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Suicidality and Bereavement: Complicated Grief As Psychiatric Disorder Presenting Greatest Risk For Suicidality

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Abstract

Background: This study examined the influence of Complicated Grief (CG) on suicidality among bereaved adults. **Methods**: The Yale Evaluation of Suicidality scale and the Inventory of Complicated Grief-Revised were administered to 309 bereaved adults in face-to-face interviews conducted at baseline (6.2 months post-loss) and at follow-up (10.8 months post-loss). **Results**: Cross-sectionally, CG was associated with a 6.58 (95% CI: 1.74-18.0) times greater likelihood of "high suicidality" at baseline, and an 11.30 (95% CI: 3.33-38.10) times greater risk of "high suicidality" at follow-up, after controlling for gender, race, Major Depressive Disorder (MDD), Posttraumatic Stress Disorder (PTSD), and social support. Longitudinally, CG at baseline was associated with a 8.21 (95% CI: 2.49-27.0) times greater likelihood of "high suicidality" at follow-up, controlling for the above confounders. **Conclusions**: CG substantially heightens risk of suicidality after controlling important confounders such as MDD and PTSD, indicating it poses an independent psychiatric risk for suicidal thoughts and actions.

INTRODUCTION

Bereavement, consistently described as one of life's most stressful events, greatly affects physical, social, and psychological well-being (Stroebe & Stroebe, 1993). Bereavement increases the risk of major depressive episodes (Lund, Dimond, & Caserta, 1985, Brown & Harris 1989, Bruce et al., 1990, Clayton 1990, Zisook & Shuchter, 1993) and anxiety-related symptoms and disorders (Bornstein et al., 1973, Parkes & Weiss, 1983, Jacobs et al., 1990) and is a risk factor for impaired immune function (Irwin, Daniels, & Weiner, 1987), increased physician visits (Mor, McHorney, & Sherwood, 1986), poorer physical health (Helsing & Szklo, 1981, Arens, 1983, Kaprio, Koskenvuo, & Rita, 1987, Chen et al., 1999), increased use of alcohol and cigarettes (Clayton 1990, Parkes & Weiss, 1983, Glass et al., 1995), suicide (Smith 1980; Kaprio, Koskenvuo, & Rita, 1987; Luoma & Pearson, 2002), and mortality from causes not restricted to suicide (Kraus & Lilienfeld, 1959; Kaprio, Koskenvuo, & Rita, 1987; Jones, 1987).

Complicated Grief (CG) has been shown in a series of studies to form a unidimensional symptom cluster comprised of symptoms of separation distress (i.e. yearning for the deceased, excessive loneliness) and traumatic distress (i.e. feelings of disbelief, a fragmented sense of security and trust). These CG symptoms have proven to be distinct from depressive and anxiety symptom clusters (Prigerson et al., 1995, Prigerson et al., 1996, Prigerson et al., 1999a). CG symptoms, when elevated and when they endure a minimum of six months (Prigerson & Jacobs,

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2001b -- see Table 1 for consensus criteria for CG), to predict substantial morbidity such as risk of cancer, cardiac events, increased alcohol and tobacco consumption, and suicidal ideation (Prigerson et al., 1995, Chen et al., 1999, Prigerson et al., 1996b, Prigerson et al., 1997). Unlike the symptoms of bereavement-related depression, the symptoms of CG have been found to persist despite the passage of time and the treatment of the bereaved with tricyclic antidepressants (Prigerson et al., 1996, Prigerson et al., 1995, Pasternak et al., 1991, Jacobs, Nelson, & Zisook, 1987).

Bereavement is associated with an elevated risk of suicidality (i.e., suicidal thoughts and acts) (Szanto, Prigerson, Reynolds, 2001), which itself proves a leading risk factor for completed suicide (Shaffer et al., 1988). Heightened levels of CG symptomatology, in particular, are associated with a greater likelihood of suicidal ideation among young adult friends of suicide victims (Prigerson et al., 1999a). In 1996, suicide was the ninth leading cause of death among all persons in the United States (National Center for Injury Prevention and Control, 1996). This figure highlights the importance of determining what groups of individuals are at heightened suicide risk and finding strategies to prevent suicide among the identified high risk groups.

