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Peri-loss Dissociation, Symptom Severity and Treatment Response in Complicated Grief

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Abstract

Background—Complicated grief (CG) is a bereavement-specific syndrome characterized by traumatic and separation distress lasting over 6 months. Little is known about the role of dissociation experienced during or immediately after the loss of a loved one (*i.e.* Peri-Loss Dissociation (PLD)) in CG. The present study aimed to examine the psychometric properties of the PLD-adapted peritraumatic dissociative experiences questionnaire and its association with symptom severity, treatment response, and drop-out rate.

Methods—PLD data collected as part of a randomized controlled trial of two loss-focused psychotherapy approaches for CG was examined. Treatment-seeking individuals with primary CG (n=193) were assessed for PLD at the initial visit, 95 of whom were randomized and completed at least one treatment session.

Results—The PLD-adapted peritraumatic dissociative experiences questionnaire was found to be internally consistent (alpha = 0.91) with good convergent and divergent validity. After controlling for age, gender, time since loss and current comorbid psychiatric diagnosis, self-reported PLD was associated with greater CG symptom severity ($p<0.01$). However, contrary to our hypotheses, after controlling for age, baseline symptoms severity, psychiatric comorbidity and treatment arm, PLD was predictive of better treatment response ($p<0.05$) and lower study discontinuation ($p<0.01$).

Conclusions—PLD may be useful in identifying individuals at risk for CG and those who might respond to psychotherapy. Additional research should investigate the relationship of PLD with treatment outcome for different treatment approaches, and whether PLD prospectively predicts the development of CG.

Keywords

peritraumatic dissociation; complicated grief; treatment response; drop out; prediction

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Introduction

Complicated grief (CG) is a bereavement-specific syndrome characterized by traumatic and separation distress, including intense yearning for the presence of the deceased loved one, preoccupation with thoughts related to the loss, and intrusive memories of the deceased lasting over 6 months [1]. Although the death of a loved one is often a highly painful and disruptive experience, only a minority of those who experience a loss will develop CG. This raises the question of why some individuals experience only transitory psychological distress whereas others continue to suffer elevated distress and impairment years after the loss. This study, examines one potential factor that may influence development and recovery from CG: dissociation at the time of the loss, or peri-loss dissociation (PLD).

Dissociation is defined by the American Psychiatric Association as "a disruption in the usually integrated functions of consciousness, memory, identity or perception" [2]. The term dissociation encompasses an array of responses, including alternations in the experience of time and place, a sense of detachment from oneself, and perceptual or memory distortions. Recent research in the field of trauma, however, has found that increased peritraumatic dissociation (*i.e.*, dissociative reactions experienced during or immediately after a traumatic event) is associated with *increased* risk for the development of posttraumatic stress disorder (PTSD) [3–5].

In addition, there is some limited evidence to suggest that peritraumatic dissociation may predict poorer PTSD treatment response. In a trial of prolonged exposure *vs.* cognitive restructuring, increased peritraumatic dissociation was found to be associated with increased post-treatment PTSD symptom severity but not with pre-treatment PTSD symptom severity [6]. In a naturalistic pharmacological trial of individuals with PTSD, peritraumatic dissociation was found to predict poorer outcome after controlling for gender, age, treatment length, depression and anxiety [7].

Similarly to PTSD, CG is a syndrome of psychological distress that develops in response to an aversive life event. However, to our knowledge, no study has investigated the role of PLD in the recovery from CG and only one recent study has provided preliminary data on the association between PLD and CG [8]. This study was limited by the instrument used to assess CG (abbreviated version) and the lack of adjustment for comorbid psychiatric conditions that might have accounted for the relationship they reported.

In the present study, we examine the association between PLD and CG in a randomized controlled trial comparing two loss-focused psychotherapies (complicated grief treatment [CGT] *vs.* interpersonal psychotherapy [IPT] for loss) [9]. Specifically, we examined: a) the psychometric properties of a dissociation measure slightly modified to address PLD; b) the association between PLD and CG symptom severity; and c) the association of PLD to treatment response and drop-out rate in the trial.

