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How we continue bonds with deceased persons: The proximity-seeking behavior scale

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ABSTRACT

Continuing bonds is a multifaceted process, encompassing perceptions, beliefs, illusions and hallucinations, and overt behaviors. We developed the Proximity-Seeking Behavior Scale (PSBS) to assess overt behavior to continue bonds with the deceased person. We had 694 bereaved adults complete an online survey. Exploratory and confirmatory factor analyses yielded a one-factor model for PSBS items. PSBS reliability was good. PSBS scores correlated positively with rumination and yearning, feeling connected to the deceased person, and prolonged grief and depression symptoms. The PSBS appears a reliable and valid instrument to assess proximity-seeking behaviors.

Continuing bonds is defined as an ongoing inner relationship with the deceased person (Field et al., 2003; Klass et al., 1996; Stroebe & Schut, 2005). Continuing bonds can be expressed in the form of various perceptions, experiences, and behaviors (Root & Exline, 2014). For example, continuing bonds encompass the perceptions of bereaved people about the influence of the deceased person on their current life, including adopting his/her values and beliefs, thinking about him/her as a role model, and seeking guidance from him/her (Klass, 1993, 2001). Continuing bonds may also include illusory images or hallucinations of the deceased person (Field & Filanosky, 2010). Moreover, continuing bonds is characterized by overt proximity-seeking behaviors such as reminiscing, telling stories about the deceased person, looking at photographs of the deceased person, keeping possessions belonging to the deceased person, visiting graves, or other memorial activities (Field et al., 2003).

Researchers have contrasting viewpoints on the function of continuing bonds in coping with bereavement. On the one hand, researchers during the twentieth century were influenced by Freud's standpoint (1917/1957) that the emotional energy invested in the deceased person must be detached in order to invest it in another person. Some have similarly argued that continuing bonds is a maladaptive coping reaction to grief because it would hinder the formation of new relationships and could thereby isolate the bereaved person from social support (for a review: Stroebe & Schut, 2005). A contemporary version of such theories exists in the cognitive attachment theory of prolonged grief disorder (Maccallum & Bryant, 2013). This theory holds that seeking proximity to the deceased person (occurring more often among bereaved individuals with anxious attachment styles) may increase distress, prevent new attachments, and reinforce a merged self-identity (i.e., an identity constructed around the deceased person), therewith increasing the risk for developing severe grief reactions. Relatedly, the cognitive-behavioral model of prolonged grief disorder posits that excessive proximity-seeking is a paradoxical loss avoidance strategy. High levels of proximity-seeking will hinder the realization of the permanence of the separation from the deceased person, hampering the integration of autobiographical memories about the loss with existing autobiographical memories, thereby sustaining prolonged grief symptoms (Boelen et al., 2006; cf. Field et al., 2003).

On the other hand, a more optimistic viewpoint on the role of continuing bonds in coping with grief emerged in the 1990s. Based on knowledge that in some non-western countries (e.g., Japan, Pakistan) retaining a connection with the deceased person can be a natural and healthy part of the present life (e.g.,

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Klass, 2001; Stroebe et al., 1992; Suhail et al., 2011), researchers posited that continuing bonds can be a normal part of successful adaption to bereavement (e.g., Klass et al., 1996; Lalande and Bonanno, 2006; Stroebe et al., 1992). Continuing bonds could facilitate the adjustment process after the loss by constructing a meaningful connection with the past, maintaining one's identity, and providing a source of comfort and safe harbor (Klass, 1993; Stroebe et al., 1992).

Both viewpoints have gathered some empirical support. For example, among 39 bereaved people over the course of a 5-year period, higher levels of continuing bonds were associated with more severe grief (Field et al., 2003). Boelen et al. (2006) yielded similar findings demonstrating that a specific continuing bonds expression (i.e., cherishing possessions) predicted more severe prolonged grief symptoms over a 9 month period, even when controlling for baseline prolonged grief symptoms. Interestingly, in an ecological momentary assessment study among widows, continuing bonds was related to negative mood at 4 months post-loss, and to both positive and negative mood at 2 years post-loss (Field & Friedrichs, 2004). Among recently bereaved widows, continuing bonds behavior predicted later increases in negative mood, but not in widows for whom the loss occurred longer ago. More recently, Goldstein et al. (2020) reported that during the period 2–36 months post-loss, all of 294 bereaved mothers in their survey study kept some items from their deceased infant (e.g., photos, toys, clothes). The mothers self-reported that these objects provided comfort and assisted them in adapting to the loss of their child. On balance, though, there appears more empirical support that continuing bonds relate to poorer rather than better post-loss psychological adjustment (Stroebe et al., 2012; Stroebe & Schut, 2005).