The present study seeks to examine further the relationship between bereavement and suicide by determining the degree of the association between CG and suicidality in an adult population using newly developed diagnostic criteria for CG. More specifically, an attempt was made to replicate the association between CG and suicidality found in earlier reports. In contrast with the earlier cross-sectional study that used subjects who were young adult friends of a suicide victim (Prigerson et al., 1999a), the present study involves a larger, community-based sample of recently bereaved relatives of the deceased using diagnostic criteria to assess CG. It also involves a longitudinal analysis of the effects of a baseline CG diagnosis on subsequent changes in the likelihood of suicidal thoughts, wishes, and actions.

METHODS

Study Group

Names of potential participants were obtained through the Bridgeport/Fairfield division of the American Association of Retired Persons (AARP) Widowed Persons Service (WPS), a community-based outreach program that serves as an information clearinghouse, and through obituaries from the New Haven Register. As preliminary validation work to determine the completeness and accuracy of the WPS contact lists, we compared all of the death certificates recorded by the Greater Bridgeport Bureau of Vital Records for a 3-month period with the widowed persons in the WPS contact list for the same 3 months. The WPS listing included 95% of all deaths leaving behind a widow or widower in the Greater Bridgeport area, suggesting an unbiased and comprehensive ascertainment of recently widowed people in this region.

Potential participants were sent an introductory letter and invitation to participate that indicated how their names were obtained, identified the investigators, and described the aims and procedures of the study. Potential participants were then contacted in the following week to describe the study in further detail, answer questions, and attempt to recruit them into the study. Persons who did not speak English, were too frail, or were moving or leaving town for an extended period were not eligible for the study. Additional participants were obtained through newspaper advertisements, flyers, and referrals. A more detailed description of the cohort can be found elsewhere (e.g., Barry, Kasl, & Prigerson, 2002).

Of those persons who were contacted by telephone, advertisement, or referral, and who were eligible for the study (N=605), 52.4% (N=317) agreed to participate. Approximately 76.0% (N=158) of participants were recruited through the Bridgeport/Fairfield division of the WPS. Additional participants (24.0%) were recruited through personal referrals, referrals from the

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Chaplain's Office of the Hospital of St. Raphael in New Haven, newspaper advertisements, and flyers. Participants recruited from these sources did not differ significantly from WPS participants with respect to sex, income, or quality of life; they were more likely to be older than WPS participants ($p<0.01$), with a mean age of 70.0 (SD=9.6).

Limited information was available on refusers. We found participants were more likely to be female, with 74.1% of participants and 62.8% of refusers being female ($\chi^2 =12.3$, $p=0.0005$) and younger ($r=-0.25$, $p<0.0001$). Participants did not differ from refusers with regard to race, with the majority of participants and refusers being Caucasian ($\chi^2 =0.33$, $p =0.57$). Of the refusers, 9.0% listed the reason for refusal as being "too upset," which suggests little bias against participation among the most distraught bereaved (11.3% of the total sample of participants in the study had Complicated Grief at baseline).

Thus, the original sample consisted of 317 bereaved persons who had completed a baseline interview. The current analysis included 309 subjects who had complete data for baseline suicidality and Complicated Grief measures. Those with complete baseline data (94.5%) did not significantly differ from those who did not (5.5%) with respect to age, income, social support, time from loss, gender, race, or educational attainment. Study participants completed baseline and follow-up interviews at an average of 6.2 (SD=6.9) and 10.8 (SD=5.9) months post-loss, respectively. Participants were aged 20 to 91 [median=64.0, mean=61.8 (SD=13.6)], 92.2% Caucasian, 73.5% female, and had an average of 14.0 (SD=3.0) years of education.

