

RESEARCH ARTICLE

Inclusion of the other in the self as a potential risk factor for prolonged grief disorder: A comparison of patients with matched bereaved healthy controls

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Abstract

Pathological grief has received increasing attention in recent years, as about 10% of the bereaved suffer from one kind of it. Pathological grief in the form of prolonged grief disorder (PGD) is a relatively new diagnostic category which will be included into the upcoming ICD-11. To date, various risk and protective factors, as well as treatment options for pathological grief, have been proposed. Nevertheless, empirical evidence in that area is still scarce. Our aim was to identify the association of interpersonal closeness with the deceased and bereavement outcome. Interpersonal closeness with the deceased in 54 participants (27 patients suffering from PGD and 27 bereaved healthy controls) was assessed as the overlap of pictured identities via the inclusion of the other in the self scale (IOS scale). In addition to that, data on PGD symptomatology, general mental distress and depression were collected. Patients suffering from PGD reported higher inclusion of the deceased in the self. By contrast, they reported feeling less close towards another living close person. Results of the IOS scale were associated with PGD severity, general mental distress and depression. Inclusion of the deceased in the self is a significant statistical predictor for PGD caseness.

KEYWORDS

bereavement, identity confusion, inclusion of other in the self, interpersonal closeness, prolonged grief disorder, self-other fusion

1 | INTRODUCTION

Grief is a normal, natural and very individual process consisting of different experiences, trajectories and time courses (Stroebe et al., 2007; Zisook et al., 2014). Initially, grief very often presents itself in an 'acute' form, where bereaved individuals are intensively yearning for the deceased and often report exhaustive thoughts and memories of the deceased, which often entail negative emotions such as guilt, anxiety or anger (Shear, 2015; Zisook et al., 2014). While a majority of

bereaved individuals are able to adapt to their loss after a certain period of time, and do not need clinical intervention, about 10% experience long-term difficulties and develop a pathological form of grief (Lundorff et al., 2017; Shear et al., 2011). Over the years, different terminologies and definitions of pathological grief have been promoted, i.e., *traumatic grief*, *complicated grief*, *prolonged grief* or *persistent complex bereavement disorder*, resulting in the development of different criteria sets and also measures (Boelen & Lenferink, 2020; Jordan & Litz, 2014; Lenferink et al., 2021). However, yearning is a key feature

of all the proposals, and the proposals mainly differ in terms of number of accompanying symptoms needed in addition to fulfil the criteria for the respective diagnosis (Lenferink et al., 2021). In recent years, the term *prolonged grief disorder* (PGD) has become more popular and was introduced as such in the ICD-11 (PGD-ICD-11) (World Health Organization, 2019). For better readability, we will now employ the term PGD throughout the manuscript when referring to any kind of pathological grief.

Studies have reported a variety of detrimental health outcomes following bereavement, and various potential risk and protective factors have been identified for the development of PGD (Buckley et al., 2011; Carey et al., 2014; Lannen et al., 2008; Latham & Prigerson, 2004; Stroebe et al., 2007). Perceived lack social support subsequent to bereavement, kinship, relationship quality prior to bereavement (e.g., dependency, closeness), (global) attachment style and learning about the death are reported most frequently (Burke & Neimeyer, 2013; Lobb et al., 2010). Especially attachment style and its impact on bereavement outcome have received substantial attention and have been included into popular models of PGD (Boelen et al., 2006; Shear & Shair, 2005; Stroebe & Schut, 1999; Wijngaards-de Meij et al., 2007a, 2007b). Yet, results are ambiguous, such as that one study demonstrated that anxious and avoidant attachment positively predicts grief and depression displayed by the individual, but at the same time, the interaction of time and anxious attachment revealed that anxiously attached individuals adapted better over time (Wijngaards-de Meij et al., 2007b). In addition to attachment, a recent study (Smigelsky et al., 2020) also investigated relationship quality and closeness with the deceased prior to the death and found that the closer the bereaved and the deceased had been prior to the loss, the more severe was the grief symptomatology that the bereaved experienced. Interestingly, other studies have indicated that relationship closeness, i.e., feeling emotionally close to the deceased, was more important than actual kinship (Andriessen et al., 2016; Andriessen et al., 2018). However, two major issues in many of these studies are the composition of the sample and the way closeness had been operationalized. On the one hand, some samples only focused on quality of marriage and/or interpersonal dependency in widowed persons (Bonanno et al., 2002; Carr, 2004; Carr et al., 2001; Prigerson et al., 2000) or samples consisted mainly of students (Eckerd et al., 2016; Russac et al., 2002). On the other hand, as pointed out by other researchers before (Smigelsky et al., 2020), although closeness has been associated with negative outcomes following bereavement, the assessment of closeness has been quite vague (e.g., by asking 'how close would you describe your relationship with xy' and giving using Likert scale from 1 *not close* to 5 *very close*) (Cerel et al., 2016). Also, most importantly none of these studies applied diagnostic criteria for PGD (Bonanno et al., 2002; Carr, 2004; Carr et al., 2001; Cerel et al., 2016; Eckerd et al., 2016; Prigerson et al., 2000; Russac et al., 2002; Smigelsky et al., 2020).

