Recent Life Events Preceding Suicide Attempts in a Personality Disorder Sample: Findings From the Collaborative Longitudinal Personality Disorders Study

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Abstract

Few studies have examined the relationship between life events, suicide attempts, and personality disorders (PDs), in spite of the strong associations between PDs and suicidal behavior, and the poor coping strategies often exhibited by these individuals. The authors examined whether participants with PDs who attempted suicide during the first 3 years of a prospective, longitudinal study were more likely to experience specific life events in the month during and preceding the suicide attempt. Of 489 participants with PDs, 61 attempted suicide during the 3-year, follow-up interval. Results indicated that negative life events, particularly those pertaining to love–marriage or crime–legal matters, were significant predictors of suicide attempts, even after controlling for baseline diagnoses of borderline PD, major depressive disorders, substance use disorders, and a history of childhood sexual abuse. Therefore, certain types of negative life events are unique risk factors for imminent suicide attempts among individuals with PDs.

Suicides and suicide attempts are often precipitated by particularly stressful life events, as evidenced in numerous psychological autopsy studies and studies of individuals who have survived suicide attempts (Heikkinen et al., 1997; Paykel, Prusoff, & Myers, 1975). However, to our knowledge few studies have examined the relationship between life events, suicidal behaviors, and personality disorders (PDs), in spite of the strong associations between PDs and suicidal behavior, and the poor coping strategies often exhibited by individuals with PDs. Furthermore, the reactivity and hypersensitivity that is often manifested by individuals with PDs, particularly Cluster B PDs, argues for further examination of whether individuals with PDs are particularly vulnerable to suicidal behaviors in the face of recent, stressful life events.

Studies that have focused on the relationship between life events, suicidal behaviors, and PDs have reported mixed findings, possibly attributed to the examination of different suicide outcomes (e.g., attempts, completions) or the use of different comparison groups (e.g., community sample, nonsuicidal inpatients). In a psychological autopsy study comparing suicide victims with PDs to those without PDs, Heikkinen et al. (1997) found that significant life events had been more commonly experienced among PD victims, particularly in the final week preceding the suicide, and that most PD suicide victims (70%) reported multiple life events and a high rate of life events during the previous week (Heikkinen et al., 1997). Furthermore, psychiatric diagnoses (Axis I and PDs) were less important relative to life events in predicting suicide group. In another psychological case-controlled autopsy study, a significant loss event and psychiatric diagnoses (major depressive episode and an emotionally unstable PD) were independent predictors of suicide (Cheng, Chen, Chen, & Jenkins, 2000). However, in a study of suicide attempters with major depressive disorder (MDD) and/or borderline PD (BPD), recent life events did not predict attempter status after accounting for the predictive effects of diagnostic status and social adjustment (Kelly, Soloff, Lynch, Haas, & Mann, 2000). In contrast, a recent study of suicidal adolescents found significantly more life events in the year preceding a suicide attempt among MDD and BPD adolescents compared with adolescents without a history of suicidal behaviors (Horesh, Sever, & Apter, 2003). However, although the latter study used a community comparison group, the former study (which found no significant independent predictive effects of stressful life events), used a nonsuicidal psychiatric inpatient comparison group. Therefore, it remains uncertain as to whether life events are predictive of suicidal behavior in the context of severe psychopathology, such as BPD, and whether life events may have differential effects for different types of suicide behaviors.

The impact of life events on suicidal behavior may also depend on the severity of psychiatric disturbance and whether the individual has a past history of suicidal behavior. Joiner and Rudd (2000) found that among 249 suicidal patients, negative life events were related to the intensity and duration of the suicidal crises among never and first attempters but not among multiple attempters. Similarly, in their study of life events occurring before death in 84 suicide victims and living controls, Cooper, Appleby, and Amos (2002) questioned whether recent life events may have a lesser causal role in those with severe mental illness, as they found that more suicide victims without a severe mental illness had a reported life event in the week before their death. These findings are puzzling, particularly in the context of a diathesis-stress model in which having a stronger diathesis (i.e., mental illness, past history of suicide attempt) is presumably associated with a lower threshold for stress- (event-) induced suicidal behavior. An alternative conceptualization is that given a strong diathesis, daily hassles or negative daily events that do not qualify as a significant life event suffice in serving as a stressful precipitant to suicidal behaviors.