Materials and Methods

Participants and Procedures

The methodology of the parent randomized controlled trial has been reported in detail elsewhere [9]. Briefly, individuals with 6 or more months of persistent grief who reported grief as their primary clinical problem (confirmed by an independent evaluator) and scored ≥ 30 on the Inventory of Complicated Grief (ICG) [10] were eligible for the study. Of 417 patients who received an initial brief prescreening assessment, 218 signed written informed consent and were evaluated; the 193 with complete measures of both CG and dissociation were included in our baseline cross-sectional analyses. To evaluate the association of peri-

loss dissociation to treatment response, we examined data from those who were randomized to receive IPT or CGT and came to at least one treatment session (*i.e.*, a "modified intent-to-treat" sample; *n*=95)).

Instruments

The 19-item self-report ICG [10] assesses a range of CG symptoms including recurrent painful emotions about the loss, yearning and longing for the deceased, preoccupation with thoughts of the loved one sense of disbelief regarding the death, anger and bitterness, distressing, intrusive thoughts related to the death, and pronounced avoidance of reminders of the painful loss. Each item is scored on a 5-point scale assessing the frequency of symptoms (from 0 = "*never*" to 4 = "*always*") with total scores ranging *0 – 76*, and higher scores indicating increased symptom severity.

Peri-loss dissociation was retrospectively assessed during the screening procedure using the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) [11]. The 10-item self-report PDEQ includes items measuring "*blanking out*", a feeling that one is "*on autopilot*", time distortion, depersonalization, derealization, confusion, amnesia and reduced awareness, with each item scored on a 5-point Likert scale with responses ranging from 1= "*not at all true*" to 5 = "*extremely true.*" Total scores range *10 – 50*, with higher scores indicating greater dissociation. While the PDEQ is normally used to measure dissociation in the context of a trauma exposure, it was slightly modified for the purpose of the present study to assess PLD. The items were therefore referring to "*experiences and reactions at the time of death or when [the participant] learned of the death and immediately afterward*".

The Structured Clinical Interview for DSM-IV (SCID) [12] was used to assess all comorbid Axis I psychiatric disorders. For the purpose of the study, the loss was permitted to serve as the A1 PTSD criterion regardless of the nature of the death.

Treatment response was defined as a score of 1 or 2 ("*very much improved*" and "*much improved*", respectively) on the Clinical Global Impression of improvement scale (CGI-I) [13], which ranges from 1 to 7 (with 4="no change" and 7="very much worse").

Data Analyses

One participant had 2 missing values on the PDEQ, which were replaced by the mean of all remaining values in the questionnaire; there were no other missing data. The relationship between PDEQ scores and continuous and dichotomous baseline data was examined with Pearson's correlations and Student's t-tests, respectively. Further, multiple linear regression was utilized to determine if PLD (*i.e.*, PDEQ total score) was significantly associated with total baseline and endpoint ICG scores after controlling for demographic characteristics (*i.e.*, time since death, age, and gender) and comorbid Axis I psychiatric disorders (coded as presence or absence of at least one disorder).

Logistic regression analyses were used to examine prediction of treatment response (CGI-I responder status at endpoint) by baseline PDEQ score, first univariately and then with covariates for age, gender, current psychiatric comorbidity and treatment arm (CGT *vs*. IPT) entered together to control for potential confounds. Study completion data were similarly analyzed with logistic regression, univariately and with covariates. Only participants who were randomized and participated in at least one session were included in these analyses. For those who dropped before trial completion, responder status was determined at the last observation. Statistical significance was set at $p<0.05$ (two-tailed) and all analyses were conducted using SPSS v16.0.

Results

Demographic and clinical data of the parent study sample, including rates of comorbid disorders have been previously published [14]. The overall sample (*n*=193) was 83.4% female, 69.9% Caucasian, and 25.7% married, with a *mean*(SD) age of 47.0(12.72) years, a *mean*(SD) baseline ICG score of 46.9(9.7) and a *mean*(SD) PDEQ score of 31.9(10.6). With regards to comorbidity, 78.0% of the sample had at least one current comorbid psychiatric disorder, with 57% meeting criteria for current major depressive disorder, and 50.3% meeting criteria for current PTSD when allowing the loss to meet DSM-IV A1 PTSD criterion.

