The disappearance of a significant other

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Cognitive-behavioral correlates of psychological symptoms among relatives of missing persons.

ABSTRACT

Background

The disappearance of significant others is associated with an increased risk of prolonged grief disorder (PGD), posttraumatic stress disorder (PTSD), and major depressive disorder (MDD). Enhancing knowledge about cognitive-behavioral correlates of PGD, PTSD, and MDD may generate valuable information for developing interventions for relatives of missing persons. We aimed to examine whether prior findings, indicating that cognitive-behavioral variables are related to distress among bereaved individuals, generalize to relatives of missing persons.

Methods

Relatives of missing persons (n = 134) completed self-report measures of negative cognitions, avoidance behaviors, PGD, PTSD, and MDD. Multilevel analysis was used.

Results

Cognitive-behavioral variables explained 40% to 60% of the additional variance in PGD, PTSD, and MDD levels over and above sociodemographic variables.

Conclusion

Similar to bereaved individuals, relatives of missing persons who tend to engage in negative cognitions and avoidance behaviors are more likely to experience elevated psychopathology levels. Addressing cognitive-behavioral variables in treatment may be beneficial.

The long-term disappearance of a significant other is a unique type of loss, due to uncertainty about the whereabouts of the missing loved one. Not knowing whether the separation is temporary or permanent may complicate the grieving process (Boss, 2006). There is evidence that similar to people confronted with other potential traumatic losses (Kristensen, Weisæth, & Heir, 2012), relatives of missing persons have an increased risk of the development of symptoms of prolonged grief disorder (PGD)[1], posttraumatic stress disorder (PTSD), and major depressive disorder (MDD) (Heeke & Knaevelsrud, 2015). For example, a study among people confronted with the disappearance of a family member or friend due to political repression showed that interview-based rates of PGD (23.3%), PTSD (67.1%), and MDD (68.5%) are comparable to homicidally bereaved individuals (Heeke, Stammel, & Knaevelsrud, 2015). PGD symptoms (e.g., intense sorrow and preoccupation with the deceased loved one) differ from normal grief reactions in that they last longer and are more intense (Maciejewski et al., 2016). In addition, the hallmark of PGD (i.e., longing for the deceased) is distinct from key symptoms of PTSD (i.e., intrusion symptoms) and MDD (i.e., sadness), which has been supported by factor analytic research (e.g., Prigerson et al., 1996).

Literature regarding correlates of psychological symptoms, including symptoms of PGD, PTSD, and MDD, in relatives of long-term missing persons is scarce and is primarily focused on sociodemographic correlates (Heeke & Knaevelsrud, 2015; Lenferink, de Keijser, Wessel, de Vries, & Boelen, 2017). Moreover, studies exploring correlates that are amendable to therapeutic change are lacking. Gaining insights into these correlates is relevant for developing psychological treatment for relatives of missing persons in need of professional support.

Several theories emphasize the importance of negative cognitions and avoidance behaviors in the development and persistence of PGD, PTSD, and MDD (e.g., Beck, 1987; Ehlers & Clark, 2000; Shear & Shair, 2005). Multiple studies, based on a cognitive behavioral model of PGD (Boelen, van den Hout, & van den Bout, 2006), showed that negative cognitions and avoidance behavior are related to symptom levels of PGD, but also PTSD and MDD concurrently and longitudinally in people who experienced the death of a loved one (Boelen, de Keijser, & Smid, 2015; Boelen & Eisma, 2015; Boelen & van den Bout, 2010; Eisma et al., 2013; van der Houwen, Stroebe, Schut, Stroebe, & van den Bout, 2010). Negative cognitions may include a negative self-view (e.g., "Since (--) is dead, I feel worthless"), negative view on one's own life (e.g. "My life is meaningless since (--) died"), a pessimistic view on the future (e.g. "I don't have confidence in the future"), and catastrophic misinterpretations of one's own grief reactions (e.g. "Once I would start crying, I would lose control"). Avoidance behavior includes both anxious avoidance and depressive avoidance.

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1. PGD resembles persistent complex bereavement disorder as recently included as condition for further study in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association [APA], 2013; see Maciejewski, Maercker, Boelen, & Prigerson, 2016).

Anxious avoidance refers to avoidance of loss-related stimuli out of fear that confrontation with these stimuli will be unbearable. Depressive avoidance behavior includes withdrawal from different social/recreational activities fueled by the belief that these activities are pointless and/or unfulfilling (Boelen et al., 2006).