Measures

Suicidality—Suicidality was assessed using the Yale Evaluation of Suicidality (YES) scale. The YES is a 13-item instrument that measures current suicidal thoughts and actions, and past and planned attempts (Appendix A). The YES was designed to elicit a broader array of thoughts and behaviors expected to potentiate the wish to die by suicide (e.g. feeling a burden on one's family, poor coping capacity, lack of deterrents like emotional stability, fear of pain) than contained in extant suicide scales such as Beck's Scale for Suicidal Ideation (SSI) (Beck, Kovacs, & Weissman, 1979). Our pilot work using Beck's SSI in a sample that included individuals found to be at extremely elevated suicide risk (i.e., recently widowed elderly White men -- Szanto et al., 1997, Luoma & Pearson, 2002) revealed a low rate of endorsement of any suicidality (unpublished data). The YES was designed to meet this identified need for a more sensitive suicidality detection screen. It attempts to normalize self-destructive feelings by asking questions with reference to the subject's most distressing experience in the past year. The motivation for normalizing self-destructive thoughts and plans is to minimize any social desirability bias that might lead to the underreporting of suicidal thoughts. In screening for suicidality the goal should be to create a highly sensitive measure so that no cases are missed, even if this comes at the price of reduced specificity (inflated Type 1 error/false positive rate). The YES was designed to provide a more sensitive screen and elicit a variety of forms of suicidal thoughts and actions related to past and planned suicide attempts.

The questions chosen to be included in the scale were those pertaining to past and planned suicide attempts, as well as questions (taken from existing scales) that were most closely associated with past and planned suicide attempts and that, as a set, had adequate internal consistency (Cronbach's α above .80). Thus, the YES consists of 2 questions on past and planned attempts, 4 from Linehan's Reasons for Living scale, (Linehan, 1983) 4 from Beck's SSI, (Beck, Kovacs, & Weissman, 1979) 1 from Beck's Hopelessness Scale, (Beck et al., 1974) and 2 from a Reasons for Dying Scale that we constructed to detect potential rationales for dying by suicide (Cronbach's $\alpha = 0.90$). The summary score for the YES ranges from 0.0 to 13.0, with higher scores reflecting greater suicidality.

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Scores for the 13 items were summed. The distribution of YES scores was highly skewed due to a large number of respondents endorsing no suicidality. Given that nonnormality in the distribution of YES scores violated assumptions required for regression analyses, we dichotomized the YES into "high" and "low" scores at a point that would even the distribution across cells (using a median split) and which was the threshold most predictive of poor quality of life (i.e., Medical Outcomes Short-form summary score) assessed at follow-up. A YES score above "3" constituted "high" suicidality; a score of "3" or below constituted "low" suicidality.

Validity of the YES-13 was demonstrated by results indicating the mean YES score was 6.69 (SD=2.82) among subjects with a history of a past suicide attempt versus a mean of 0.66 (SD=1.59) among subjects without a history of a past suicide attempt ($t=23.02$; $p<0.0001$). Additionally, the YES score (minus the planned attempt item) was associated with a 2.69 times (2.18-3.30; $p<0.0001$) greater likelihood of indicating plans of a suicide attempt, suggesting criterion validity of the YES. With respect to test-retest reliability, we found $r = 0.70$ for the association between the baseline (6.2 months post-loss) and follow-up (10.8 months post-loss) YES assessments that occurred 4.6 months later. Additionally, of the 24 at baseline who were classified as "high" on suicidality, 77.8% (18/24) remained in the "high" suicidality group at follow-up. These results suggest stability in the YES scores over time, especially given the changes in mood and behaviors that typically follow bereavement.

Complicated Grief (CG)—CG was assessed using the Inventory of Complicated Grief-Revised (ICG-R) (Prigerson & Jacobs, 2001b), a validated 32-item questionnaire that asks about symptoms of separation distress and traumatic distress (Cronbach's $\alpha=0.92$) (Prigerson et al., 1999b). Items from the ICG-R were applied to consensus criteria for CG using a method of diagnosis found to correctly classified 93% of predetermined "cases" and "non-cases" of CG, respectively (Prigerson et al., 1999b). Interrater agreement on CG diagnoses was perfect ($K=1.00$).

Major Depressive Disorder (MDD)—Current Major Depressive Disorder (MDD) was determined by administering the Structured Clinical Interview for the DSM-IV (SCID). Interrater reliability for MDD diagnoses also reflected 100% agreement among raters ($K=1.00$). In order to maintain SCID diagnosis for MDD, the SCID item on morbid/suicidal thoughts was not removed from the criteria. However, retaining the suicide item in the MDD diagnosis only served to heighten the association between MDD and suicidality (Table 2). Consequently, controlling for MDD when examining the association between CG and suicidality would most likely attenuate the CG results.