The treatment sample (*n*=95) was 87.4% female, 75.8% Caucasian and 31.6% married, with a *mean*(SD) age of 48.4(12.7) years, a *mean*(SD) baseline ICG score of 45.4(8.6) and a *mean*(SD) endpoint ICG score of 30.5(14.6). With regards to comorbidity, 70.5% of the sample had a current comorbid psychiatric disorder, and 48.4% a current PTSD. There were no differences in PDEQ scores between individuals who participated in at least one session of the treatment (*n*=95) and those who did not (*n*=98; *mean*(*SD*) = 32.1(10.2) *vs.* 31.7(10.9), respectively, $t = -0.29$, $p = 0.769$).

Psychometrics of the Peritraumatic Dissociative Experiences Questionnaire Used to Assess Peri-Loss Dissociation

Item statistics—The rate of positive endorsement (i.e. any answer except '*not at all true*') ranged from 39.4% for item 7 ("*I felt as though things that were actually happening to others were happening to me – Like I was being trapped when I really wasn't"*) to 90.2% for item 4 ("*What was happening seemed unreal to me, like I was in a dream or watching a movie or play"*), with a mean positive endorsement rate of 75.4%. Item-total correlations ranged from 0.47 for item 7 to 0.76 for item 3.

Convergent and divergent validity—A moderate correlation was found between PDEQ and a diagnosis of current PTSD (r=0.39; p<0.01). Examination of the divergent validity found that, as expected, PDEQ score did not correlate with a conceptually distant measure (*i.e.*, correlation with time elapsed since the loss, $r(190)=-0.01$; p=0.90).

Factorial validity—After obtaining an excellent Kaiser-Meyer-Olkin measure of sampling adequacy value of 0.90 [15], we carried out a maximum likelihood factor analysis. As the factors were likely to be correlated, a Promax rotation was performed with factors with an eigenvalue >1. Factors 1 and 2 displayed eigenvalues of 5.44, and 1.15, respectively. After an inspection of the screeplot, eigenvalues, and factor loadings and considering the two factors high intercorrelation (r = 0.70), a single-factor solution was considered most parsimonious. A forced single factor solution explained 54.4% of the variance. All the item statistics and factor loadings are reported in Table 1.

Internal consistency—The PDEQ displayed very good internal consistency with a Cronbach's alpha coefficient of 0.91.

Relationship between Peri-Loss Dissociation and Complicated Grief Symptom Severity (n=193)

As hypothesized, greater PLD was significantly associated with greater CG symptom severity (r=0.42, p<0.01). Furthermore, CG symptom severity was significant correlated with all PDEQ items (with coefficients ranging from 0.23 to 0.38, [for items 1 and 7 respectively]).

At baseline, PLD was significantly higher in participants with at least one comorbid psychiatric disorder relative to those with no comorbid disorders (*mean*(*SD*)=33.3(10.1) *vs.* 27.0(10.9), t=−3.55, p<0.01). This relationship appeared to be driven by comorbid PTSD as participants with comorbid PTSD scored substantially higher on the PDEQ than those without (*mean*(*SD*)=36.0(8.9) *vs.* 27.8(10.5), t=−5.91, p<0.01). There was also a marginally significant association between greater PLD and younger age (r=−0.137, p=0.057); however, no gender differences were found.

We next examined whether PLD was associated with CG symptom severity after controlling statistically for potential confounds. We conducted two multiple linear regression analyses to determine additional variance explained by PLD in predicting baseline CG symptom severity, controlling for gender, age, time since loss and psychiatric comorbidity. Because we hypothesized that PLD would be associated with CG symptom severity above and beyond the association with covariates, we entered gender, age, time since loss and psychiatric comorbid disorder in a first block and PLD in a second block. The first regression model was not significant (R^2 = 0.03, F(4, 185) = 1.461, p = 0.21), suggesting that taken together the four covariates did not contribute significantly to the variance of CG symptom severity. However, the second regression model was significant (R^2 = 0.18, F(5, 184) = 8.35, p < 0.001) and explained significantly more variance than the first model (change in R^2 = 0.15, p < 0.001). Greater PLD was the only variable that contributed independently to CG symptom severity (*B*(*SE*)= 0.37(0.06), p<0.001). Controlling for current comorbid PTSD instead of current comorbid psychiatric disorder yielded similar results (*B*(*SE*)= 0.36(0.07), p<0.001) for PLD).