Having close relationships is both satisfying and useful by aiding self-expansion, which means that "in a close relationship each person includes in the self, to some extent, the other's resources, perspectives, and identities" (Aron, Mashek, & Aron, 2004) (p. 27). Aron and

Key Practitioner Messages

- Prolonged grief disorder is a new disorder in ICD-11 and affects about 10% of bereaved individuals.
- Empirical evidence on risk and protective factors is essential to better understand and treat those affected by PGD.
- This study investigates the association of interpersonal closeness (closeness to the deceased still perceived by the bereaved) and bereavement outcome.
- Individuals suffering from PGD feel significantly closer to the deceased than bereaved control participants.
- Perceived interpersonal closeness is positively correlated with PGD severity, general mental distress and depression.

colleagues have further stated that high levels of inclusion of the other in the self (IOS) generate increased levels of reliance on that person, indicating that the self-concept is defined by this other person, making the individual more vulnerable to experience distress in case of relationship dissolution (Aron, McLaughlin-Volpe, et al., 2004). Several studies indicate that the identities of individuals suffering from PGD remain closely connected with the deceased (Bellet et al., 2020; Boelen et al., 2012; Maccallum & Bryant, 2008; Robinaugh & McNally, 2013). In a similar vein, the cognitive attachment model of PGD (Maccallum & Bryant, 2013) proposes that individuals suffering from PGD have developed a sense of self that is dependent on the deceased, such that most important goals and roles revolve around the deceased, which has implications for memory retrieval and goal development. Due to the resulting so-called *merged self-identity*, individuals suffering from PGD are more likely to recall past memories which are related to the deceased and have difficulties in recalling specific past events or envisioning future events without the deceased (Maccallum & Bryant, 2008, 2013; Robinaugh & McNally, 2013). Thereby, the preferential retrieval of deceased-related memories and envisioning goals or a future in relation to the deceased give the bereaved a feeling of closeness and reconnectedness towards the deceased, yet they increase yearning and general mental distress (Maccallum & Bryant, 2008, 2013). In contrast to that, having to envision a future without the deceased can trigger feelings of hopelessness and a sense of lost identity or identity confusion (Bellet et al., 2020; Robinaugh & McNally, 2013). Especially the latter makes sense, as one common symptom in PGD is the feeling that one has lost a part of one's self (World Health Organization, 2019). In order to prevent themselves from having to deal with these unpleasant feelings and to protect their self-identity, the reality of the loss is avoided, and instead the bereaved will purposely ruminate and dwell on past memories with the deceased (Maccallum & Bryant, 2013).

At the same time, studies have reported social impairment following bereavement. One study found that social relationships tended to

deteriorate (Breen & O'Connor, 2011), while others indicated negative reactions by the social environment such as lack of acceptance, lack of empathy and social distance, which in turn leads to the bereaved avoiding social situations, i.e., social withdrawal and social disconnectness (Eisma, 2018; Smith et al., 2020). These findings suggest that while individuals with PGD might still feel connected and close towards the deceased, but rather less so towards their social environment.

Derived from the research presented so far, we hypothesize that identifying the degree of perceived closeness with the deceased subsequent to bereavement, i.e., the degree of merging of self and other, has the potential to help clinicians identify and support those individuals who are especially prone to negative bereavement outcomes, such as the development of PGD. The aim of the present study was to economically investigate the sole impact of interpersonal relationship closeness with the deceased subsequent to bereavement in patients verifiably suffering from PGD in comparison to matched healthy but equally bereaved control participants. To our knowledge, this will be the first study to investigate closeness in association to PGD, as earlier studies which have investigated the relationship between closeness to the deceased and bereavement did neither assess PGD according to ICD-11 or PCBD according to DSM-5.

Already in 1992, Aron and colleagues (Aron et al., 1992) introduced the IOS scale as a timesaving measure with the aim of assessing interpersonal closeness, which includes the aspects of feeling and behaving close. The IOS scale is a single-item pictorial measure which requires respondents to select one out of seven Venn-like diagrams depicting their relationship with another person. Thereby, each diagram shows two circles which overlap more or less (Aron et al., 1992). Studies on how individuals perceive the scale demonstrated that individuals interpreted the scale as mainly depicting interconnectedness of the self and other (Aron et al., 1992). Examples are provided in Figure 1. In the past, the IOS scale has been widely used in different areas as an index of relationship quality (Aron et al., 2013; Mashek & Aron, 2004) and also in connection with relationship dissolution and bereavement. In a student sample, it has been shown that break-up-related grief was positively related with the IOS scale (Boelen & van den Hout, 2010). In another study (Boelen, 2012), the IOS scale (depicting the closeness with the deceased at that moment in time)

was a significant factor predicting grief severity in a subclinical sample of bereaved individuals.

In line with previous studies, we hypothesized that the extent to which bereaved individuals continue to include the deceased in the self, after their loss, (H1) predicts the presence of PGD and (H2) is significantly associated with symptom severity in all domains (PGD severity, general mental distress, depression). Further, we propose that inclusion of self in other will have secondary consequences, such as that individuals suffering from PGD (H3) feel less close towards other persons and (H4) indicate to have fewer close relationships than bereaved individuals not meeting the criteria for PGD.