Whether or not continuing bonds facilitates adjustment to bereavement may be partly contingent on its expressions (Field et al., 1999). Therefore, various authors have chosen to classify continuing bonds by specific aspects that allow to precisely compare the associations between different subtypes of continuing bonds and grief outcomes (Root & Exline, 2014). For example, some researchers categorized continuing bonds under opposite pairing of dimensions, such as internalized continuing bonds (i.e., continuing bonds involving using the deceased person as a role model and safe haven) and externalized continuing bonds (i.e., continuing bonds involving illusions and hallucinations of the deceased person) (Field & Filanosky, 2010), or non-relinquishment (of bonds) and connectedness (with the deceased person) (Stroebe et al., 2012). Despite such distinctions, most researchers have applied a generic approach concerning the expressions of continuing bonds, combining perceptions, experiences, and behaviors within a single scale, thereby obscuring the distinction between these different expressions. Other researchers have applied an alternative approach in studies focusing specifically on a single continuing bonds behavior, such as cherishing objects associated with the deceased or hallucinations (e.g., Goldstein et al., 2020; for a review on sensory experiences of the deceased person: Kamp et al., 2020). However, the use of non-validated measures in such research is common, which may further contribute to mixed findings on the effects of continuing bonds.

The most frequently used scale implemented in continuing bonds research is the Continuing Bonds Scale (CBS; Field & Filanosky, 2010; Field et al., 1999, 2003, 2005). First created as part of a structured interview, the CBS included four items to assess continuing bonds (Field et al., 1999). Researchers subsequently revised the CBS to include 11 items (Field et al., 2003, 2005), and later 16 items (Field & Filanosky, 2010). Generally, the CBS encompasses a broad range of continuing bonds expressions, e.g., sense of the deceased person's presence, using the deceased person's possessions, recalling memories of the deceased person, identify with the deceased person. Although this scale is comprehensive, it mainly focuses on abstract, non-observable components of continuing bonds, and does not allow for the examination of the specific behavioral processes involved in continuing bonds. For instance, based on CBS scores, one cannot distinguish between overt, observable behavior (e.g., talking with others about the deceased person, visiting the grave), or subjective, non-observable sensations (e.g., sense of presence, hallucinations of the deceased person) and cognitive processes (e.g., recalling memories of the deceased person, identifying with the deceased person).

No validated scales yet exist to specifically assess overt, observable behavior people engage in to maintain a bond with the deceased person. This is surprising, given that multiple prominent grief theorists propose that these proximity-seeking behaviors play a key role in its development and persistence of prolonged grief reactions (e.g., Boelen et al., 2006; Maccallum & Bryant, 2013; see also: Shear et al., 2007).

Therefore, the aim of this study is to evaluate the psychometric properties of a six-item Proximity-Seeking Behavior Scale (PSBS). First, we expected all items of the PSBS to cluster together into a single underlying factor. Second, we expected internal consistency of the PSBS to be high. Third, with respect to the convergent validity, we predicted a moderate

positive association between proximity-seeking behaviors and related processes of yearning and rumination (cf. Stroebe et al., 2010). Fourth, with respect to criterion validity, we hypothesized that engaging in specific proximity-seeking behavior would be associated with feeling connected to the deceased person. Additionally, we predicted that proximity-seeking behaviors would be positively correlated with prolonged grief and depression symptoms, whilst controlling background characteristics.