Comorbid CG and MDD—Comorbidity with CG was determined by multiplying CG by MDD caseness (i.e., yes=1 if met criteria for both; no=0 otherwise).

Prior Psychiatric History—Prior history of MDD, Post Traumatic Stress Disorder, Generalized Anxiety Disorder, and Panic disorders was measured using the lifetime assessment found in the Structured Clinical Interview for the DSM-IV (SCID) Axis I Modules (First et al., 1995). The SCID has high test-retest reliability for these lifetime diagnoses, with an overall weighted K of 0.68 (Williams et al., 1992). Dates of the occurrence of prior psychiatric episodes were used to ensure that the prior disorder preceded the loved one's death.

Social Support—Social support was measured with a modified 16-item version of the Interpersonal Support Evaluation List (ISEL), (Cohen et al., 1985) a self-report scale assessing the perceived availability of potential social resources (score ranges 0.0 to 16.0). Cohen et al. (1995) has reported the scale to have adequate test-retest reliability ($r=0.87$) and internal consistency ($\alpha=0.90$). Cronbach's α in the present sample was 0.86.

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Statistical Analysis

SAS System for Windows v. 8.1 was used for all statistical analyses. Bivariate associations between CG, the covariates (age, sex, gender, race, MDD, PTSD, prior psychiatric history, education, income prior to loss, current income, time since loss), and suicidality were assessed using the t test for continuous variables and the χ^2 test or Fisher's Exact Test (two-tailed test) for categorical variables. These analyses showed that gender, race, current MDD diagnosis, current PTSD diagnosis, and social support were statistical confounders.

Major Depressive Disorder, Post-Traumatic Stress Disorder, and prior psychiatric history were all highly correlated ($p < .0001$). Current income, income prior to loss, and education were also highly correlated ($p < .0001$ for all comparisons). Therefore, to avoid problems of collinearity, only MDD, PTSD and education were entered into models. MDD and PTSD diagnoses were entered into the models instead of prior psychiatric history because of the importance of distinguishing CG from these two psychiatric diagnoses. Education was entered into the models instead of the income variables because it was the most normally distributed of the three.

Cross-Sectional Analysis—Unadjusted and adjusted cross-sectional associations between the main predictor variables (CG diagnosis, MDD diagnosis, and comorbidity at baseline) and suicidality were found using PROC LOGISTIC. One set of adjusted analyses controlled for only true confounders (gender, race, current MDD diagnosis, current PTSD diagnosis, and social support) and one set utilized model building strategies with the aim of finding the most parsimonious model for describing the relationships to suicidality.

To determine the most parsimonious model for the association between the main predictor variables and suicidality, we simultaneously estimated the effects of all the risk factors found to be significant ($p < .05$) in the bivariate analyses. The effects of all variables were calculated and the log likelihood statistic for the model was noted. The variable with the smallest adjusted effect was removed and the adjusted effects of the remaining variables were recalculated. If the difference between the log likelihood statistics of the models was less than 3.84, the model with fewer variables was kept and the cycle was repeated. If the difference was greater than or equal to 3.84, the removed variable was put back into the model and the model building ceased. Statistical confounders were included in all models other than the unadjusted model regardless of the adjusted effects of the confounders.

Longitudinal Analyses—PROC LOGISTIC was used to determine the association between the main predictor variables and suicidality at follow-up. Adjusted models controlled for baseline suicidality and statistical confounders. The most parsimonious model was also found for the association between each main predictor variable and suicidality.

RESULTS

Table 2 shows the baseline characteristics of the study participants by "low" and "high suicidality", by CG status, and by MDD status. Both MDD and CG were associated with "high suicidality". Subjects classified as having "high suicidality" were more likely to be female and non-Caucasian, to score lower on the ISEL social support scale, were more likely to have had a prior psychiatric history, and to have current MDD, PTSD, and CG diagnoses. Subjects with CG were more likely to be female, non-Caucasian, have fewer years of education, have less income prior to the loss, to score lower on the ISEL social support scale, and to have current MDD and PTSD diagnoses. Subjects with MDD tended to be younger and non-Caucasian, tended to have both less current income and less income prior to the loss, tended to score lower on the ISEL social support scale, were more likely to have a current PTSD diagnosis, and to have had a prior psychiatric history. Of these potential confounders, being female, non-Caucasian, scoring lower on the ISEL social support scale, having a current PTSD diagnosis,

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and having a current MDD diagnosis were related to both study outcome (suicidality) and the main predictor (baseline CG status), making them true statistical confounders.