2 | METHODS

2.1 | Participants and procedure

We recruited 54 participants into our study, 27 in each group. General inclusion criteria for both groups were an age between 18 and 75 years, experience the death of a significant other at least 6 months ago, and fluency in German. In addition to that, participants in the PGD group had to meet the diagnostic criteria for PGD according to the Interview for Prolonged Grief-13 (PG-13) (Vogel et al., 2017), and PGD had to be the primary diagnosis. Participants were excluded if they suffered either from an acute psychotic disorder or major substance-related disorder; other secondary diagnoses did not lead to exclusion. Acute suicidal tendencies, other psychotherapeutic treatment, irregular antidepressant medication, regular use of benzodiazepines, antipsychotics or opiates, or participation in a further intervention study were also reasons for exclusion.

Participants in the control group (NoPGD group) were specifically recruited to match participants in the PGD group as closely as possible based on gender, age and time since loss. Participants were excluded from the NoPGD group if they met the criteria for PGD or any other mental disorder according to the German version of the Structured Clinical Interview for DSM-IV (SCID-I) (Wittchen et al., 1997). Correspondingly, acute suicidal tendencies, psychotherapeutic treatment or the use of any psychotropic drugs also led to exclusion.

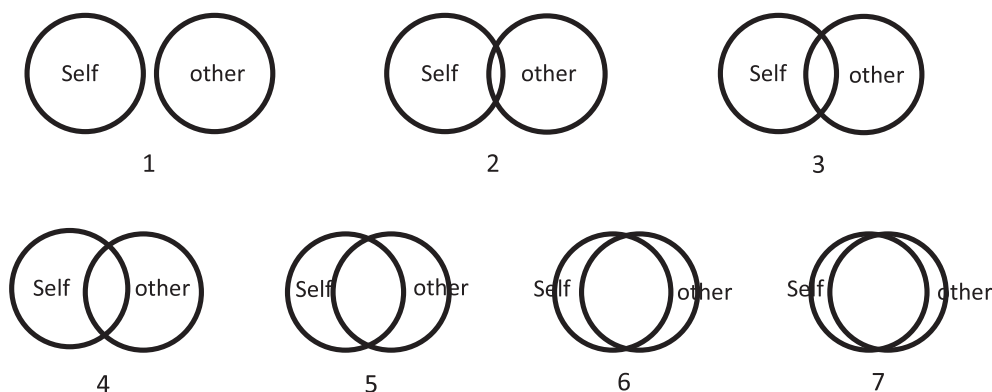


FIGURE 1 Adjusted inclusion of other in the self scale used in our study (here we show English labels, for our German version we used 'I' for self and 'X' for the other, i.e., the deceased. For the original IOS scale by Aron and colleagues, please see Aron et al. (1992))

All participants provided informed consent. Both groups filled out the questionnaires as a part of a larger test battery, which also included other, computerized tasks not presented here. Questionnaires were presented in a paper-pencil format and had to be filled at the outpatient clinic of the Center of Psychotherapy at the Goethe University in Frankfurt.

The present study is part of an ongoing German-wide multicentre randomized controlled trial (RCT) (Rosner et al., 2018) investigating the efficacy of grief-specific integrative cognitive behaviour therapy for PGD (PG-CBT) (Rosner et al., 2011; Rosner et al., 2014) in comparison to an active but non-specific control treatment, present-centred therapy (PCT) (Schnurr et al., 2003) in bereaved subjects. Participants of the PGD group were initially recruited for the RCT and participated in the study presented here before their treatment started.

Participants of both groups were recruited via professional or self-referral, information events at the outpatient clinic, email distribution lists, notices in public areas, and social media. Data collection took place between June 2018 and February 2020.

2.2 | Measures

2.2.1 | Socio-demographic and loss-related information

Socio-demographic as well as loss-related variables were obtained in a customized semi-structured interview by a trained interviewer.

2.2.2 | Structured Clinical Interview for DSM-IV

The SCID-I is a semi-structured clinical interview which is used for the assessment of mental disorders according to the DSM-IV (Wittchen et al., 1997). The SCID-I shows good psychometric properties (Wittchen et al., 1997). It was used in the present study to detect mental disorders, which in the case of the NoPGD group led to exclusion from the study.

2.2.3 | Interview for PG-13

The PG-13 (Vogel et al., 2017) is a semi-structured interview and consists of 13 items that largely correspond to the consensus criteria (PGD-2009) proposed by Prigerson and colleagues (Prigerson et al., 2009). In contrast to PGD according to ICD-11 (PGD-ICD-11) where PGD is defined by persistent longing or yearning for and preoccupation with the deceased and one or more out of 10 accompanying symptoms (World Health Organization, 2019), PGD-2009 requires 5 out of 9 accompanying symptoms. At the time when the study had been conceptualized, there were no official prospective criteria for PGD according to ICD-11; we therefore decided to adhere to the stricter consensus criteria.