Method

Participants

Data for the present cross-sectional survey study were obtained as part of a larger study on psychosocial adaption to bereavement. Participants were eligible if they were 18 years or older and had experienced bereavement within the past 5 years. We included 694 participants (M age = 52.92 years, $SD = 13.23$ years, 90% women, 55% with higher education). The mean time since the death of their relative was approximately 1 year ($M = 14.12$ months, $SD = 17.72$ months), with 49% participants experiencing a loss less than 6 months ago. Participants had lost a partner (42%), parent (37%), child (11%), sibling (7%) or other relation (e.g., stepparent, grandparent) (3%). A majority had experienced a natural loss (82%). Half viewed the death as expected, 32% as unexpected, and 18% indicated it was "both" or "neither". In addition, 15% scored above the cutoff score of 61 for probable disturbed grief on Traumatic Grief Inventory Self-Report (TGI-SR: Boelen & Smid, 2017).

Procedure

The Ethical Committee Psychology of the University of Groningen approved the project (registration number: PSY-1819-S-0173). We recruited participants via Google advertisements and via a website containing a grief self-test (www.psyned.nl). Advertisements contained a link to the study's website programmed in Qualtrics. On this website, potential participants could access study information and completed an informed consent form. After providing informed consent, participants started the survey. Data for the present study was gathered between May 2019 and August 2020. Of 1325 people who initially accessed the questionnaire, 697 (53%) completed the questionnaires used in this paper. After excluding three people who were bereaved of a dog instead of a human being, we retained 694 participants.

Measures

The first author of this paper created first version of the Proximity-Seeking Behavior Scale (PSBS) by selecting and adapting items from existing continuing bonds scales (most notably, the CBS) and developing new items. The primary criterion for the inclusion of items was that items should represent observable behavior indicative of continuing bonds. Subsequently, two other grief researchers (one expert in continuing bonds) commented on the items, leading to changes in item phrasing as well as the addition of examples to some items. Next, we asked a conjugally bereaved clinician to indicate to what extent the items are understandable, comprehensive, and reflective of his and other bereaved persons' experiences. He made further suggestions for improvement leading to minor adaptations of the scale.

Part 1 of the PSBS comprised six items tapping behavior that can serve to maintain a bond with the deceased (see Table 1). Participants rated how often they engaged in these behaviors during the past year (or since the loss) on a 5-point Likert scale (1= *never* to 5 = *very often*). Part 1 of the PSBS is the main focus of this validation study and will be referred to as "the PSBS" in the remainder of this paper. Part 2 of the PSBS also consists of six items. However, these items were solely included for validation purposes. In Part 2 of the PSBS, participants indicated how connected they felt to the deceased person when engaging in each proximity-seeking behavior specified in Part 1 on a 5-point Likert scale (1 = *less strong* to 5 = *stronger*), with an additional answer option (Not applicable. I did not do this).

The 8-item Dutch version of Yearning in Situation of Loss Short Form (YSL-SF; Eisma et al., 2020, based on: O'Connor & Sussman, 2014) was used to assess yearning. Participants were asked to indicate often they had experiences indicating yearning on a 5-point Likert scale (ranging from 1 = *never/very rarely*, 5 = *very often*). The internal consistency of YSL-SF was good ($\alpha = .89$).

The 15-item Utrecht Grief Rumination Scale (UGRS; Eisma et al., 2012, 2014) measures grief rumination, defined as repetitive and recurrent thoughts about causes and consequences of the loss. Participants rated how often they experienced certain thoughts on a 5-point Likert scale (ranging from 1 = *never* to 5 = *very often*). The internal consistency of the UGRS was good ($\alpha = .89$).

The Traumatic Grief Inventory Self-Report (TGI-SR; Boelen & Smid, 2017) includes 18 items describing symptoms of Prolonged Grief Disorder (per criteria of Prigerson et al., 2009) and of Persistent Complex Bereavement Disorder (Diagnostical and Statistical

Table 1. Item content, EFA and CFA factor loadings, item means and standard deviations, and item-total correlations.