Table 3 presents the occurrence of high suicidality, CG, MDD, PTSD and co-occurrence of CG and MDD at baseline and follow-up as well as the number and percentage of the sample with prior psychiatric history at baseline. While the prevalence of CG, MDD, their co-occurrence, and PTSD decreased with time, the prevalence of high suicidality did not. In fact, it increased slightly.

Table 4 presents the cross-sectional associations between suicidality and CG and MDD at baseline and follow-up. Subjects meeting diagnostic criteria for CG were approximately 14 times more likely at baseline and 22 times more likely at follow-up to be classified in the high suicidality group. The positive relationship remained (OR: 5.61 at baseline, 11.3 at follow-up) after controlling for statistical confounders gender, race, MDD, PTSD, and social support and also after finding the most parsimonious model through model building. The most parsimonious model at baseline controlled for age, gender, race, social support, PTSD, and MDD (OR: 6.58) while the most parsimonious model at follow-up controlled for only the statistical confounders already identified (OR: 11.3).

The unadjusted association between MDD and suicidality was significant at both baseline and follow-up (OR: 5.10, 7.55 respectively), but became non-significant after controlling for statistical confounders ($p=.97$ and .17 respectively). Comorbid CG and MDD was not associated with suicidality at either time point. Time since loss was not statistically significant in any models.

Table 5 presents the longitudinal analysis that examined the associations between CG, MDD, and comorbid CG and MDD at baseline and suicidality at follow-up. Unadjusted analyses revealed that subjects who met criteria for CG at baseline were 14.5 times ($p<0.001$) more likely to endorse suicidality at follow-up than were subjects not meeting criteria for CG. The association remained highly significant after adjusting for baseline suicidality (OR: 9.12, $p <0.0001$), indicating CG predicted residual increased suicidality over time. Models controlling for statistical confounders (including MDD) and models resulting from model building both revealed a consistently significant association between CG at baseline and “high suicidality” at follow-up (OR: 8.21 and 5.90, respectively). Table 5 also displays the association between baseline MDD and “high suicidality” at follow-up. Both the unadjusted model and the model adjusting for baseline suicidality revealed a significant association. However, when controlling for statistical confounders and when building the most parsimonious model, the association was no longer significant. Comorbid CG and MDD at baseline did not predict “high suicidality” at follow-up in unadjusted, adjusted, or most parsimonious analyses. Time since loss was not statistically significant in any models.

DISCUSSION

This study sought to characterize the association between CG diagnosis and suicidality. The collection of baseline and follow-up measures allowed for examination of this association through both cross-sectional and longitudinal analyses. The results of this study indicate that bereaved subjects who meet criteria for CG are at a significantly heightened risk of suicidality that remains after controlling for MDD and PTSD, suggesting that CG is an independent and important clinical correlate of suicidality apart from MDD and PTSD. This association is consistent and is demonstrated in bivariate, multivariate, and longitudinal analyses.

An interesting finding of this study involves the prevalence of prior psychiatric history in the study population (Table 3). One could postulate that a person with a prior psychiatric history would tend to be less successful at grieving the loss of a loved one. If this were the case, the

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association observed between CG and suicidality could simply be the result of CG acting as a proxy for an underlying variable that increases vulnerability to mental illness. However, baseline characteristics show that prior psychiatric history and CG status at baseline were not related (Table 2). This result suggests that the death of a loved one is an event that causes great mental distress in both persons with a history of mental distress and those with no history at all making both populations vulnerable to CG.