Finally, a factor analysis (principal axis factoring with varimax rotation) across ICG and PDEQ items confirmed that PLD as a construct was distinct from CG.

Relationship Between Peri-Loss Dissociation and Treatment Response (n=95)

Mean PDEQ scores for treatment responders and non-responders are reported in Table 3. Greater PLD was only marginally associated with increased treatment response in the univariate analysis. However, the adjusted analyses showed a significant association between PLD and increased treatment response (Table 2). Conducting this analysis in the overall group by adjusting for current comorbid PTSD instead of current comorbid psychiatric disorder yielded similar results (*i.e.* increased PLD was still significantly associated with greater treatment response). In the CGT group alone, there was a trend towards significance in the adjusted analysis while the association was not significant in the IPT group alone.

Relationship Between Peri-Loss Dissociation and Treatment Trial Completion (n=95)

Mean PDEQ scores for treatment trial completers and non-completers are reported in Table 2. In the full study sample, PLD was significantly associated with increased odds of treatment trial completion in both unadjusted and adjusted analyses (Table 2). Repeating this analysis in the overall group, adjusting for current comorbid PTSD instead of current comorbid psychiatric disorder yielded similar results (*i.e.*, greater PLD was still significantly associated with greater likelihood of study completion). In the CGT group alone, PLD was also significantly correlated with increased odds of treatment trial completion in both univariate and adjusted analysis. This was not the case for the IPT where there was only a trend toward significance in the adjusted analysis.

A multiple regression analysis controlling for baseline CG symptoms, revealed that increased PLD predicted lower endpoint CG symptom severity (B(SE)=−0.31(0.14), p=0.035). However, after further adjustment for other covariates (age, psychiatric

comorbidity, time since death, treatment arm), PLD was only a predictor at a trend level (B(SE)=−0.25(0.15), p=0.094). Finally, the interaction term treatment arm × PLD did not significantly predict CG symptom severity in a regression model.

Discussion

To our knowledge, this is the second investigation of PLD. While prospective studies examining PLD are needed, these cross-sectional data suggest that PLD might be an important, measurable component of CG severity that may impact treatment response to different loss focused interventions.

The high internal consistency of the PLD-adapted PDEQ fell within the range of those reported after trauma exposure [16–18] and was also in line with recent data reported after a loss [8]. In our study, levels of PLD in individuals with CG (mean PDEQ scores = 31.9) were greater than levels of peritraumatic dissociation reported in trauma-exposed individuals (*e.g.* mean scores < 20 for [5, 17] but comparable to those reported in individuals with PTSD (*e.g.* mean scores = 31 for [19]) and CG (*e.g.* mean scores = 29.9 for [8]). Dissociation at the time of a trauma has been previously reported to be best described as a one-factor structure [16, 17], and according to our exploratory factor analysis, this appears to be the same for PLD. Recent data from confirmatory factor analyses testing several factor structures for dissociation at the time of a loss [8] suggest however, that an 8-item version of the scale might be a better fit to the data than a 10-item single factor structure. Similar to peritraumatic dissociation, PLD appears to index an immediate cognitive response to a major stressor.

In line with our hypothesis, greater PLD was associated with greater symptom severity in individuals with CG. This association remained significant after controlling statistically for age, time since the loss, and comorbid psychiatric disorder. Overall, PLD accounted for 15% of the variance in baseline CG symptoms. This is particularly noteworthy given the restricted range of CG severity in our sample (*i.e.*, all participants had ICG scores of at least 30). This restricted range of CG symptom severity, without a bereaved control group, may have led to an underestimate of the magnitude of the association between PLD and CG symptom severity.