Events frequently found to precede suicidal behaviors include loss events (Cheng et al., 2000; Heikkinen et al., 1997), disrupted interpersonal relationships (Cavanagh, Owens, &

Johnstone, 1999; Foster, Gillespie, McClelland, & Patterson, 1999; Heikkinen et al., 1997; Weyrauch, Roy-Byrne, Katon, & Wilson, 2001), job problems and financial difficulties (Heikkinen et al., 1997), and events related to adverse physical health (Cavanagh et al., 1999). Although these events are considered negative or undesirable, the impact of value-neutral or even positive life events on suicidal behavior is inconclusive. Holmes and Rahe (1967) proposed that it is the change from existing state, rather than value judgments of social desirability, that determines perceived stress. In support of this hypothesis (general-quantitative hypothesis), a study of suicide attempters with BPD and/or MDD found that value-neutral or even socially desirable changes were associated with suicide-attempter status (Kelly et al., 2000). However, in support of the general-qualitative hypothesis that proposes that it is the undesirability or threatening aspect that is responsible for adverse consequences, Paykel et al. (1975) found that suicide attempters reported a higher frequency of every type of event, except positive events and work events, compared with those in the general population.

Different types of life events may also exert differential effects on factors that may affect the relationship between life events and suicidal behaviors. For example, the impulsiveness of a suicide attempt has been found to increase in response to interpersonal loss but not with other types of stressors (Weyrauch et al., 2001). Therefore, impulsive individuals may be more responsive to interpersonal losses, and hence, at a greater risk for suicidal behaviors when confronted with such events. Furthermore, different types of life events may have different effects depending on diagnosis. Horesh et al. (2003) reported that suicidal MDD adolescents experienced more lifetime death-related significant life events than suicidal BPD adolescents but that suicidal BPD adolescents reported more lifetime sex-abuse-related events compared with their MDD counterparts. Therefore, many questions remain as to whether the association between life events and suicidal behaviors is general or specific to the type of life event, whether it is influenced by the social desirability of the life event, and whether it is a significant risk factor beyond psychiatric and other risk factors.

Most studies of suicide behavior and life events have been retrospective and, as in the case of psychological autopsies, have often been based on informant accounts. The Collaborative Longitudinal Personality Disorders Study (CLPS) is an ongoing longitudinal follow-up study of four PDs. The design of the CLPS holds several significant advantages over previous studies for examining life events among suicide attempters. These include a large, representative sample of individuals with PDs that have been carefully diagnosed on the basis of structured clinical interviews prior to suicidal behavior(s), the administration of a wide range of assessments, and a prospective design. However, given follow-up intervals of 6 months and 1 year, and given our interest in immediate predictors, some analyses are necessarily based on retrospective data assessments. In our prior work, we found that baseline diagnoses of BPD and drug use disorder, and an increase in depressive symptoms and substance use, were significant predictors of prospectively observed suicide attempts (Yen et al., 2003). We also found that affective instability was the most significant predictor of suicidal behaviors (Yen et al., 2004) among *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994) diagnostic criteria for BPD (with the exception of past self-injurious behavior). In this study, we examined whether participants who had attempted suicide during the first 3 years of follow-up were more likely to experience specific life events in the month of, or the month preceding, their suicide attempt. We predicted that participants in a PD sample who experienced a negative life event, particularly with regard to romantic relationships, would have a significant risk of imminent suicidal behaviors in the 1–2 months following the event. We anticipated that these negative life events would be significant predictors, even after we controlled for variables that have been strongly demonstrated to predict suicide attempts in the present sample and in numerous other studies. In addition, we hypothesized that those with more

severe psychopathology and/or functional impairment at baseline, as assessed by the Global Assessment of Functioning (GAF) Scale, would demonstrate a greater vulnerability to suicide attempts when faced with stressful life events. Therefore, we specifically tested three models: (a) specific types of life events as predictors in a univariate model; (b) the interaction of baseline GAF and life event; and (c) a full model containing significant life event(s) and/or significant GAF–life event interaction, with covariates of BPD, MDD, alcohol and substance use disorders, and childhood sexual abuse.

Method

The CLPS is a multisite, naturalistic, prospective study of four PD groups: schizotypal (STPD), BPD, avoidant (AVPD), obsessive–compulsive (OCPD), and a comparison group of MDD without PD. The overall aims, design, assessment methodology, and demographic characteristics of the sample are detailed elsewhere (Gunderson et al., 2000). Following is an overview of the study participants and assessment procedures relevant to the present investigation.