Five criteria have to be met to qualify for PGD according to the consensus criteria: loss of a significant other (Criterion A), separation distress (Criterion B), cognitive, emotional and behavioural symptoms (Criterion C), a duration of the separation distress symptoms for at least 6 months (Criterion D), and one functional impairment symptom (Criterion E) (Prigerson et al., 2009). Symptom severity can be determined by calculating an overall score summing up the 11 symptom-related items which are rated on a 5-point Likert scale (1 = *never/not at all*, 5 = *several times a day/extremely*). In the original work by Prigerson colleagues (Prigerson et al., 2009), good psychometric properties with an internal reliability of $\alpha = 0.82$ were obtained ($\alpha = 0.96$ in the current sample).

2.2.4 | Beck Depression Inventory-II

The Beck Depression Inventory-II (BDI-II) is a self-report questionnaire consisting of 21 items assessing depressive symptoms over the course of the past 2 weeks. Items have to be rated on 4-point Likert scale (from 0 to 3) (Hautzinger et al., 2009). Internal consistencies have been good in an American sample ($0.86 < \alpha < 0.92$) (Segal et al., 2008), as well as in a German sample ($0.89 < \alpha < 0.93$) (Wintjen & Petermann, 2010). In the current sample $\alpha = 0.97$.

2.2.5 | Brief Symptom Inventory

The Global Severity Index (GSI) from the Brief Symptom Inventory (BSI) was used to assess general mental distress (Franke, 2000). It consists of 53 items assessing subjective distress caused by psychological and somatic symptoms over the previous 7 days. Items have to be rated on a 5-point Likert scale (0 = *not at all*; 4 = *extremely*). The GSI itself can be calculated by adding up all items divided by the number of items. In the original study, internal consistencies were very high ($\alpha = 0.92$ to $\alpha = 0.95$); (Franke, 2000) as was true in the current sample, where $\alpha = 0.98$.

2.2.6 | Inclusion of Other in Self Scale

The IOS scale is a single-item pictorial measure of interpersonal closeness and self-other fusion (Aron et al., 1992). Respondents of the questionnaire are required to select one out of seven Venn-like diagrams depicting their relationship with another person (Aron et al., 1992). Each diagram shows two circles which overlap more or less (Aron et al., 1992). Examples are provided in Figure 1. Multiple studies have demonstrated the scale's high reliability as well as convergent, discriminant and predictive validity (Aron et al., 1992; Gächter et al., 2015). Also, Aron and colleagues were able to demonstrate that IOS scores are barely subject to social desirability (Aron et al., 1992).

The scale was used in the current study to ask participants, first, about his or her relationship with the deceased ("Please chose the

diagram which describes your relationship with the deceased best at the moment"; IOS-D), and, second, about their relationship with a living person who they feel closest to (IOS-O).

2.2.7 | Number of close relationships

In order to assess the number of close relationships our participants were currently entertaining overall, we added the question "How many close relationships do you have?" below the IOS scale.

2.2.8 | Subjective Closeness Index

The Subjective Closeness Index (SCI) is a self-report questionnaire consisting of two items. It has been introduced by Berscheid and colleagues (Berscheid et al., 1989) in 1989 in connection with the construction of the Relationship Closeness Inventory (RCI), which is another very influential measure of closeness (Aron et al., 1992). Subjects were asked to answer the questions "Relative to all your other relationships (both of same and of opposite sex), how would you characterize your relationship with this person?" and "Relative to what you know about other people's relationships, how would you characterize your relationship with this person?" by using an 8-point Likert scale (0 = *not close at all*; 7 = *extremely close*). The scores of both questions are summed up to create the SCI (Berscheid et al., 1989).

Following Aron and colleagues (Aron et al., 1992), who used the SCI and the RCI to identify the concurrent validity of the IOS, the SCI in the current was used as an additional measure of closeness to explore how participants assessed their closeness with a living person they felt closest to.

2.3 | Statistical analysis

All analyses were carried out using the SPSS Software package (Version 27, IBM Corp., Armonk, NY, USA). Descriptive statistics are presented to summarize socio-demographic and loss-related characteristics, as well as results in the different psychopathology measures. Between-sample differences were calculated by performing *t* tests, chi-square (χ^2) tests and Fisher's exact test (FET). We used product-moment correlation coefficient according to Pearson as a correlative measure. Normal distribution was violated in most cases; however, since both *t* test and the coefficient of the product-moment correlation according to Pearson have proven to be robust against violations of the normal distribution assumption (Field, 2018; Rasch & Guird, 2004), we nevertheless used these parametric statistics. Also, the results did not change when nonparametric procedures were used. Hypotheses were tested against the significance level of $\alpha = 0.05$.

Finally, to identify whether IOS represents a risk factor for PGD in addition or beyond already known risk factors, we conducted a logistic regression with a stepped inclusion of variables.

3 | RESULTS

3.1 | Socio-demographic and loss-related characteristics

We included 54 participants into the study, 27 in each group. The mean age was 55.80 years ($SD = 13.08$ years), 46 (85.19%) were female, and on average, 42.91 months had passed since the loss. The most relevant socio-demographic and loss-related characteristics of the sample are reported in Table 1. In addition to the characteristics listed in the table, we also obtained information on religion, country of birth, highest education, highest professional qualification, current employment and monthly income. All in all, we found no significant differences for socio-demographic characteristics ($0.12 < p < 0.91$).