Item	EFA: Standardized factor loadings ($n = 347$)	CFA: Standardized factor loadings ($n = 347$)	*M (SD)* ($N = 694$)	Item-total correlations ($N = 694$)
1. I cherished things that belonged to the deceased or that were closely associated with the deceased (e.g., possessions, clothes, furniture)	.65	.50	3.35 (1.37)	.54
2. I watched or listened to things that remind me of what life was like with the deceased (e.g., photos, videos, letters)	.67	.66	3.37 (1.28)	.62
3. I did things to commemorate the deceased (e.g., organize memorial service, contribute to a memorial website, reflect on birthday or death anniversary)	.76	.69	2.68 (1.32)	.62
4. I made things (e.g., art, a book, memorial bench) or did things (e.g., plant tree, support charity) in the name of the deceased	.70	.60	2.13 (1.29)	.57
5. I talked about memories of the life of the deceased with family, friends and / or others.	.46	.52	3.47 (1.86)	.43
6. I visited certain places to remind myself of the deceased (e.g., grave, memorial place, old holiday destination, places that you would like to visit together).	.67	.75	2.66 (1.40)	.61

Note. The CFA model included correlated item residuals for item 1 and 2. All item-total correlations are significant at $p < 0.01$.

Manual of Mental Disorders 5, DSM-5, American Psychiatric Association, 2013). Participants rated how often they experienced these symptoms on a 5-point Likert scale (ranging from 1 = *never* to 5 = *very often*). We used the total score in our analyses. The reliability of the TGI-SR was excellent ($\alpha = .93$).

Depression symptoms were assessed by 16 items from the Quick Inventory of Depressive Symptomatology (QIDS; Rush et al., 2003). Participants rated how often they experienced depression symptoms (e.g., feeling restless, low self-esteem) on a 4-point scale ranging from 0 to 3 (anchors differ). The QIDS had a good internal consistency ($\alpha = .80$).

Statistical analyses

Factor analyses were conducted in R 4.0.2 (R Core Team, 2016). The total sample ($N = 694$) was randomly split in half using the caTools package (Tuszynski, 2020). The EFA was performed using the psych package (Revelle, 2019) and the GPArotation package (Bernaards & Jennrich, 2005). The CFA was performed with the lavaan package (Rosseel, 2012). Remaining analyses were conducted with SPSS 25.0 on the total sample ($N = 694$).

Results

The dimensionality of the six items of the PSBS (i.e., Part 1) was examined by identifying the number of retainable factors. An exploratory factor analysis (EFA) with weighted least squares estimation was performed on a randomly selected half of all available data (subsample 1: $n = 347$). Factors were retained if their eigenvalue exceeded 1. The resulting factor solution was further checked with a parallel analysis that compares the eigenvalue of retained factors with estimated eigenvalue from a random data set with the same size as the original (Floyd & Widaman, 1995). The EFA revealed the presence of one factor with eigenvalue exceeding one, explaining 43.1% of the total variance. The Scree plot had a clear break after the first factor, indicating that a one-factor model fit the data best and the parallel analysis also suggested one factor. Therefore, we selected the one-factor model for the PSBS.

Second, we examined the factor structure using confirmatory factor analysis (CFA) with weighted least squares mean and variance adjusted estimation on the other half of all available data (subsample 2: $n = 347$; Floyd & Widaman, 1995; Beauducel & Herzberg, 2006). Goodness of model fit was assessed with the comparative fit index (CFI; Bentler, 1990) in

combination with the root mean square error of approximation (RMSEA; Steiger, 1980) and standardized root mean square (SRMS; Hu & Bentler, 1999). We considered CFI $\geq$ .90, RMSEA $\leq$ .08, and SRMS $\leq$ .08 to indicate an acceptable fit. For comparability with other studies, the Tucker-Lewis index (TLI; Tucker & Lewis, 1973) and chi-square test values were also presented. In case of insufficient model fit, local fit was assessed using the standardized expected parameter change statistic (SEPC; Saris et al., 2009). These values indicate the potential presence of subfactors within a factor. SEPC values $>$ .40 of item pairs within a factor would warrant allowing item residuals to correlate. We allowed correlated item residuals per pair of items, starting with the pair associated with the largest SEPC, until acceptable model fit was found. Factor loadings $\geq$ .30 were regarded as sufficient loadings.