Participants

Participants between the ages of 18 and 45 years were recruited from treatment clinics affiliated with the four CLPS sites. Additional individuals who had been in present or past treatment were recruited with fliers and advertisements. Individuals with (a) acute substance intoxication or withdrawal, (b) active psychosis, (c) cognitive impairment, or (d) a history of either schizophrenia, schizophreniform, or schizoaffective disorders were excluded from participation on the basis of questionable ability to provide detailed and accurate information. Individuals were eligible to participate if they met diagnostic criteria as assessed by the Diagnostic Interview for *DSM–IV* Personality Disorders (DIPD–IV; Zanarini, Frankenburg, Sickel, & Yong, 1996) for at least one of the four PDs targeted in the CLPS (STPD, BPD, AVPD, OCPD) or if they met criteria for the comparison group, which included MDD, as assessed by the Structured Clinical Interview for *DSM–IV* Axis I Disorders—Patient Version (SCID–I/P; First, Gibbon, Spitzer, & Williams, 1996), without PD. The DIPD–IV was the primary assessment of PD. However, to maximize accuracy of PD diagnoses, we convergently supported interviewers' DIPD–IV diagnoses with one other method of Axis-II assessment, either the self-report Schedule for Adaptive and Nonadaptive Personality (Clark, 1993) or the clinician-rated Personality Assessment Form (Shea, Glass, Pilkonis, Watkins, & Docherty, 1987). Interviewers had master's- or doctoral-level training (or equivalent clinical experience) in a mental health related discipline. Each participant signed an informed consent, approved by the institutional review boards at their respective sites–institutions.

The total CLPS study group consisted of 668 participants. Participants were interviewed at 6 months, 1, 2, and 3 years following the baseline assessment. The 6-month and 1-year interviews each covered 6 months of follow-up, and the 2-year and 3-year interviews covered 1 year of follow-up. Of the entire sample, 65 participants made a suicide attempt. Of these, 59 (91%) met full criteria for a study PD and MDD, 2 (3%) met criteria for a PD only, and 4 (6%) met criteria for MDD only. Because of the skewed distribution, and the differences in enrollment criteria between the PD groups and the MDD comparison group, analyses were restricted to participants in the PD groups. Excluding those in the MDD comparison group was a more stringent test of our hypotheses and allowed for a clearer interpretation of the data. For the same reason, we also excluded participants who only endorsed suicidal gestures. Participants could endorse suicidal behavior as assessed on the Longitudinal Interval Follow-Up Evaluation (LIFE; Keller et al., 1987), but if they denied any intent to die, then they were better conceptualized as those who engaged in self-injurious behaviors. For the purposes of the present investigation, suicide attempters were

distinguished from gesturers on the basis of their LIFE ratings for suicide intent and medical threat. Participants who had at least definite but ambivalent intent and whose attempts were rated to have at least a mild effect (medically) were included in the suicide attempt group.[1] In the present examination, we focused on the 489 participants with PDs (73% of the original sample) with at least 24 months of follow-up data (baseline, 6-month, and 1- and 2-year interviews).

Measures

DIPD–IV—The DIPD–IV (Zanarini et al., 1996) is a semistructured interview consisting of questions that assess each criterion of the 10 *DSM–IV* PDs. In the present study, interrater and test–retest reliability of the DIPD–IV (kappa) for the PDs of the four studies were .68 and .69 for BPD, .68 and .73 for AVPD, and .71 and .74 for OCPD, respectively. The interrater reliability sample was insufficient to calculate kappa for STPD; the test–retest kappa for STPD was .64 (Zanarini et al., 2000).

SCID–I/P—The SCID–I/P (First et al., 1996) is a semistructured interview with demonstrated reliability used to diagnose major Axis I disorders as defined by the *DSM–IV*. In the CLPS, reliability of SCID–I/P diagnoses ranged from .57 to 1.00, depending on the disorder, with a median kappa of .76. Test–retest reliability ranged from .35 to .78, with a median kappa of .64. Interrater reliability kappa and test–retest kappa for specific Axis I disorders can be found elsewhere (Zanarini et al., 2000). For the Axis I disorders examined in the present study, the interrater reliability kappa and test–retest kappa were .80 and .61 for MDD, 1.00 and .77 for alcohol use disorder, and 1.00 and .76 for drug use disorder, respectively.