In terms of loss-related variables, only *age of the deceased* differed significantly between both groups; the deceased in the NoPGD group were on average 16 years older. Yet, when the variable *age of the deceased* was inserted as a covariate into our further analyses, it was for the most part not significant, and the levels of significance did not change or changed very little. Most importantly, *age of the deceased* was not a significant covariate when comparing the different IOS scales, number of close relationships, or the SCI ($0.35 < p < 0.99$).

3.2 | Symptom severity and interpersonal closeness

Table 2 contains results of independent *t*-tests on symptom severity and interpersonal closeness. Independent *t* tests indicated significant differences between the groups on PGD (assessed by the PG-13), general mental distress (BSI-GSI) and depression (BDI-II). The PGD group had significantly higher values in all domains. As mentioned in the methods section, PGD had to be the primary diagnosis in the PGD group, but secondary diagnoses did not lead to exclusion. Of the 27 participants, 19 (70.3%) fulfilled the criteria for at least one other diagnosis. All of them either fulfilled the criteria for depression ($n = 18$) or dysthymia ($n = 2$) or both. Five cases fulfilled the criteria for two additional diagnoses, one for three and one for four. The diagnoses fulfilled were as follows: agoraphobia and panic attacks ($n = 3$), somatization ($n = 2$), specific phobia ($n = 2$), social anxiety disorder ($n = 1$) and eating disorder ($n = 1$).

Both groups differed significantly with respect to the IOS score in relation to the deceased, i.e., feeling close, with the deceased person at the time of investigation (supporting H1). Participants belonging to the PGD group felt significantly closer to the deceased than participants in the healthy NoPGD group. Correspondingly, feeling close to the deceased (IOS score in relation to the deceased) was positively correlated with experienced grief, assessed by the PG-13 ($r = 0.63$, $p < 0.001$). Comparable results were found for depression (BDI: $r = 0.63$, $p < 0.001$) and general mental distress (BSI-GSI: $r = 0.60$, $p < 0.001$) (supporting H2).

No significant group difference was obtained for the IOS score in relation to the closest living person nor for the SCI. Thus, H3 could

TABLE 1 Socio-demographic and loss-related characteristics and symptom-severity

	PGD group	NoPGD group	Group differences ($t/\chi^2/p$ according to FET)
Demographic characteristics			
Age, M (SD)	55.59 (12.25)	56.00 (13.90)	$t = 0.11$
Gender, N (%)			
Female	24 (88.9)	22 (81.5)	p (FET) = 0.70
Male	3 (11.1)	5 (18.5)	
Loss-related characteristics			
Age of the deceased, M (SD)	54.26 (21.58)	70.11 (24.23)	$t = 2.58^*$
Gender of the deceased, N (%)			
Female	8 (29.6)	13 (48.1)	$\chi^2 = 1.95$
Male	19 (70.4)	14 (51.9)	
Time since loss in months, M (SD)	35.52 (59.48)	50.30 (56.87)	$t = 0.93$
Kinship, N (%)			
Own child	5 (18.5)	2 (7.4)	p (FET) = 0.14
Partner	10 (37.0)	6 (22.2)	
Parent	7 (25.9)	11 (40.1)	
Sibling	2 (7.4)	0 (0)	
Another family member	2 (7.4)	7 (25.9)	
Friend	1 (3.7)	1 (3.7)	
Expectability of death, N (%)			
Expected	9 (33.3)	15 (55.6)	$\chi^2 = 2.70$
Unexpected	18 (66.7)	12 (44.4)	

Note: For the variable *Age of the deceased*, sample size for the PGD group is $n = 26$, in all other cases $n = 27$.

Abbreviations: M, mean; SD, standard deviation.

* $p \leq 0.05$.

	PGD group	NoPGD group	Group difference (t tests)
PG-13, M (SD)	42.30 (4.72)	16.04 (5.18)	$t = -19.47^{***}$
BDI-II, M (SD)	30.81 (8.27)	3.19 (3.06)	$t = -16.27^{***}$
BSI-GSI, M (SD)	1.50 (.63)	0.20 (0.14)	$t = -10.44^{***}$
IOS-D, M (SD)	5.13 (1.74)	2.44 (1.60)	$t = -5.90^{***}$
IOS-O, M (SD)	4.11 (1.65)	4.56 (1.60)	$t = 1.01$
No. of close relationships, M (SD)	3.24 (2.63)	5.89 (3.18)	$t = 3.26^{**}$
SCI, M (SD)	9.52 (3.19)	10.93 (2.04)	$t = 1.93$

Note: For the variable *no. of close relationships*, sample size for the PGD group is $n = 25$, in all other cases $n = 27$.