To the best of our knowledge, cognitive-behavioral correlates of psychopathology in relatives of missing persons have not been studied previously. As noted, knowledge about these correlates may inform development and refinement of treatment interventions. Accordingly, the aim of this study – conducted in the Netherlands – was to examine whether prior findings, indicating that cognitive-behavioral variables are related to emotional distress after the death of loved one generalize to relatives of long-term missing persons. We expected that negative cognitions (about one's self, life, future, and catastrophic misinterpretations of one's own grief reactions) and anxious and depressive avoidance behaviors would explain amounts of variance in symptom levels of PGD, PTSD, and MDD over and above sociodemographic variables.

METHOD

Recruitment

The present data come from 134 participants in an ongoing research project on the correlates and treatment of psychopathology in relatives of missing persons (Lenferink, Wessel, de Keijser, & Boelen, 2016). Inclusion criteria were: a) being a nuclear or extended family member, spouse, or friend of a person who has been missing for at least 3 months, b) fluent in Dutch language, and c) being at least 18 years of age. The following definition of a missing person was used: "Anyone whose whereabouts is unknown whatever the circumstances of disappearance. They will be considered missing until located and their well-being or otherwise established" (Association of Chief Police Officers, 2010, p. 15). Paper-and-pencil questionnaire data were collected between July 2014 and January 2016. Participants were recruited via invitation letters sent by representatives of a Dutch television show about missing persons (26.9%) and peer support organizations (22.4%), and referral via Victim Support the Netherlands — a non-governmental organization for victim support — (15.7%). Others were approached through family members or friends (26.1%) or other recruitment-procedures (e.g., media-attention) (9.0%). These recruitment rates were based on the responses to an item about how the respondents were referred to this study. We cannot rule out that participants could have received multiple invitations to participate from different sources. Approval for conducting the study was obtained from a local ethics review board. All participants gave written informed consent.

Participants

Table 1 summarizes the characteristics of the sample. The majority of the participants were women (66.4%). On average, the participants were 57.8 (SD = 14.2) years of age and the disappearance took place 15.5 (SD = 17.0) years earlier. Most of the participants experienced the disappearance of a child (30.6%) and most participants (32.8%) presumed that their relative disappeared due to a criminal act (e.g., kidnapping, homicide). More than half (61.2%) of the participants assumed that their missing loved one was dead. The 134 participants represented 89 (66.4%) unique missing persons.

Table 1. Characteristics of the participants (n = 134)

Women, *N (%)*	89 (66.4)
Age (in years), *M (SD)*	57.8 (14.2)
Educational level, *N (%)*	
Primary to moderate	76 (56.7)
High	58 (43.3)
Lost relative is, *N (%)*	
Partner/spouse	18 (13.4)
Child	41 (30.6)
Parent	14 (10.4)
Sibling	31 (23.1)
Other family member	28 (20.9)
Other	2 (1.5)
Number of years since disappearance, *M (SD)*	15.5 (17.0)
Presumed cause of disappearance, *N (%)*	
Criminal act	44 (32.8)
Voluntarily	33 (24.6)
Accident	33 (24.6)
No specific suspicion	24 (17.9)
Belief about whereabouts of missing person, *N (%)*	
Alive	25 (18.6)
Dead	82 (61.2)
Doubt	27 (20.1)
Unique missing persons	89 (66.4)

Measures

Dependent variables
The 19-item Inventory of Complicated Grief (ICG) was used to assess self-rated symptoms of PGD (Prigerson et al., 1995). Although the original 29-item ICG-r was administered (Boelen, van den Bout, de Keijser, & Hoijtink, 2003; Prigerson & Jacobs, 2001), we only included the frequently used 19 items of the ICG (e.g., Hargrave, Leathem, & Long, 2012) in order to prevent content overlap with items of other measures used within this study. Participants rated how frequently they experienced grief reactions during the last month, on a scale ranging from 0 ("never") to 4 ("always"). Total scores range from 0 to 76. Items that referred to death were adapted to disappearance (e.g., "Ever since he/she has been missing it is hard for me to trust people"). The ICG has adequate psychometric properties (Prigerson et al., 1995). Cronbach's alpha in the current study was .92.