Prevalence data from this study showed that 18 out of 35 of subjects meeting criteria for CG at baseline and 12 out of 20 meeting criteria at follow-up also met criteria for MDD. While there is a high association between MDD and CG ($p < 0.0001$) (Table 2), the overlap is far from complete. The usefulness of CG as an independent diagnosis is most dramatically demonstrated by this study's longitudinal analyses (Table 5). The association between CG at baseline and "high suicidality" at follow-up remained significant after controlling for baseline MDD. Further, once CG was adjusted for in models examining MDD as the main predictor, the association between MDD and "high suicidality" became non-significant. These analyses suggest that, instead of MDD explaining the association between CG and suicidality, it is actually the reverse. CG is explaining the association between MDD and suicidality.

The number of subjects classified as having "high suicidality" increased from baseline (24 subjects, 7.8%) to follow-up (25 subjects, 8.8%) while the prevalence of every other psychiatric disorder, including CG, decreased (Table 3). This increase occurred despite losing twenty-five subjects to follow-up. That the prevalence of suicidality did not track with psychiatric disorders demonstrates the incompleteness of predicting suicidality by these measures alone. Other possible predictors not examined in this study that may mediate or moderate the observed associations include religious beliefs, personality styles, type and quality of attachment to the deceased, and the presence of debilitating chronic disease(s).

Several potential study limitations deserve mention. This study only examined risk factors for suicidality, and not for suicide *per se* because completed or attempted suicide are rare events. Only a single subject completed suicide in the study (this person did meet criteria for CG, as well as other psychiatric disorders). Investigating suicide as an outcome would not only be difficult from the perspective of limited statistical power (i.e., low rates), but ethical obligations to intervene when suicidal intent is reported would inhibit the ability to naturalistically observe the effects of CG on suicide.

In addition, the studied subjects were largely affluent, Caucasian, and female (Table 2) making the results difficult to generalize to a more ethnically and socioeconomically diverse population. Additional research on the association between CG and suicidality should be conducted in a more diverse sample. This is especially important since the results of this study demonstrate that those with lower income before the loss, and non-Caucasians are more likely to be diagnosed with CG (Table 2).

Although the two waves of data allowed for longitudinal analyses, future research should involve collecting data at time points even further from the loss. The time frame for "normal" grieving is disputed among researchers. It seems that although some individuals may resolve their grief within six to twelve months, most continue to work through grief for several years and may even experience their grief for the rest of the lifespan (Middleton et al., 1993). By conducting longer longitudinal studies of bereavement, researchers will be better able to characterize the course of CG and its relationship to suicidality. The fact that the number of subjects characterized as having "high suicidality" increased from baseline to follow-up also warrants investigation of suicidality at later time points to determine whether this trend persists.

The present study has many strengths. It provides a more rigorous analysis of the relationship between CG, depression, and suicidality than that of the earlier study conducted among young

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adult friends of suicide victims (Prigerson et al., 1999a). The study sample was larger when compared to the prior study (N=309 versus N=76, respectively) and was more representative of a population at greater risk of being bereaved adults. This study used trained interviewer assessments of CG, depression, and suicidality and validated diagnostic criteria for CG and MDD. In addition, the relationship between CG and suicidality remained significant after controlling for more potential confounders than the prior report: gender, race, MDD, PTSD, and social support. Most importantly, this study included two waves of data allowing, for the first time, longitudinal analyses of the association between CG and suicidality. The results highlight the salience of CG as a predictor of suicidal risk.

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Appendix A. Yale Evaluation of Suicidality (YES) Scale

Identify the most upsetting event (X): In the past year, what has been the most upsetting event or condition that you have had to confront? Sometimes people with X feel that this experience has affected their feelings about living.

1. In light of X, how strong would you say your wish to live has been? (strong=0, moderate=0.33, weak=0.66, have none=1.0)
2. In light of X, how strong has your wish to die been? (have none=0, weak=0.33, moderate=0.66, strong=1.0)
3. In light of X, have you ever had thoughts of killing yourself? (no=0, possibly=0.5, yes=1.0)
4. In light of X, which of the following best describes your feelings about living versus dying? (living outweighed dying=0, equal=0.5, dying outweighed living=1.0)
5. Have you actively planned a suicide attempt? (No=0, Considered, details not finished=0.5, yes=1.0)
6. Have you attempted suicide in the past? (No=0, possibly=0.5, yes=1.0)
7. When things are going badly I am helped by knowing they can’t stay that way forever (True=0, False=1.0).
8. I am too stable to kill myself (True=0, False=1.0).
9. I would be reluctant to kill myself because I am afraid of the actual “act” of killing myself (the pain, blood, violence) (True=0, False=1.0).
10. I would be reluctant to kill myself because I consider it morally wrong (True=0, False=1.0).
11. I would be reluctant to kill myself because my family depends upon me and needs me (True=0, False=1.0).
12. I believe I am unable to adjust or cope with my problems (False=0, True=1.0).
13. I hate feeling like a burden to my family (False=0, True=1.0).