Abbreviations: BDI-II, Beck Depression Inventory-II; BSI-GSI, Global Severity Index of the Brief Symptom Inventory; IOS-D, Interpersonal closeness with the deceased; IOS-O, Interpersonal closeness with the person closest to them and still alive; M, mean; no. of close relationships, number of close relationships; PG-13, Interview for Prolonged Grief-13; SCI, Subjective Closeness Index; SD, standard deviation.

*** $p \leq 0.001$.

** $p \leq 0.01$.

* $p \leq 0.05$.

TABLE 2 Symptom severity and interpersonal closeness

not be supported. Also, correlations between the SCI and all measures of psychopathology were non-significant. However, the PGD group feels significantly closer to the deceased in comparison to the closest living person ($t[26] = 3.05$, $p < 0.01$), whereas the NoPGD group feels

closer to the closest living person in comparison to the deceased ($t[26] = -4.65$, $p < 0.001$).

With respect to the quantity of close personal relationships, participants in the PGD group reported to have significantly fewer close

relationships than controls, thereby supporting H4. Furthermore, the number of close relationships with other, living individuals, is significantly correlated with interpersonal closeness with the deceased ($r = -0.30$, $p < 0.05$) and symptoms of depression ($r = -0.29$, $p < 0.05$). No significant effects for time since loss were found. All correlations are depicted in Table 3.

3.3 | Predicting PGD caseness due to loss-related variables and interpersonal closeness

Blockwise logistic regression was used to examine the degree to which interpersonal closeness with the deceased predicted PGD caseness, above and beyond specific loss-related variables. Relevant loss-related characteristics, i.e., time since loss, kinship (whether the deceased was the child, partner or parent of the bereaved), age of the deceased and expectedness of the death were entered into the first block. The overall model was significant, $\chi^2_{(6)} = 12.42$; $p = 0.05$, Nagelkerke $R^2 = 0.27$. Age of the deceased was the only significant regression coefficient ($B = -0.048$, $SE = 0.020$, Wald $\chi^2_{(1)} = 5.42$, $p < 0.05$, OR = 0.95, 95% CI [0.92–0.99]. Higher values, i.e., older age of the deceased at the time of death, are significantly associated with a lower probability to be a PGD case. Using this model would lead to 70.4% of the participants being identified correctly as PGD cases.

When the SCI was entered into the second block, the model was again significant, $\chi^2_{(7)} = 15.57$; $p < 0.05$, Nagelkerke $R^2 = 0.33$. Again, only age of the deceased represented a significant regression coefficient ($B = -0.045$, $SE = 0.020$, Wald $\chi^2_{(1)} = 4.85$, $p < 0.05$, OR = 0.96, 95% CI [0.92–1]. When using this second model, more patients were correctly allocated to the PGD group, i.e., 74.1%.

Interpersonal closeness with the deceased (IOS-D) was entered into the third block. This model was statistically significant, $\chi^2_{(7)} = 34.84$; $p < 0.001$, Nagelkerke $R^2 = 0.63$. The closer the participant feels to the deceased, the more likely will he/she represent a PGD case ($b = 2.59$, 95% CI [1.57–4.28], $p < 0.001$). This time, neither

any of the loss-related variables nor the SCI reached significance (see Table 4). Using this model would lead to 92.6% of the participants being identified correctly as PGD cases.

4 | DISCUSSION

The present study demonstrated significantly higher self-reported interpersonal closeness to the deceased in the sense of 'self-other fusion' in patients with PGD compared to control participants. This finding can be interpreted in line with previous research highlighting identity confusion following PGD (Bellet et al., 2020; Boelen et al., 2012; Maccallum & Bryant, 2008; Robinaugh & McNally, 2013). To our knowledge, and in contrast to earlier studies investigating closeness to the deceased in bereaved individuals (Bonanno et al., 2002; Carr, 2004; Carr et al., 2001; Cerel et al., 2016; Eckerd et al., 2016; Prigerson et al., 2000; Russac et al., 2002; Smigelsky et al., 2020), this is the first study to do so in a clinical sample suffering from PGD in contrast to a matched bereaved healthy control group.

By using the IOS scale, three out of our four hypotheses were supported. First, the perceived interpersonal closeness of the bereaved with the deceased after their death was a statistically significant predictor of PGD. In the original work, content analyses have indicated that the IOS scale as a measure of closeness is related to the aspects of feeling and behaving close (Aron et al., 1992). While feeling close (loving each other, affection, trust) is an aspect that can be experienced by the bereaved, behaving close (spending time together and doing activities together) is rather difficult to implement and prone to fail. Consequently, we rather want to focus on the aspect of feeling close, when interpreting our findings. The closer the bereaved still felt to the deceased after the loss, the more likely it was that they suffered from PGD. We assume that the bereaved person's sense of self is still very much defined by the deceased (Maccallum & Bryant, 2013). This means that goals, roles and daily activities are still

TABLE 3 Correlations of psychopathology measures, inclusion of other in self, time since loss and age of the deceased

Variable	1	2	3	4	5	6	7	8
1 PG-13	—							
2 BSI-GSI	0.81**	—						
3 BDI-II	0.89**	0.92**	—					
4 IOS-D	0.63**	0.60**	0.63**	—				
5 IOS-O	-0.19	-0.11	-0.15	0.08	—			
6 No. of close relationships	-0.39	-0.20	-0.29*	-0.30*	0.11	—		
7 SCI	-0.21	-0.23	-0.26	-0.17	0.61**	0.24	—	
8 Time since loss	-0.20	0.04	-0.10	-0.04	0.16	0.001	0.08	—

Note: All $n = 54$, except for no. of close relationships, where $n = 52$.