LIFE—The LIFE (Keller et al., 1987) is a semistructured interview rating system with demonstrated reliability for assessing the longitudinal course of psychiatric disorders and functioning, including suicidal behaviors. For suicidal behavior, the number of attempts and gestures are recorded on a monthly basis. Detailed ratings of intent (categories include the following: obviously no intent, only minimal intent, definite but very ambivalent, serious, very serious, and extreme) and medical threat (categories include the following: no danger, minimal, mild, moderate, severe, and extreme) are made.

Life Events Assessment (LEA)—Using the LEA (which was adapted from the Psychiatric Epidemiology Research Interview Life Events Scale; Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978), we assessed life events according to the methods developed by Dohrenwend et al. (1978). Participants were asked whether any of a list of 81 events or circumstances occurred since the last follow-up interview. LEA items were grouped by stress domain categories: 27 items pertained to work or school (20 negative, 7 positive); 13 items referred to relations with a spouse or partner (8 negative, 5 positive); 17 items pertained to family or social community matters (11 negative, 6 positive); 12 items referred to crime and legal matters (10 negative, 2 positive); 7 items referred to financial matters (5 negative, 2 positive); and 5 items pertained to health (4 negative, 1 positive). In total, 58 items were considered to be negative events, and 23 items were considered to be positive events. The total number of stressors reported during the follow-up study period was compared across domain categories. Low associations were found between stress domain categories (rs = .07–.34), suggesting that stress reported in one domain did not correlate with stress reported in another. Participants provided the onset date for endorsed stressful events.

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[1]We conducted analyses in which data from the 37 participants who only reported suicide gestures were included with the nonsuicide attempt group. These results were consistent with the reported findings.

Data Analyses

For each month of the follow-up period, a dichotomous variable was created to represent the onset of domain specific stressors occurring within that month, as assessed by the LEA. Using these scores for each targeted life event category, we conducted Cox's (1972) proportional hazards regression (PHREG) analyses to determine whether experiencing a life event in the month preceding or during a suicide attempt was a significant predictor of the attempt. Because we were interested in the period immediately preceding the attempt, we performed manual checks of the narrative data to verify that the target life events that occurred in the same month of the attempt were reported as preceding the attempt. Cox's PHREG allows for the use of all available data, including censored observations (i.e., data from participants who did not make a suicide attempt) during the 3-year, follow-up interval.

Three models were tested. The basic model consisted of each life event category that predicted suicide attempt in the month of, or following, the event. In the second regression model, an interaction term for baseline GAF and the life event category was examined as an independent variable to determine whether the predictive association between life events and suicidal behaviors varied by level of psychopathology and psychosocial functioning. A final model—which contained baseline diagnoses of BPD, MDD, drug use disorder, alcohol use disorder, and childhood sexual abuse as covariates—was analyzed. These variables were selected because they have been established as significant predictors of suicidal behavior in this sample, or have been well-established risk factors from other empirical investigations (Yen et al., 2003, 2004).

For each of these models, a stepwise data analytic strategy was implemented in which the first PHREG analysis was aimed at determining whether valence of life event was predictive of suicidal behavior. If results indicated that only negative life events were significant, then subsequent analyses of life event categories were restricted to negative events. The second step involved testing domain categories that included the following: school–work, love–marriage, children, other family matters (e.g., home), crime–legal, finance, social–recreation, and health. If these categories were significant at $p < .01$, then specific life event items were tested.

Results

Of the 489 participants who had a PD diagnosis at baseline and had completed at least 2 years of follow-up evaluation, 61 had made a suicide attempt, as defined by at least ambivalent intent and minimal medical threat, after 3 years of prospective follow-up. Of these, 37 had only one attempt during the 3-year, follow-up period, and 24 had multiple attempts during this interval. To obviate the potential problem of correlated events, we analyzed only the first suicide attempt for each participant. There were no statistically significant differences between the attempters and nonattempters on the demographic variables of age, gender, race, employment, and education. Similarly, there were no significant demographic differences between the present sample and the entire study sample of 668 participants (which included those who were in the MDD control group and those who did not have 2 full years of prospective data).