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Table 1

Diagnostic Criteria for Complicated Grief

CRITERION A:
• *Person has experienced the death of a significant other and response involves 3 of the 4 following symptoms experienced at least daily or to a marked degree:*

1 Intrusive thoughts about deceased

2 Yearning for deceased

3 Searching for deceased

4 Excessive loneliness since the death

CRITERION B:
• *In response to the death, 4 of the following 8 symptoms experienced at least daily or to a marked degree:*

1 Purposelessness, feelings of futility about future

2 Subjective sense of numbness, detachment, or absence of emotional responsiveness

3 Difficulty acknowledging the death (disbelief)

4 Feeling life is empty or meaningless

5 Feeling that part of oneself has died

6 Shattered world view (lost sense of security, trust, control)

7 Assumes symptoms or harmful behaviors of, or related to, the deceased

8 Excessive irritability, bitterness, or anger related to the death

CRITERION C:
• Duration of disturbance (symptoms listed) is at least six months

CRITERION D:
• The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning

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Table 2.

Bivariate associations between suicidality, CG status, and MDD status at baseline (6 months post-loss) (N=309), mean (SD)

	Suicidality		CG		MDD	
Variable	**Low (N=285)**	**High (N=24)**	**Yes (N=35)**	**No (N=274)**	**Yes (N=34)**	**No (N=271)**
Suicidality, high, n(%)	-	-	13 (37.1)	11 (4.0)*	10 (29.4)	14 (5.17)***
Current MDD Diagnosis	24 (8.54%)	10 (41.7%)***	18 (51.4%)	16 (5.9%)***	-	-
CG Diagnosis	22 (7.72)	13 (54.2%)***	-	-	18 (52.9%)	17 (6.27%)**
Age, years	62.2 (13.3)	57 (16.4)	61.9 (13.6)	60.5 (13.8)	54.2 (14.4)	62.6 (13.3)
Sex, female, n(%)	205 (71.9%)	22 (91.7%)$^{\#}$	31 (88.6%)	196 (71.5%)$^{\#}$	27 (79.4)	199 (73.4)
Race, Caucasian, n(%)	266 (93.3%)	19 (79.2%)$^{\#}$	28 (80.0%)	257 (93.8%)$^{\#}$	27 (79.4)	254 (93.7)*
Education, years	14.0 (3.0)	13.8 (2.7)	13.2 (2.3)	14.1 (3.1)$^{\#}$	13.6 (2.5)	14.0 (3.0)
Current income, $K	43 (38)	52 (64)	33 (46)	45 (40)	25 (20)	46 (42)***
Income before loss, $K	63 (44)	53 (46)	46 (31)	64 (45)$^{\#}$	41 (28)	65 (45)**
No. drinks / month	10.2 (17.8)	6.8 (14.4)	6.6 (13.1)	10.4 (18.0)	10.5 (22.2)	9.7 (16.7)
Time since loss, months	6.1 (7.0)	7.6 (5.5)	6.3 (5.6)	6.2 (7.1)*	5.7 (4.8)	6.3 (7.2)***
ISEL summary	12.5 (2.2)	10.5 (2.7)***	10.8 (3.0)	12.6 (2.1)***	10.0 (2.5)	12.7 (2.1)***
Current PTSD diagnosis	14 (5.0%)	8 (33.3%)***	12 (34.3%)	10 (3.7%)	13 (38.2%)	9 (3.3%)***
Previous psychiatric disorder, n(%)	64 (22.5%)	14 (58.3%)***	13 (38.2%)	65 (23.7%)	19 (57.6)	57 (21.0)***

$^{\#}$p<.05

*p<.01

**p<.01

***p<.0001

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Table 3.

