynolds, C. F., Bierhals, A. J., Newsom, J. T., Fasiczka, A., Frank, E., Doman, J., & Miller, M. (1995). Inventory of complicated grief: A scale to measure maladaptive symptoms of loss. *Psychiatry Research*, *59*(1-2), 65–79. https://doi.org/10.1016/0165-1781(95)02757-2

Rnic, K., Hewitt, P. L., Chen, C., Jopling, E., Lemoult, J., & Flett, G. L. (2021). Examining the Link Between Multidimensional Perfectionism and Depression: A Longitudinal Study of the Intervening Effects of Social Disconnection. *Journal of Social and Clinical Psychology*, *40*(4), 277–303. https://doi.org/10.1521/jscp.2021.40.4.277

Rosner, R., Pfoh, G., Rojas, R., Brandstätter, M., Rossi, R., Lumbeck, G., Kotoučová, M., Hagl, M., & Geissner, E. (2014). *Anhaltende Trauerstörung: Manuale für die Einzel- und Gruppentherapie [Prolonged grief disorder. Treatment Manuals for Individual and Group Settings]*. Hogrefe Verlag.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. *The Journal of Educational Research*, *99*(6), 323–338. https://doi.org/10.3200/JOER.99.6.323-338

Scott, H. R., Pitman, A., Kozhuharova, P., & Lloyd-Evans, B. (2020). A systematic review of studies describing the influence of informal social support on psychological wellbeing in people bereaved by sudden or violent causes of death. *BMC Psychiatry*, *20*(1), 265. https://doi.org/10.1186/s12888-020-02639-4

Shear, M. K., & Gribbin Bloom, C. (2017). Complicated Grief Treatment: An Evidence-Based Approach to Grief Therapy. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *35*(1), 6–25. https://doi.org/10.1007/s10942-016-0242-2

Smith, K. V. (2018). *Memories, appraisals, and coping strategies in prolonged grief disorder*. https://ethos.bl.uk/orderdetails.do?uin=uk.bl.ethos.770559

Smith, K. V., & Ehlers, A. (2021). Prolonged grief and posttraumatic stress disorder following the loss of a significant other: An investigation of cognitive and behavioural differences. *PLOS ONE*, *16*(4), e0248852. https://doi.org/10.1371/journal.pone.0248852

Smith, K. V., Wild, J., & Ehlers, A. (2020). The Masking of Mourning: Social Disconnection After Bereavement and Its Role in Psychological Distress. *Clinical Psychological Science: A Journal of the Association for Psychological Science*, *8*(3), 464–476. https://doi.org/10.1177/2167702620902748

Stroebe, M., Schut, H., & Stroebe, W. (2007). Health outcomes of bereavement. *The Lancet*, *370*(9603), 1960–1973. https://doi.org/10.1016/s0140-6736(07)61816-9

Stroebe, M., Stroebe, W., & Schut, H. (2003). Bereavement research: Methodological issues and ethical concerns. *Palliative Medicine*, *17*(3), 235–240. https://doi.org/10.1191/0269216303pm768rr

Stroebe, W., Zech, E., Stroebe, M. S., & Abakoumkin, G. (2005). Does Social Support Help in Bereavement? *Journal of Social and Clinical Psychology*, *24*(7), 1030–1050. https://doi.org/10.1521/jscp.2005.24.7.1030

Treml, J., Nagl, M., Braehler, E., Boelen, P. A., & Kersting, A. (2021). Psychometric properties of the German version of the Depressive and Anxious Avoidance in Prolonged Grief Questionnaire (DAAPGQ). *PloS One*, *16*(8), e0254959. https://doi.org/10.1371/journal.pone.0254959

Tull, M. T., Edmonds, K. A., Scamaldo, K. M., Richmond, J. R., Rose, J. P., & Gratz, K. L. (2020). Psychological Outcomes Associated with Stay-at-Home Orders and the Perceived Impact of COVID-19 on Daily Life. *Psychiatry Research*, *289*, 113098. https://doi.org/10.1016/j.psychres.2020.113098