Similar to PTSD, CG develops only in the minority of individuals exposed to the death of a loved one [20], as for most bereaved individuals, and grief-related feelings and thoughts become less frequent, intense, and interfering over time. While peritraumatic dissociation has been extensively studied with regards to the development of PTSD symptoms [21, 22], little is known about the potential effects of psychological processes experienced at the time of the loss and subsequent CG. Our findings, consistent with those of a recent study [8] suggest that PLD may impair processes that aid in recovery from elevated levels of post-loss distress, or be a marker of underlying emotional processing difficulties that may predispose to CG. Successful mourning requires that the permanence of the loved one's death be recognized and its consequences evaluated [23, 24]. PLD may prevent bereaved individuals from processing information related to the loss and, consequently, from accepting the finality of the loss. Future research should examine whether PLD measured in the immediate aftermath of the loss prospectively predicts CG development in acutely bereaved individuals, as being able to rapidly identify who after a loss is at high risk for CG development has important implications for the development of preventive strategies.

Contrary to our expectations, PLD was not associated with poorer outcome. While this was only partially supported when examining the endpoint CG symptoms as a continuous measure, our results suggest that after adjusting for covariates, PLD might be predictive of better psychotherapy treatment response and greater treatment completion. It is unclear why

a feature associated with increased symptom severity might be also associated with better outcome and further replications are necessary. While speculative, it is possible that individuals with high levels of PLD are precisely those people who may gain the most benefit from therapies (such as CGT) that use techniques aimed at processing the loss, including related emotions and memories, with the support of a therapist. That is, such therapies may encourage reengagement with psychological processes previously impeded by dissociation that contributed to the development and persistence of CG, or may target emotional processing difficulties that underlie dissociative experiences in times of severe stress and emotion. Thus, dissociative symptoms might represent one important component of what complicates the natural grieving process that is directly addressed in the course of loss-focused psychotherapies, thus engaging patients and resulting in greater gains. CGT in particular includes elements that focus on discussing and processing the emotions and details related to the loss as a narrative, as well as techniques to be able to put grief aside and focus on returning to life without the deceased that may be particularly helpful for those with difficulty processing the death with associated PLD. Comparative studies understanding the role of PLD in response to other treatments such as pharmacotherapy, as well as studies examining specific elements of grief focused psychotherapies are needed to clarify this association.

Despite our interesting results, some limitations must be acknowledged. PLD was retrospectively assessed and a recall bias cannot be excluded, with patients with more severe CG recalling greater PLD. Because of this retrospective design, it is also possible that our assessment of PLD has been impacted by some component of current grief symptoms that might be influencing recall of dissociative experiences at the time of the death.

Although results from early retrospective studies reporting an association between peritraumatic dissociation and PTSD symptoms [11] were consistent with later results from prospective studies [4], future research is needed to examine whether the relationship between PLD and CG symptoms severity will hold when examined prospectively. Another limitation might be the use of the PDEQ to assess PLD. PLD might have some specific features not captured by the PDEQ and future research is needed to clarify differences and overlap between peritraumatic and peri-loss dissociation.

Conclusion

In conclusion, our results suggest that: a) PLD can be assessed with the adapted PDEQ instrument; b) retrospectively assessed PLD is associated with greater symptom severity among treatment-seeking individuals with CG; c) the presence of PLD might be an important feature of CG, either alone or as a marker of emotional processing difficulties, and predictive of better outcome with psychotherapy that targets emotional processing of the death. Further prospective studies with measures of PLD soon after the loss to replicate these findings in a population of bereaved individuals (with and without CG) examining whether PLD might predict CG diagnosis are warranted.