Prevalence of psychiatric disorders and "high suicidality" at baseline and follow-up, n (%).

	6.2 Months Post-Loss	10.8 Months Post-Loss
Complicated Grief	35 (11.3)	20 (7.02)
Major Depressive Disorder	34 (11.2)	30 (10.5)
Comorbid CG and MDD	18 (5.90)	12 (4.23)
Post-traumatic Stress Disorder	22 (7.21)	14 (4.88)
Prior psychiatric history	78 (25.3)	-
High suicidality	24 (7.77)	25 (8.80)

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Table 4.

Cross-sectional associations between suicidality, CG and MDD in 309 bereaved persons at baseline and follow-up.

Variable	Suicidality			Suicidality		
	Baseline (6.2 months post-loss)			Follow-up (10.8 months post-loss)		
	Odds Ratio	95% Confidence Interval	p-value	Odds Ratio	95% Confidence Interval	p-value
CG	14.1 [a]	5.67-35.2	<.0001	21.7 [a]	7.74-61.0	<.0001
	5.61 [b]	1.74-18.0	.0038	11.3 [b]	3.33-38.1	<.0001
	6.58 [c]	1.97-22.0	.0022	11.3 [c]	3.33-38.1	<.0001
MDD	5.10 [a]	2.43-10.7	<.0001	7.55 [a]	3.33-17.1	<.0001
	1.03 [d]	0.23-4.56	.97	2.78 [d]	0.66-11.7	.17
CG x MDD	0.92 [e]	0.06-14.7	.95	0.23 [e]	0.02-2.59	.24

[a] Unadjusted Odds Ratio

[b] Adjusted for statistical confounders; gender, race, MDD, PTSD, and social support

[c] Model resulting from entering all variables and finding most parsimonious model- Baseline: adjusted for age, gender, race, MDD, PTSD, and social support- Follow-up: gender, race, MDD, PTSD, and social support

[d] Adjusted for gender, race, CG, PTSD, and social support

[e] Adjusted for gender, race, CG, MDD, PTSD, and social support

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Table 5.

Effect of baseline CG status, MDD status, and comorbidity on suicidality at follow-up.

CG as main predictor			
Predictor	**Odds Ratio**	**95% Confidence Interval**	**p-value**
CG	14.5 [a]	5.79 - 36.4	<.0001
	9.12 [b]	3.30 - 25.2	<.0001
	8.21 [c]	2.49 - 27.0	.0005
	5.90 [d]	1.81 - 19.2	.0032

[a] Unadjusted Odds Ratio

[b] Adjusted for baseline suicidality

[c] Adjusted for statistical confounders: gender, race, MDD, PTSD, and social support

[d] Model resulting from entering all variables and finding most parsimonious model: adjusted for baseline MDD, social support, and suicidality

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Table 5.

Effect of baseline CG status, MDD status, and comorbidity on suicidality at follow-up.

MDD as main predictor			
Predictor	**Odds Ratio**	**95% Confidence Interval**	**p-value**
MDD	10.6 [a]	4.19 - 26.8	<.0001
	6.53 [b]	2.35 - 18.1	0.0003
	2.96 [c]	0.69 - 12.6	.14
	2.58 [d]	0.71 - 9.41	.15

[a] Unadjusted Odds Ratio

[b] Adjusted for baseline suicidality

[c] Adjusted for statistical confounders: gender, race, CG, PTSD, and social support

[d] Model resulting from entering all variables and finding most parsimonious model: adjusted for baseline CG, social support, and suicidality

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Table 5.

Effect of baseline CG status, MDD status, and comorbidity on suicidality at follow-up.

Comorbid CG and MDD as main predictor			
Predictor	**Odds Ratio**	**95% Confidence Interval**	**p-value**
Comorbidity	15.6 [a]	5.17 - 46.8	<.0001
	0.26 [b]	0.03 - 2.02	.20
	0.19 [c]	0.02 - 1.95	.16

[a] Unadjusted Odds Ratio

[b] Adjusted for MDD and CG

[c] Adjusted for gender, race, CG, MDD, PTSD, and social support