   The 20-item PTSD Checklist for DSM-5 (PCL-5) was used to assess PTSD severity (Blevins, Weathers, Davis, Witte, & Domino, 2015; Boeschoten, Bakker, Jongedijk, & Olff, 2014). The PCL-5 represents the DSM-5 PTSD criteria (APA, 2013). Participants rated to what extent they experienced PTSD symptoms during the preceding month on a scale ranging from 0 ("not at all") to 4 ("extremely") (e.g., "How much were you bothered by feeling distant or cut off from other people?"). Total scores range from 0 to 80. The wording 'the stressful experience' in the instruction and the items was replaced by 'the events associated with the disappearance'. The psychometric properties of the PCL-5 are adequate (Blevins et al., 2015). Cronbach's alpha in the current study was .95.

   The 30-item Inventory of Depressive Symptomatology – Self-Report (IDS-SR) was used to assess MDD severity (Rush, Gullion, Basco, Jarrett, & Trivedi, 1996). Participants were instructed to choose one out of four options (range 0 - 3) indicating how frequently they experienced a symptom (e.g., "Feeling sad") during the past 7 days. A total score was obtained by summing up 28 out of the 30 items (range 0 – 84). The IDS-SR showed good psychometric properties (Rush et al., 1996). Cronbach's alpha in the current study was .92.

Independent variables
The Grief Cognitions Questionnaire (GCQ) was used to assess negative cognitions related to the disappearance (Boelen & Lensvelt-Mulders, 2005). Four of its nine subscales were assessed: self (six items; e.g. "I am ashamed of myself, since he/she has been missing", range 0 - 30), life (four items; "Life has got nothing to offer me anymore", range 0 - 20), future (five items; "My wishes for the future will never be fulfilled", range 0 - 25), and catastrophic misinterpretations of one's own grief reactions (four items; "If I let go of my emotions, I will go crazy", range 0 - 20). Participants rated their agreement with each item on 6-point scales (anchors: 0 = disagree strongly and 5 = agree

strongly). Words that referred to death in the items were adapted to refer to the disappearance. The GCQ has adequate psychometric properties (Boelen & Lensvelt-Mulders, 2005). Cronbach's alphas of the subscales were .90 (self), .93 (life), .92 (future), and .93 (catastrophic misinterpretations).

The Depressive and Anxious Avoidance in Prolonged Grief Questionnaire (DAAPGQ) was used to assess avoidance behaviors (Boelen & van den Bout, 2010). The 9-item DAAPGQ consists of two subscales; depressive avoidance (five items; e.g., "I develop very few new activities since he/she has been missing, because I am unable to do so.", range 0 - 25) and anxious avoidance (four items; e.g., "I avoid to dwell on painful thoughts and memories connected to his/her disappearance.", range 0 - 20). Participants rated their agreement with each item on 6-point scale with anchors "not at all true for me" (0) to "completely true for me" (5). Words that referred to death in the items were adapted to refer to the disappearance. The DAAPGQ has adequate psychometric properties (Eisma et al., 2013). Cronbach's alpha was .92 for depressive avoidance and .75 for anxious avoidance.

Sociodemographic characteristics
Gender, age, kinship (categorized as child/spouse versus other), number of years since disappearance, and educational level (categorized as primary to moderate versus high) were registered. The presumed cause of disappearance and belief about the whereabouts of the missing loved one were also assessed. Presumed cause of disappearance was categorized as: voluntary, victim of criminal act, victim of accident, and no (specific) suspicion. Belief about the whereabouts of the missing loved one was categorized as: I think (s)he is alive, I doubt whether (s)he is alive, and I think (s)he is not alive.

Statistical analyses
Multilevel regression analyses were used to deal with the nested structure of the data. The nested structure of our data involves a two-level hierarchy: the participant (level 1, henceforth referred to as the participant-level), is nested within a social network/family of other relatives of the same missing person (level 2, henceforth referred to as the family-level). Intraclass coefficients were estimated to assess the proportion of variance at the family-level, based on random intercept-only models with symptom levels (i.e., sum scores) of PGD, PTSD, or MDD as the respective dependent variable. In case no variance could be explained by the family-level, single-level regression analyses were performed.

First, regression analyses were performed to examine whether each sociodemographic variable had a main effect on symptom levels of PGD, PTSD, and/or MDD. To this end, series of univariate analyses were performed with each of the sociodemographic variables as the independent variable, using dummy variables for the categorical variables, and symptom levels of PGD, PTSD, or MDD as the dependent variable.

Subsequently, the sociodemographic variables with a significant main effect on the indices of psychopathology were entered to the first model with symptom levels of PGD, PTSD, or MDD severity scores as dependent variable. The sum scores of the cognitive-behavioral variables were, next to the sociodemographic variables, entered to a second model. The explained proportion of variance at each level was computed for each model. A Bonferroni-correction was used for the main analyses to correct for multiple tests, resulting in an alpha of .02 (.05/3).