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References

1. Shear MK, Simon N, Wall M, et al. Complicated grief and related bereavement issues for DSM-5. Depress Anxiety. 2011 Feb; 28(2):103–117. [PubMed: 21284063]

2. APA. Diagnostic and Statistical Manual of Mental Disorders DSM-IV-TR Fourth Edition (Text Revision). Washington D.C: American Psychiatric Publishing; 2000.
3. Ozer EJ, Best SR, Lipsey TL, Weiss DS. Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. Psychol Bull. 2003 Jan; 129(1):52–73. [PubMed: 12555794]
4. Bui E, Brunet A, Allenou C, et al. Peritraumatic reactions and posttraumatic stress symptoms in school-aged children victims of road traffic accident. Gen Hosp Psychiatry. 2010 May-Jun;32(3): 330–333. [PubMed: 20430239]
5. Bui E, Joubert S, Manetti A, et al. Peritraumatic distress predicts posttraumatic stress symptoms in older people. Int J Geriatr Psychiatry. 2010 Dec; 25(12):1306–1307. [PubMed: 21086541]
6. Zoellner LA, Alvarez-Conrad J, Foa EB. Peritraumatic dissociative experiences, trauma narratives, and trauma pathology. Journal of Traumatic Stress. 2002 Feb; 15(1):49–57. [PubMed: 11936722]
7. Lima AA, Fiszman A, Marques-Portella C, et al. The impact of tonic immobility reaction on the prognosis of posttraumatic stress disorder. J Psychiatr Res. 2010 Mar; 44(4):224–228. [PubMed: 19793589]
8. Boelen PA, Keijsers L, van den Hout MA. Peritraumatic dissociation after loss: latent structure and associations with psychopathology. J Nerv Ment Dis. 2012 Apr; 200(4):362–364. [PubMed: 22456592]
9. Shear K, Frank E, Houck PR, Reynolds CF 3rd. Treatment of complicated grief: a randomized controlled trial. Jama. 2005 Jun 1; 293(21):2601–2608. [PubMed: 15928281]
10. Prigerson HG, Maciejewski PK, Reynolds CF 3rd, et al. Inventory of Complicated Grief: a scale to measure maladaptive symptoms of loss. Psychiatry Res. 1995 Nov 29; 59(1–2):65–79. [PubMed: 8771222]
11. Marmar CR, Weiss DS, Schlenger WE, et al. Peritraumatic dissociation and posttraumatic stress in male Vietnam theater veterans. Am J Psychiatry. 1994 Jun; 151(6):902–907. [PubMed: 8185001]
12. First, MS.; RL; Gibbon, M.; Williams, JBW. Structured Clinical Interview for Axis I DSM-IV Disorders - Patient version (SCID-1/P version 2.0). New York: New York State Psychiatric Institute Biometrics Research Department; 1994.
13. Guy, W. Assessment Manual for Psychopharmacology. Washington DC: US Government Printing Office; 1976.
14. Simon NM, Shear KM, Thompson EH, et al. The prevalence and correlates of psychiatric comorbidity in individuals with complicated grief. Comprehensive Psychiatry. 2007; 48(5):395–399. [PubMed: 17707245]
15. Costello A, Osborne J. Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. Practical Assessment Research & Evaluation. 2005; 10(7)
16. Birmes P, Brunet A, Benoit M, et al. Validation of the Peritraumatic Dissociative Experiences Questionnaire self-report version in two samples of French-speaking individuals exposed to trauma. Eur Psychiatry. 2005 Mar; 20(2):145–151. [PubMed: 15797699]
17. Bui E, Brunet A, Olliac B, et al. Validation of the Peritraumatic Dissociative Experiences Questionnaire and Peritraumatic Distress Inventory in school-aged victims of road traffic accidents. Eur Psychiatry. 2011 Mar; 26(2):108–111. [PubMed: 21071181]
18. Allenou C, Olliac B, Bourdet-Loubere S, et al. Symptoms of traumatic stress in mothers of children victims of a motor vehicle accident. Depress Anxiety. 2009 Dec 10.
19. Birmes P, Brunet A, Carreras D, et al. The predictive power of peritraumatic dissociation and acute stress symptoms for posttraumatic stress symptoms: a three-month prospective study. Am J Psychiatry. 2003 Jul; 160(7):1337–1339. [PubMed: 12832251]
20. Middleton W, Burnett P, Raphael B, Martinek N. The bereavement response: a cluster analysis. Br J Psychiatry. 1996 Aug; 169(2):167–171. [PubMed: 8871792]
21. van der Hart O, van Ochten JM, van Son MJ, Steele K, Lensvelt-Mulders G. Relations among peritraumatic dissociation and posttraumatic stress: a critical review. J Trauma Dissociation. 2008; 9(4):481–505. [PubMed: 19042793]
22. van der Velden PG, Wittmann L. The independent predictive value of peritraumatic dissociation for PTSD symptomatology after type I trauma: a systematic review of prospective studies. Clin Psychol Rev. 2008 Jul; 28(6):1009–1020. [PubMed: 18406027]