The CFA of the one-factor model showed that the CFI and SRMS values indicated an acceptable model fit (CFI = 0.924, SRMS = 0.053), but the RMSEA did not (RMSEA = 0.111). The chi-square value was 57.898 (9), $p < .05$ and the TLI value was .874. Modification indices showed the presence of a sub factor consisting of items 1 and 2 (SEPC = 0.41). Allowing the residuals of these two items to correlate, yielded an acceptable model fit (CFI = 0.971, SRMR = 0.037, RMSEA = 0.073, χ^2 = 22.768 (9), $p < .05$, TLI = .946). The presence of the sub-factor of item 1 and 2 may be due to the fact these items both describe behaviors that are typically done alone (e.g., keeping the deceased person's possessions, watching or listening to things that remind one of the deceased person). The other items included behaviors typically involving others (e.g., talking with others about the deceased person's life, doing things to commemorate the deceased person). Additionally, all items in model with correlated residuals for item 1 and 2 had salient loadings on the main factor. Therefore, the PSBS's one-factor model fit the data.

The internal consistency of the PSBS was good, α = .81. All items of the PSBS were positively correlated with each other (.26 $\leq r \leq$ .56). Item-total correlations ranged from moderate to strong (.43 $\leq r \leq$ .62, see Table 1). In addition, the Cronbach's alpha of the PSBS did not increase by deleting any of the items.

Correlations between proximity-seeking and yearning and rumination were significant and positive (r = .46, $p < .01$ and r = .35, $p < .01$, respectively), providing convergent validity evidence for the PSBS.

In support of criterion validity, we found that correlations between the six PSBS items (Part 1) and the six items from Part 2 (assessing feelings of connectedness) for each respective proximity-seeking behavior were significant, moderate to strong, and positive (.40 $\leq r \leq$ .58, all $ps < .01$). This shows that engaging more in each individual proximity-seeking behavior was related to feeling more connected to the deceased.

Two regression analyses were run to examine the associations between background (i.e., demographic and loss-related) variables and prolonged grief and depression symptoms. We coded categorical loss-related variables that were not dichotomous into dummy variables, including relationship with the deceased person into four dummy variables, with "other" as the reference group, and expectedness of the death into two dummy variables, with "both or neither" as the reference group. Statistically significant associations of age (β = −.15, $p < .001$), educational level (β = .16, $p < .001$), time since loss (β = −.16, $p < .001$), and cause of death (β = .16, $p < .001$) emerged for prolonged grief symptoms, $F(11, 640)$ = 12.08, $p < .001$, R^2 = .17. Educational level (β = .16, $p < .001$), time since loss (β = −.09, p = .24), and cause of death (β = .14, p = .001) were significantly associated with depressive symptoms, $F(11, 640) = 5.85$, $p < .001$, R^2 = .09.

Next, in our main regression analyses, proximity-seeking behaviors predicted additional variance in prolonged grief symptoms, $F(5, 646)$ = 28.69, $p <$ .001, ΔR^2 = .07, and depression symptoms, $F(4, 634)$ = 16.33, $p < .001$, ΔR^2 = .03, over and above background variables that related significantly to these outcomes (see Table 2).

Since 49% of our sample experienced a loss less than 6 months ago prolonged grief cannot be established in this subsample (World Health Organization, 2018), we conducted sensitivity analyses, to establish whether this influenced our results. We reran the two last regression analyses on the subset who experienced a loss $\geq$ 6 months ago. These analyses yielded highly similar results (i.e., direction, significance, and effect sizes of associations between proximity-seeking and prolonged grief and depressions symptoms were the same) and are therefore not reported here.

Discussion

The aim of the present study was to develop and validate the PSBS, a new self-report scale to measure overt behaviors involved in continuing bonds. An analysis of survey data from a large heterogeneous sample of bereaved adults provided evidence for the reliability and validity of the PSBS.

Table 2. Hierarchical regression analyses predicting prolonged grief and depressive symptoms.