Abbreviations: BDI-II, Beck Depression Inventory-II; BSI-GSI, Global Severity Index of the Brief Symptom Inventory; IOS-D, Interpersonal closeness with the deceased; IOS-O, Interpersonal closeness with the person closest to them and still alive; M, mean; no. of close relationships, number of close relationships; PG-13, Interview for Prolonged Grief-13; SCI, Subjective Closeness Index; SD, standard deviation.

** $p \leq 0.01$.

* $p \leq 0.05$.

	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>p</i>	<i>Exp(B)</i>	95% CI for <i>Exp(B)</i>	
							Lower	Upper
Time since loss	−0.01	0.01	3.16	1	0.08	0.99	0.97	1.00
Age of the deceased	0.72	0.88	0.66	1	0.42	2.04	0.36	11.48
Unexpected death	0.03	1.46	0.00	1	0.99	1.03	0.06	18.06
Deceased child	0.72	1.37	0.28	1	0.60	2.06	0.14	29.95
Deceased parent	0.29	1.22	0.06	1	0.81	1.34	0.12	14.64
Deceased partner	−0.04	0.02	0.10	1	0.08	0.96	0.92	1.00
SCI	−0.21	0.19	0.27	1	0.26	0.81	0.56	1.17
IOS-D	0.88	0.25	11.92	1	0.00	2.40	1.46	3.96
Constant	0.49	3.07	0.03	1	0.87	1.63		

Note: Deceased child, deceased was the child of the bereaved; deceased parent, deceased was the parent of the bereaved; deceased partner, deceased was the partner of the bereaved.

Abbreviations: *B*, regression coefficient *B*; *df*, degrees of freedom; IOS-D, Interpersonal closeness with the deceased; SCI, Subjective Closeness Index; *SE*, standard error.

TABLE 4 Results of the hierarchical logistic regression with PGD-caseness as dependent variable including all independent variables

attached to the deceased, making it difficult for the bereaved to envision a future without the deceased (Maccallum & Bryant, 2008, 2013). In the long run, feeling close to the deceased and the resulting identity confusion due to bereavement will intensify yearning and longing for the deceased. Secondly, feeling close to the deceased was significantly associated with other forms of psychopathology, such as general mental distress and depression. In fact, the results suggest that feeling close could be a better statistical predictor of PGD than actual kinship as was already indicated by previous studies (Andriessen et al., 2016; Andriessen et al., 2018). However, to this point, this can only be a cautious interpretation, as some of our categories; e.g., the deceased was a child of the bereaved, had only very few cases. Third, we found that individuals suffering from PGD have significantly fewer close relationships than do healthy controls. In line with this previous finding, participants in the PGD group feel significantly closer to the deceased than to their closest living person. Both results could be tentatively interpreted in terms of patients having less social support, which would be in line with research on protective and risk factors of PGD so far (Burke & Neimeyer, 2013; Lobb et al., 2010). As outlined in the introduction, studies have indicated that social relationships deteriorate following bereavement and bereaved are often confronted with negative reactions by their environment (Breen & O'Connor, 2011; Eisma, 2018; Smith et al., 2020). These findings could further imply that in order to spare themselves from more pain and rejection by being criticized by their environment, the bereaved simply withdraw from social interactions, all together. Thus, in turn, these findings could explain why our PGD group reported to have fewer relationships and to feel significantly closer to the deceased than to another living person. No significant difference between the two groups was found with regard to feeling close to the closest living person. Yet, the results do in fact show a tendency of the PGD group feeling less close to their closest living person than the NoPGD group. We speculate that results might have reached significance if we had been able to recruit a larger sample.

All in all, these findings are consistent with the cognitive attachment model proposed by Maccallum and Bryant (Maccallum & Bryant, 2013). It appears as if self-other fusion, or, in terms of Maccallum and Bryant, a *merged self-identity*, gets in the way of an adaptive mourning process. For if the deceased is part of one's self, he *cannot be gone* (Fuchs, 2018) as losing the other would mean losing (part of) one's own identity.