RESULTS

For PGD, 18.4% of the variance was at the family-level (level 2) and 81.6% at the participant-level (level 1). For PTSD, 18.1% of the variance was at the family-level and 81.9% at the participant-level. For MDD, the variance at the family-level was 0% and 100% at the participant-level, thus a single-level model was used in further analyses with respect to MDD.

Fixed main effects of sociodemographic variables on symptom levels of PGD, PTSD, and MDD

The results of the univariate regression analyses are displayed in Table 2. Women reported significantly higher levels of MDD (B = 5.29, SE = 2.47, p = .034), but not PGD and PTSD, than men. Time since loss was significantly and inversely related to PGD (B = -0.29, SE = 0.08, p < .001), PTSD (B = -0.22, SE = 0.09, p = .019), and MDD (B = -0.16, SE = 0.07, p = .019), indicating that psychopathology levels decrease with the passage of time. Also type of kinship had a significant main effect on symptom levels of PGD, PTSD, and MDD. Those who experienced the disappearance of a child or spouse reported higher PGD (B = 11.24, SE = 2.35, p < .001), PTSD (B = 9.91, SE = 2.85, p = .001), and MDD (B = 6.20, SE = 2.33, p = .009) levels compared with people whose parent, sibling, or more distant relative disappeared. Those who believed the missing loved one would be still alive reported significantly higher PGD (B = 8.97, SE = 3.42, p = .010) and PTSD (B = 8.23, SE = 4.03, p = .043) levels, not MDD levels, than those who believed that the missing loved one was deceased. Effects of age, educational level, and the type of disappearance (e.g., voluntarily missing versus presumed victim of a criminal act) were not statistically significant.

Table 2. Fixed main effects of sociodemographic variables on PGD, PTSD, and MDD in relatives of missing persons (*n* = 134); each parameter results from a univariate regression

Variable	PGD		PTSD		MDD	
	B	SE	B	SE	B	SE
Gender	1.83	2.62	4.62	3.04	5.29*	2.47
Educational level	-2.40	2.63	-0.93	3.09	2.55	2.39
Time since loss (in years)	-0.29***	0.08	-0.22*	0.09	-0.16*	0.07
Kinship	-11.24***	2.35	-9.91**	2.85	-6.20**	2.33
Presumed reason of disappearance						
Voluntarily vs. criminal act	5.94	3.53	3.85	4.19	1.65	3.18
Voluntarily vs. accident	-3.88	3.84	-4.19	4.55	-1.61	3.39
Voluntarily vs. no specific suspicion	3.06	4.00	-1.90	4.75	0.04	3.70
Whereabouts of missing loved one						
Dead versus alive	8.97*	3.42	8.23*	4.03	1.60	3.15
Dead versus doubt	4.51	3.21	2.57	3.80	0.26	3.06

Note. Gender was coded as 0 = men, 1 = women; educational level as 0 = primary to moderate, 1 = other; kinship as 0 = child or spouse, 1 = other; "Voluntarily" was the reference category for "Presumed reason of disappearance; "Dead" was the reference category for "Whereabouts of missing loved one"; * = $p < .05$; ** = $p < .01$; *** = $p < .001$.

Cognitive-behavioral correlates of PGD, PTSD, and MDD

First, the sociodemographic variables that yielded significant main effects on symptom levels of PGD, PTSD, or MDD were entered simultaneously in the first model for PGD, PTSD, or MDD, respectively. In the second model, the cognitive-behavioral variables were added. Individual variance inflation factors were all below 5, suggesting no cause for concern about multicollinearity. The results are displayed in Table 3.

The sociodemographic variables explained 20.1% of the variance in PGD at the participant-level. The type of kinship explained a unique proportion of the variance. The explained variance in PGD at the participant-level increased to 64.3% by adding the cognitive-behavioral variables to the second model. Catastrophic misinterpretations of one's own grief reactions and depressive avoidance behavior were uniquely associated with PGD severity when taking into account the other variables.