Valtorta, N. K., Kanaan, M., Gilbody, S., Ronzi, S., & Hanratty, B. (2016). Loneliness and social isolation as risk factors for coronary heart disease and stroke: Systematic review and meta-analysis of longitudinal observational studies. *Heart*, *102*(13), 1009–1016. https://doi.org/10.1136/heartjnl-2015-308790

van der Houwen, K., Stroebe, M., Stroebe, W., Schut, H., van den Bout, J., & Wijngaards-de Meij, L. (2010). Risk factors for bereavement outcome: A multivariate approach. *Death Studies*, *34*(3), 195–220. https://doi.org/10.1080/07481180903559196

van der Velden, P. G., Oudejans, M., Das, M., Bosmans, M. W. G., & Maercker, A. (2019). The longitudinal effect of social recognition on PTSD symptomatology and vice versa: Evidence from a population-based study. *Psychiatry Research*, *279*, 287–294. https://doi.org/10.1016/j.psychres.2019.05.044

Wagner, B., Keller, V., Knaevelsrud, C., & Maercker, A. (2012). Social acknowledgement as a predictor of post-traumatic stress and complicated grief after witnessing assisted suicide. *The International Journal of Social Psychiatry*, *58*(4), 381–385. https://doi.org/10.1177/0020764011400791

World Health Organization. (2019). *International Statistical Classification of Diseases and Related Health Problems*. https://icd.who.int/

World Medical Association (2013). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA*, *310*(20), 2191–2194. https://doi.org/10.1001/jama.2013.281053

Wortmann, J. H., Jordan, A. H., Weathers, F. W., Resick, P. A., Donanville, K. A., Hall-Clark, B., Foa, E. B., Young-McCaughan, S., Yarvis, J. S., Hembree, E. A., Mintz, J., Peterson, A. L., & Litz, B. T. (2016). Psychometric analysis of the PTSD Checklist-5 (PCL-5) among treatment-seeking military service members. *Psychological Assessment*, *28*(11), 1392–1403.

Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M. W., Gill, H., Phan, L., Chen-Li, D., Iacobucci, M., Ho, R., Majeed, A., & McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*, *277*, 55–64. https://doi.org/10.1016/j.jad.2020.08.001

Zhou, N., Wei, Y., Killikelly, C., Stelzer, E., Maercker, A [A.], & Smith, K. V. (2022). The relationship between social acknowledgment and prolonged grief symptoms: a multiple mediation effect of beliefs about goodness and controllability of grief-related emotion. *(Manuscript Submitted for Publication)*.

Appendix: Tables and Figures

Table 1

Sample characteristics for initial sample (n=341) and re-test sample (n=72). Stated in total numbers and percentage.

	Initial sample		Re-test sample	
Variable		%		%
Age				
M±SD in years	34±15	--	35±17	--
Time since loss				
M±SD in years	6.8±8.8	--	7.2±11.9	--
Gender				
female	278	81.8	64	88.9
male	58	17.1	8	11.1
diverse	4	1.2	--	--
Deceased				
spouse	32	9.4	14	19.4
child	18	5.3	2	2.8
parent	81	23.7	15	20.8
sibling	22	6.4	5	6.9
grandparent	114	33.3	25	34.7
friend	30	7.9	5	6.9
other	44	11.5	6	8.3
Type of death				
natural	250	73.4	53	73.6
accident	36	10.5	5	6.9
suicide	26	7.6	7	9.7
homicide	4	1.2	0	0.0
other	25	7.3	7	9.7
Subjective expectedness of death				
expected		26.2		29.3
unexpected		40.2		40.0
both		22.3		29.3
neither		10.5		1.3

Table 2

Item and scale means, standard deviations, item difficulties, item-total correlations, and standardized Cronbach's alpha (n=341).

Item	M	SD	Difficulty (p_i)	Item-total correlation (r_{itc})	Cronbach's α
OG-SD total scale	44.45	21.23		0.74	0.94
Subscale Negative Reactions of Others	8.37	4.67		0.59	0.94
1 – Others will think I am not normal.	2.91	1.96	0.32	0.59	
2 – Others would judge me.	2.16	1.54	0.19	0.57	
3 – Others will not be able to manage.	3.29	1.98	0.38	0.62	
Subscale Altered Social Self	22.55	11.85		0.73	0.93
4 – Feeling uncomfortable around others.	2.72	1.72	0.29	0.70	
5 – Possibility to leave social situations.	2.88	1.91	0.31	0.66	
6 – I cannot by myself around others.	2.87	1.95	0.31	0.78	
7 – I feel alien to those around me.	2.67	1.76	0.28	0.76	
8 – I do not fit in socially.	2.74	1.88	0.29	0.74	
9 – Draining to be around others.	3.13	1.82	0.35	0.77	
10 – Ruining others' enjoyment.	2.54	1.70	0.26	0.69	
11 – Putting on a Performance.	2.99	1.85	0.33	0.75	
Subscale Safe in Solitude	13.53	7.29		0.73	0.90
12 – Better to be by myself.	3.34	2.06	0.39	0.78	
13 – True feelings only when alone.	3.43	2.08	0.41	0.68	
14 – Can only be myself when alone.	3.11	2.05	0.35	0.75	
15 – Having to pretend.	3.65	2.11	0.44	0.70	