4.1 | Limitations and future research

It could be argued that the IOS scale is 'too obvious, too transparent', although this would hold for both groups, PGD group and NoPGD group, and therefore cannot explain the differences we observed. In fact, we think that the intuitive, graphic form of the IOS items may be more suitable than any verbal description could be for capturing one's innermost and existential dedication to another person or group of persons. This might explain the scale's high predictive validity in terms of relationship outcomes (Aron et al., 2013), life-long loyalty and acts of self-sacrifice (Whitehouse, 2018). The scale barely needs any explanation and is almost free of language, providing no cultural bias and few cognitive requirements (Gächter et al., 2015). Besides, because the scale is sensitive to change (Aron et al., 2003; Kashdan et al., 2007; J. A. Simpson et al., 2003) and can be administered repeatedly without any loss of validity, it may prove useful as an outcome measure for PGD treatment. Yet, we cannot rule out that the meaning of the IOS scale does not change substantially when it is related to a deceased instead to a living person, as we did not explicitly and systematically ask our participants how they interpreted the IOS scale when relating to a deceased person. While we used the IOS scale to assess how close the participants felt to the deceased and their closest living person and applied, the subjective closeness assessed by the SCI was only used in relation to the closest living person, but not in relation to the deceased. Yet, it could be discussed whether the question "Relative to all your other relationships (both

same and opposite sex), how would you characterize your relationship with this person?" is applicable in this case. Likewise, other additional variables, such as duration of the relationship with the deceased, caregiving prior to the death and characteristics of the other, living, closest person (kinship, age, gender), were not assessed, either. This information could have given more insight and explain variance when it comes to personal closeness.

Another limitation is the cross-sectional design of the study, which does not allow conclusions to be drawn about the causal role of self-other fusion in the development and maintenance of PGD. It is possible that not feeling close is a risk factor for PGD but that PGD itself fosters this feeling. Therefore, this promoted feeling of closeness towards the deceased might in turn then negatively impact other social relationships. The repeated assessment of IOS would offer more insight into the mechanisms interpersonal closeness has in connection with bereavement outcome.

Sample size as well as the composition of the sample further limits our findings. First, sample size was limited in general by the strict inclusion and exclusion criteria of the PGD group. We deliberately decided to use a very strict measure for PGD, but by doing so, we relied on the now outdated PGD-2009 criteria, leading to many participants having been excluded from the greater study, which made it very difficult to find eligible participants for that group. Second, there is an overrepresentation of women in the sample. However, this is not too surprising, as studies have indicated that female gender might be a risk factor for developing PGD (Lobb et al., 2010). Third, the study was conducted in one country only; thus, the vast majority was born and raised in Germany, inevitably restricting the findings from being generalizable to other cultural environments. Previous research has already emphasized that grief trajectories, and in connection with that grief rituals, differ substantially between different cultures and promoted the development and validation of an international culturally sensitive scale (Killikelly et al., 2018; Stelzer et al., 2020). Therefore, a replication of this study with a larger and more diverse sample applying extensive and repeated assessment is recommended.

If feeling especially close to the deceased after their death contributes to psychopathology, transforming the relationship with the deceased towards a less close one could be one potential target of therapy (Boelen, 2012; Maccallum & Bryant, 2013). Treatment should support the bereaved in constructing a self-identity independent of the deceased, thereby integrating the loss and mitigating symptoms and general mental distress (Boelen, 2012; Maccallum & Bryant, 2013). Maccallum and Bryant (2013) have promoted the idea of employing exposure in sensu, e.g., to memories of death, and imaginal conversations with the deceased to facilitate the integration of loss into the autobiographical memory. Several treatment studies have already been making use of it, reporting promising results (Boelen et al., 2007; Rosner et al., 2015). However, we urge that there should be a larger focus on therapeutic techniques helping the bereaved to get in touch again with themselves, retrieving their identity, redefining values and goals that are unrelated to the deceased. Complicated grief treatment developed Shear and colleagues (Shear et al., 2005; Shear

et al., 2016, 2014) offers such a focus, called *restoration focus* where the focus lies on personal life goals and plans for the future. As Robinaugh and McNally have put forward, by developing and focusing on goals that are unrelated to the deceased, patients are encouraged to envision a future without the deceased that might eventually promote hope and rebuild a sense of identity (Robinaugh & McNally, 2013). Behavioural activation as a means to develop new value-based and rewarding activities has also been promising (Papa et al., 2013). Another, but yet not studied, treatment in the realm of PGD would be Acceptance and Commitment Therapy (Hayes et al., 2006). However, in their study conducted with university students, Davis and colleagues could already demonstrate the acceptance and valued living are significant predictors of grief severity (Davis et al., 2016). It should be the major aim to enable those suffering from PGD to build a life worth living, without constantly being preoccupied with, but instead more independent of, the deceased (Boelen, 2012; Maccallum & Bryant, 2013; Shear et al., 2011). Another important aspect lies in the fact that apparently individuals suffering from PGD have fewer close relationships with others and show a tendency to report feeling less close to others. Clinicians need to support their clients in improving their social skills to make them feel more connected with others and enable them to engage in joint activities and share pleasant experiences, thus deepening the connection in already existing close relationships.

5 | CONCLUSIONS

The mere dissolution of a very close relationship entails the risk of loss of identity (Lewandowski et al., 2006). The feeling that one has lost a part of one's self constitutes one common symptom of PGD. We found that higher interpersonal closeness or a self-other fusion with the deceased subsequent to bereavement is significantly associated with PGD caseness, PGD symptom severity, as well as general mental distress, and depression. More focus should be given to interventions targeting this aspect. Those affected need help in reconstructing their self-identity and in becoming independent of the deceased. Moreover, they need support in terms of improving their social skills and helping them to feel closer to or more connected with those around them.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

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