The sociodemographic variables explained 11.9% of the variance in PTSD at the participant-level. Type of kinship explained a unique proportion of the variance in PTSD. The explained variance in PTSD at the participant-level increased to 70.9% by adding the cognitive-behavioral variables to the second model. Misinterpretations of one's own grief reactions and depressive avoidance were significantly associated with PTSD levels when taking into account the other variables. Because the PTSD measure included two PTSD avoidance symptoms, which may artificially inflate the strength of its relationships with indices of anxious avoidance and depressive avoidance, we

repeated the multilevel analysis for PTSD, excluding the two PTSD avoidance symptoms (items 6 and 7). This analysis yielded similar results, indicating that misinterpretations of one's own grief reactions and depressive avoidance (B = .90, SE = 0.20, p < .001), but not anxious avoidance (B = 0.41, SE = 0.22, p = .07), were significantly associated with PTSD levels when taking into account the other variables.

The sociodemographic variables explained 10.9% of the variance in MDD. The explained variance in MDD increased to 69.4% by adding the cognitive-behavioral variables to the model. Misinterpretations of one's own grief reactions and depressive avoidance behavior were uniquely associated with MDD levels when taking into account the other variables. Repeating the analysis with excluding three items (item 8, 19, and 21) of the depression measure that may overlap with the indices of anxious avoidance and depressive avoidance yielded similar results, indicating that depressive avoidance was significantly related to depression when taking into account the other variables (B = .77, SE = 0.16, p < .001).

Table 3. Results of multiple (multilevel) regression models predicting levels of PGD, PTSD, and MDD in relatives of missing persons ($n = 134$)

Variable	PGD Model 1 B	SE	PGD Model 2 B	SE	PTSD Model 1 B	SE	PTSD Model 2 B	SE	MDD Model 1 B	SE	MDD Model 2 B	SE
Gender	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5.61	2.41	4.88**	1.47
Time since loss	-0.17	0.08	-0.06	0.05	-0.12	0.09	0.05	0.05	-0.14	0.07	0.02	0.04
Kinship	-9.07***	2.39	-3.31	2.39	-8.05**	2.94	-0.18	1.78	-4.89	2.37	0.66	1.49
Whereabouts of missing loved one[a]												
Dead vs alive	5.62	3.24			5.70	3.79			n.a.	n.a.	n.a.	n.a.
Dead vs doubt	2.02	3.02			-0.14	3.71			n.a.	n.a.	n.a.	n.a.
Cognitive variables												
Self			-0.03	0.22			-0.05	0.23			-0.07	0.20
Life			-0.14	0.33			0.36	0.35			0.39	0.29
Future			0.32	0.25			0.40	0.27			0.28	0.23
Misinterpretations			0.90***	0.22			0.71**	0.23			0.52*	0.20
Behavioral variables												
DA			0.61**	0.20			0.91***	0.21			0.94***	0.18
AA			0.37	0.23			0.55	0.24			-0.07	0.20
R² level 1, %	20.13		64.31		11.92		70.87		10.85		69.36	
R² level 1 change, %			44.18				58.95				58.51	
R² level 2, %	20.22		65.40		12.47		72.15					
R² level 2 change, %			45.18				59.68					
X²Change	38.05***		105.70***		25.13***		145.78***		5.23**		39.15***	

Note. Misinterpretations = catastrophic misinterpretations; DA = depressive avoidance; AA = anxious avoidance; n.a. = not applicable: these variables were not included in the model, because the univariate analyses showed no main effect of this variable on the outcome measure; [a] = The variance at level 2 could only be estimated in the second model by reducing the number of independent variables. In order to retain the maximum number of (significant) relevant predictors in the model, the dummy coded 'whereabouts of missing loved one' was deleted from model 2 for PGD and PTSD; Gender was coded as 0 = men, 1 = women, kinship as 0 = spouse/child, 1 = other; * = $p < .02$ (A Bonferonni-correction was used resulting in an alpha of .02 (.05/3)); ** = $p < .01$; *** = $p < .001$.

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DISCUSSION

Our aim was to explore the generalizability of a cognitive behavioral model of disturbed grief (Boelen et al., 2006) for explaining PGD, PTSD, and MDD levels in relatives of long-term missing persons. Consistent with our hypothesis, the cognitive-behavioral variables explained a significant proportion of the variance in symptom levels of PGD, PTSD, and MDD, over and above relevant sociodemographic variables. Catastrophic misinterpretations of one's own grief reactions (but not negative cognitions about one's self, life, and future) and depressive avoidance behavior explained a unique proportion of the variance in PGD, PTSD, and MDD when taking the shared variance of other variables into account. Our findings are roughly in line with previous studies indicating that catastrophic misinterpretations of one's own grief reactions and depressive avoidance were most strongly associated with indices of psychopathology (Boelen et al., 2015; Boelen, van Denderen, & de Keijser, 2016; Boelen & van den Bout, 2010).