	Prolonged grief symptoms[a] ($N = 652$)			Depressive symptoms ($N = 639$)		
	β	*Adj.* R^2	ΔR^2	β	*Adj.* R^2	ΔR^2
Model 1						
Step 1		.11	.11		.06	.06
Age	−.12**			–		
Educational level	.17***			.16***		
Time since loss	−.11**			−.07		
Cause of death	.22***			.19***		
Step 2		.18	.07		.09	.03
Proximity-seeking behaviors	.27***			.16***		

Note. [a]Two items capturing (symptoms related to) yearning were removed from the scale for prolonged grief symptoms (TGI-SR) to reduce content overlap. Final model results are reported only. *$p < .05$; ** $p < .01$; *** $p < .001$.

The construct validity of the PSBS was supported by factor analyses. The exploratory factor analysis indicated that items of the PSBS clustered into a single factor. This one-factor model of the PSBS was further evaluated in a confirmatory factor analysis demonstrating acceptable model fit based on a combination of fit indices (CFI and SRMR, Hu & Bentler, 1999). The RMSEA did not indicate a good fit of the model initially, but is sensitive to mild model misspecification (Chen et al., 2008), and tends to reject the model with minor error in case of high reliability of the scale and small unique variance of the items (Prudon, 2015). Given that our model was simple and the reliability was good, the initially insufficient RMSEA value did not lead us to reject the model. Instead, we modified the model distinguishing between solitary and communal proximity seeking behaviors. Allowing the errors of these items to correlate, resulted in an acceptable fit of the model, suggesting that the PSBS measured a single latent construct. Future research could assess whether bereaved people differ in solitary and communal proximity-seeking behaviors.

Evidence of convergent validity of the PSBS was provided by moderate positive correlations with yearning and rumination. Evidence of criterion validity of the PSBS was first demonstrated by the positive, moderate associations between engaging in specific proximity-seeking behaviors (assessed by Part 1 of the PSBS) and feeling connected to the deceased (assessed by Part 2 of the PSBS). This finding suggests that proximity-seeking behaviors serve to retain a connection to the deceased. Additional evidence for the PSBS's criterion validity was hierarchical regression analyses demonstrating significant small to moderate positive associations of the proximity-seeking behavior with prolonged grief and depression symptoms, which remained significant after controlling for relevant background variables. This finding aligns with the proposed maladaptive function of (excessive) proximity-seeking (Boelen et al., 2006), as well as prior studies demonstrating small to moderate positive concurrent associations between continuing bonds and mental health problems (e.g., Boelen et al., 2006, Neimeyer et al., 2006). However, the similarity between the sizes of such previously-reported associations and the associations found in the present study does not suggest that proximity-seeking behaviors are related more strongly to mental health problems than other types of continuing bonds expressions.

In sum, the present study provided initial support for the reliability and validity of the PSBS. This standardized assessment tool will enable the investigation of specific hypotheses on the effects and working mechanisms of overt proximity-seeking behaviors. For example, using the PSBS, one could test the idea that excessive proximity-seeking may paradoxically serve as a way to avoid acknowledging the permanence of separation from the deceased, which could interfere with emotional processing of the loss (Boelen et al., 2006; Field et al., 2003; for a summary of a similar research program on grief-related rumination: Eisma & Stroebe, 2017).

Some limitations of our study warrant mention. First, we recruited participants via the internet, which could limit the representativeness of the sample. Second, our convenience sample contained an overrepresentation of highly educated Dutch women who had experienced the loss of a partner or parent. A replication in a sample with more men and lower educated people would be useful. Relatedly, the participants volunteered to participate in a study on grief research, which may result in a self-selection bias. Possibly, people with higher proximity-seeking behaviors were more likely to participate as participating provides an opportunity to feel connected to the deceased person. Fourth, the current study has some specific limitations related to the survey methodology, including biases typical seen in surveys, such as recency bias (e.g., scoring higher on proximity-seeking behaviors if one recently engaged in it). Fifth, we did not assess the temporal stability and the predictive validity of the PSBS. This should be examined in future longitudinal studies.

Despite these limitations, the present study was the first to develop and validate a scale to assess the overt behavior that serves to continue bonds. This study provided evidence supporting the reliability, as well as the construct, convergent, and criterion validity of the PSBS. The PSBS may prove a useful tool for research on continuing bonds more generally and proximity-seeking specifically.

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Data availability statement

The data, syntax, and output supporting the conclusions of this manuscript is available here: https://doi.org/10.34894/EPMUJP

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