Note. Item scores range from 1 ("totally disagree") to 7 ("totally agree"), M: mean (on item and scale level), SD: standard deviation.

Table 3.

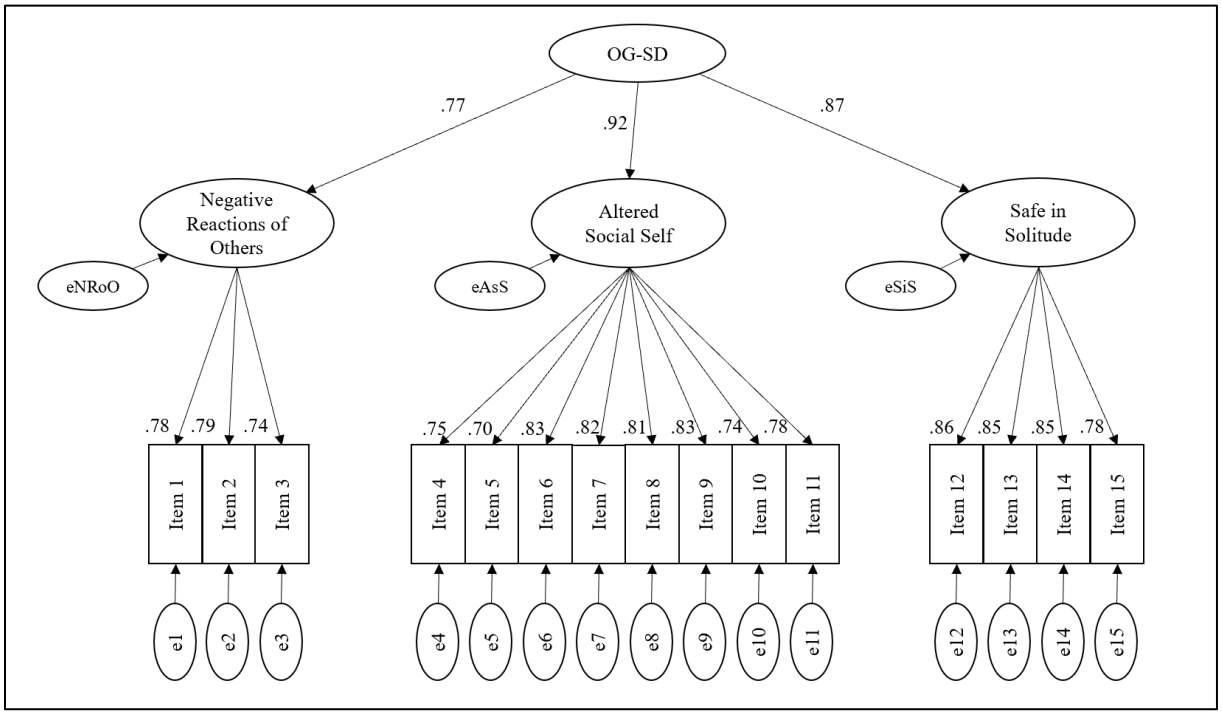
Correlation of the OG-SD total scale and subscales with measures of grief severity, posttraumatic and depressive symptoms, depressive and anxious avoidance in prolonged grief and perceived social support.

		Subscales		
Measure	OG-SD Total Scale	Negative Reactions of Others	Altered Social Self	Safe in Solitude
ICG	0.605*	0.447*	0.588*	0.519*
PCL	0.625*	0.429*	0.641*	0.503*
PHQ-9	0.606*	0.406*	0.614*	0.506*
Depr. Avoidance DAAPGQ	0.561*	0.389*	0.572*	0.455*
Anx. Avoidance DAAPGQ	0.335*	0.184	0.306*	0.360*
PSS	-0.523*	-0.398*	-0.500*	-0.455*

Note. DAAPGQ: Depressive and Anxious Avoidance in Prolonged Grief Questionnaire; ICG: Inventory of Complicated Grief; PCL: Posttraumatic Stress Disorder Checklist for DSM-5; PHQ-9: Patient Health Questionnaire; PSS: Perceived Social Support; *$p < .01$; all correlations are Bonferroni-corrected.