Taken together, the results indicate that relatives of missing persons, similar to people bereaved by the death of a loved one, experience elevated PGD, PTSD, and MDD levels when they engage in catastrophic misinterpretations of one's own grief reactions (e.g., "If I let go of my emotions, I will go crazy") and tend to withdraw from different social/recreational activities from the belief that these activities are pointless. These findings also suggest that relatives of missing persons, with elevated psychopathology symptoms, may benefit from addressing these negative cognitions and avoidance behavior in treatment. Cognitive behavioral therapy (CBT) may be the most obvious treatment option, since it has shown to be effective for treatment of post-bereavement complaints (Currier, Holland, & Neimeyer, 2010). For example, CBT could enhance awareness of one's own misinterpretation of the grief reactions and could transform these maladaptive cognitions into more adaptive cognitions (e.g., by cognitive restructuring). Furthermore, CBT could promote relatives of missing persons to reengage in activities that were perceived as fulfilling prior to the disappearance (e.g., by behavioral reactivation). However, the effectiveness of a CBT-based intervention for relatives of missing persons has only been evaluated once (Hagl, Rosner, Butollo, & Powell, 2014). Future research should further evaluate and optimize interventions for relatives of missing persons in need of professional support.

With respect to the sociodemographic correlates of CBT, our univariate analyses showed, among others, a main effect of belief about the whereabouts of the missing person. That is, participants who believed their missing loved one would be still alive reported significantly higher PGD and PTSD levels, not MDD levels, than those who believed that the missing loved one died. This finding is reminiscent of previous findings that the amount of hope that the missing loved one would be still alive was associated with increased PGD levels, but not with PTSD (C. Heeke, personal communication, October 31, 2017) and MDD levels (Heeke et al., 2015). However,

a failure to reject the null-hypothesis renders a finding inconclusive: the absence of a statistically significant effect may indicate that hope that a missing person is alive is less important for MDD levels or that our study was not able to detect the effect. Future research may shed more light on this issue.

More generally, it may be important to focus on the function of hope in treatment for relatives of missing persons (Lenferink et al., 2016). Although holding on to hope that the missing relative is alive may in some cases be more realistic (e.g., kidnapping cases or voluntarily missing persons), for those who maintain hope against all odds, holding on to hope may block acceptance of the irreversibility of the separation. Using exposure techniques in treatment might yield favorable effects, similar to effects of exposure for disturbed grief after bereavement (cf. Bryant et al., 2014).

It was salient that at the family-level (level 2) zero variance in MDD was estimated, contrasting estimated variances at the family-level in PGD and PTSD about 18%. In other words, MDD symptoms may predominately be intrapersonal and thus independent from other relatives of the same missing person. A previous study among bereaved parents also showed a relatively low amount of variance in MDD explained by the family-level compared with the variance levels in PGD (Wijngaards-de Meij et al., 2005). Clearly, this conclusion must remain tentative pending additional research, given that our sample represented a relatively small number of relatives of the same missing person.

Several further limitations need to be taken into account while interpreting the results of the current study. Self-report measures were used, which may lead to overestimation of symptom levels (Engelhard et al., 2007). Furthermore, the items of ICG are not identical to the proposed criteria of persistent complex bereavement disorder for the DSM-5 (APA, 2013) or PGD criteria for the 11th edition of the International Classification of Diseases (Maercker et al., 2013), thus the results of the current study may not directly speak to (future) studies using these criteria (Maciejewski et al., 2016). In addition, we used a convenience sample mostly recruited via (peer) support organizations. It may be that our sample constitutes individuals with more pervasive psychopathology levels compared with individuals who do not seek (peer) support (de Groot & Kollen, 2013). Some caution is therefore warranted when generalizing the current findings to the population. Another limitation of the study sample is that the average time since disappearance was 15.5 years. Although time since disappearance was not strongly related to the outcome measures, we cannot rule out that our results may not be generalizable to people whose relative disappeared more recently. Lastly, it must be noted that the cross-sectional design precludes drawing conclusions about causality.

To conclude, this correlational study, focusing on cognitive-behavioral correlates of psychopathology post-disappearance for the first time, showed the generalizability of the cognitive-behavioral model of psychopathology post-loss to relatives missing persons. Our

findings are consistent with other studies among bereaved samples, which suggest that it might be fruitful to evaluate the effectiveness of CBT for individuals who suffer from elevated psychopathology levels following the disappearance of a significant other.

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