23. Boelen PA, Van Den Hout MA, Van Den Bout J. A Cognitive-Behavioral Conceptualization of Complicated Grief. Clinical Psychology: Science and Practice. 2006; 13(2):109–128.

24. Shear K, Shair H. Attachment, loss, and complicated grief. Dev Psychobiol. 2005 Nov; 47(3):253–267. [PubMed: 16252293]

Table 1

Item Statistics for the Peritraumatic Dissociative Experiences Questionnaire Adapted to Dissociation at the Time of the Loss of a Loved One

Items		Endorsement Rate	Mean	SD	Corrected Item-Total Correlation	Factor 1
1	Blanking out or “spacing out”	83.4%	3.6	1.47	0.71	0.76
2	Being on “automatic pilot”	82.9%	3.4	1.46	0.69	0.74
3	Change in sense of time	83.9%	3.54	1.45	0.76	0.81
4	Derealisation	90.7%	4.04	1.30	0.59	0.66
5	Depersonalisation	78.8%	3.3	1.54	0.71	0.74
6	Sense of body distorted or changed	54.9%	2.44	1.51	0.61	0.61
7	Things happening to others were happening to them	39.4%	1.88	1.25	0.47	0.47
8	Reduced awareness	75.1%	2.98	1.45	0.68	0.70
9	Confusion	87.6%	3.61	1.37	0.69	0.72
10	Disorientation	77.7%	3.12	1.52	0.73	0.75

Notes: PDEQ items use 5-point Likert scales ranging from 1 (not at all true) to 5 (extremely true). Endorsement reflects any answer except ‘not at all true’.

Table 2

Association of Dissociation at the Time of the Loss with Treatment Response and Treatment Trial Completion

PDEQ scores	Non Responders	Responders		
	***Mean* (*SD*)**	***Mean* (*SD*)**	**Unadjusted *OR* (95% CI)**	**Adjusted *OR* (95% CI)**
Overall (*n*=95)	30.51 (10.31)	34.61 (9.79)	1.042 (0.998–1.088)$^{+}$	1.061 (1.008–1.116)*
Complicated Grief Therapy (*n*=49)	31.21 (11.44)	36.36 (8.72)	1.043 (0.984–1.105)	1.067 (0.995–1.145)$^{+}$
Interpersonal Therapy (*n*=46)	30.00 (9.55)	33.15 (11.82)	1.032 (0/967–1.101)	1.053 (0.977–1.135)
	Non Completers	**Completers**		
PDEQ scores	***Mean* (*SD*)**	***Mean* (*SD*)**	**Unadjusted *OR* (95% CI)**	**Adjusted *OR* (95% CI)**
Overall (*n*=95)	28.16 (10.72)	33.57 (9.76)	1.054 (1.006–1.104)*	1.076 (1.019–1.137)**
Complicated Grief Therapy (*n*=49)	27.85 (11.11)	35.31 (9.31)	1.074 (1.006–1.146)*	1.089 (1.003–1.183)*
Interpersonal Therapy (*n*=46)	28.50 (10.77)	31.74 (10.03)	1.033 (0.966–1.105)	1.078 (0.988–1.176)$^{+}$

Notes: Odds ratio (*OR*) and 95% confidence interval from logistic regression model of Clinical Global Impression of Improvement (CGI-I) responder status and treatment completion status: Univariate OR presented first; adjusted OR includes adjustment for age, baseline symptoms severity, and psychiatric comorbidity as well as treatment arm for the full sample (*n*=95) analyses

** $p<0.01$;

* $p<0.05$;

$^{+}$ $p<0.10$