Figure 1

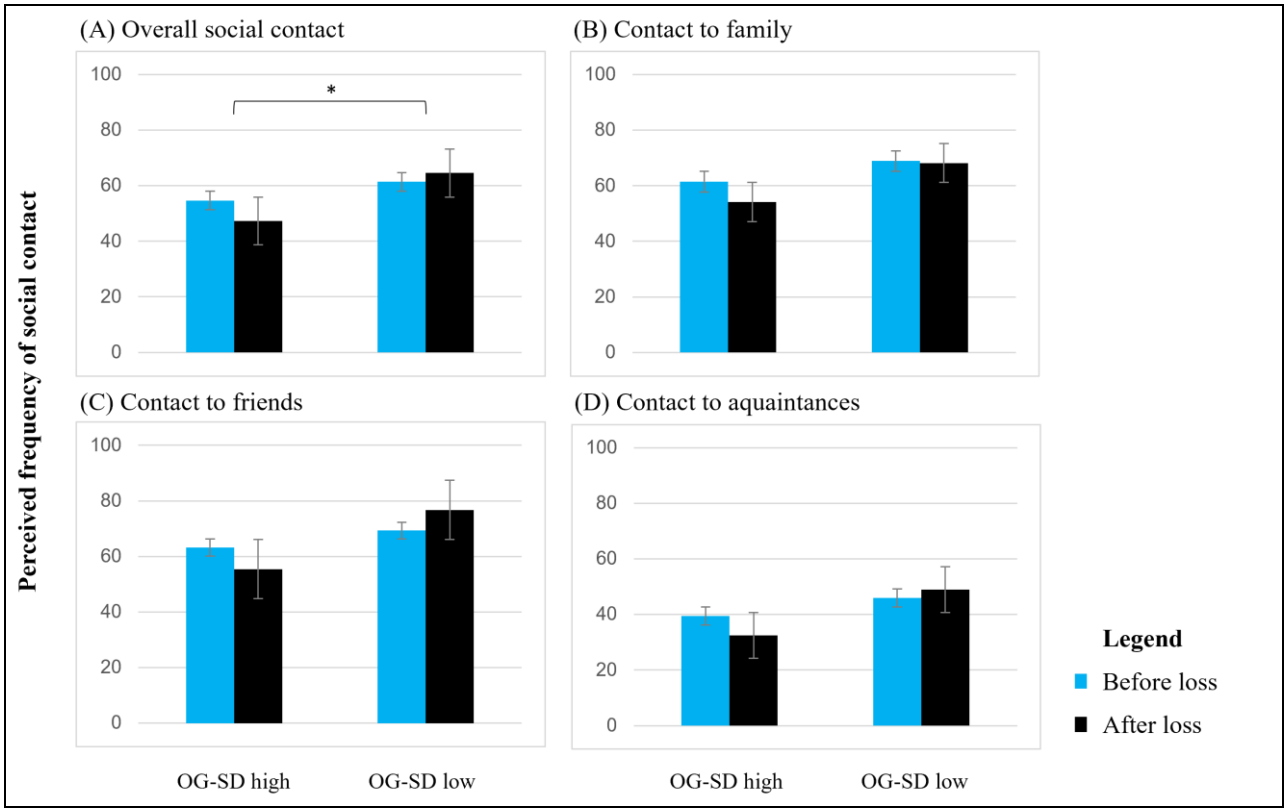
Confirmatory factor analysis of the OG-SD. Path diagram for the confirmatory factor analysis of the OG-SD with three intercorrelated factors, representing the three subscales, and a higher-order factor.



Note. OG-SD: Oxford Grief-Social Disconnection Scale. Error terms are labelled with a small 'e'. eNRoO: Error term for subscale Negative Reactions of others, eAsS: Error term for subscale Altered Social Self, eSiS: Error term for subscale Safe in Solitude. All path coefficients are significant at $p < 0.001$.

Figure 2

Mean scores of reported frequency of social contact before and after the loss.



Note. OG-SD high: upper quartile of the sample (n=66), OG-SD low: lower quartile (n=65).

Significant group differences are indicated by brackets, *$p < .05$.