Of the entire sample, all but 1 participant reported at least one negative life event (99.8%), whereas 457 (93.5%) participants of our sample reported at least one positive life event. Among the 61 participants who attempted suicide during the 3-year, follow-up interval, all reported a negative life event, and 2 participants did not report a positive life event. Of the major categories of negative life events, the most frequently reported were work-related events (397 [81.2%] participants of the sample; 50 [82%] participants of the suicide attempt group). This was followed by family–household related events that were endorsed by 355

(72.6%) participants of the sample and 44 (72.1%) participants of the suicide attempt group. Health related events were also highly endorsed, particularly among the suicide attempt group (194 [47%] participants of the sample; 38 [62%] participants of the suicide attempt group). Other events that were frequently endorsed included events related to love and marriage (289 [59.1%] participants of the sample; 39 [63.9%] participants of the suicide attempt group) and social and recreation matters (240 [49.1%] participants of the sample; 34 [55.7%] participants of the suicide attempt group). Crime and legal events were endorsed at significantly different proportions, with 219 (44.8%) participants of the sample reporting some crime or legal event, compared with 40 (65.6%) participants in the suicide attempt group, $\chi^2(1, N = 495) = 12.2$, $p = .0005$. There were no significant differences between PD suicide attempters and PD nonattempters for any other class of events.

Results from the proportional hazards regression analyses with the basic model that contained no covariates showed that negative events, but not positive events, were predictive of suicide attempts in the following month(s) (hazard ratio [HR] = 2.82, $p < .001$). On the basis of these results, subsequent analyses of specific types and categories of life events examined only negative events. Examinations of the eight life event categories yielded two categories that were significant predictors of suicide attempt within the following 1–2 months. These were events pertaining to love–marriage (HR = 3.55, $p < .001$) and crime–legal (HR = 3.51, $p < .001$). Two other event categories were near significant: work–school (HR = 2.09, $p < .05$) and health (HR = 2.76, $p = .01$). To determine whether these relationships varied by level of psychopathology and/or functioning, we entered an interaction term of Life Event $\times$ GAF Score into each regression analysis. However, the interaction term was not significant for any of the life event categories.

The final model, which included covariates for baseline diagnoses of BPD, MDD, substance use disorder, and childhood sexual abuse, was conducted and is examined in greater detail (see Table 1). As predicted, positive life events were not significant in predicting suicide attempts, whereas negative life events were significant in predicting suicide attempts within the next month (HR = 2.40, $p = .001$). Analyses of specific categories and types of life events were thus limited to negative events as planned. Of the eight categories that were examined, only life events related to love–marriage (HR = 3.03, $p < .001$) and crime–legal matters (HR = 2.53, $p = .01$) were significant predictors of suicide attempts. Specific life events in each of these domains (love–marriage and crime–legal) were subjected to further analyses.

Table 2 lists the numbers and percentages of participants who endorsed each of these events by suicide attempt status group. For events that had sufficient sample sizes in each cell ($n = 6$), PHREG analyses that controlled for baseline BPD, MDD, alcohol and drug use disorders, and history of childhood sexual abuse, were conducted to examine whether the individual events predicted suicide attempts in the subsequent month(s). Among life events pertaining to love and marriage, no specific event was significant even though the overall category was significant. In contrast, several of the events relating to crime and legal matters were significant predictors of suicide attempts in the months subsequent to event onset (see Table 2). These included being the victim of a physical assault or attack (HR = 4.16, $p = .008$), being accused of a crime (HR = 13.67, $p < .001$), being arrested (HR = 7.25, $p < .001$), being sent to jail (HR = 9.77, $p < .001$), and being involved in a court case (HR = 4.43, $p = .002$). Only being robbed and burglarized were not significant.

Discussion

Although other studies have reported significant associations between negative interpersonal events and suicidal behaviors in a PD sample (Heikkinen et al., 1997), to our knowledge the

present study is the first to find this association with a prospective design and time-varying analyses. Our study design and statistical analyses enabled us to determine that specific events (i.e., negative events pertaining to love–marriage and crime–legal matters) carry imminent risk for a suicide attempt in the month of, or the month following, the onset of the event. This was a robust finding that remained even after controlling for numerous other risk factors for suicidal behavior (i.e., baseline diagnoses of BPD, MDD, substance use disorders, and childhood sexual abuse). Unlike other studies that were based on psychological autopsies or inpatients hospitalized for a suicide attempt, our sample was not selected on the basis of past suicidal behaviors. Given the high rate of fatalities in first suicide attempts, examining suicide attempts in a sample broader than those who have made previous attempts provides a valuable perspective. Furthermore, the relative rarity of suicide and suicide attempts in contrast to the relatively higher rates of psychiatric diagnoses strengthens the clinical relevance of our findings.

Most of our findings are concordant with other empirical investigations. Our finding that negative, but not positive, life events were significantly associated with suicide attempts is consistent with other prospective studies that have examined life events as predictors of depressive episodes (Friis, Wittchen, Pfister, & Lieb, 2002; Mundt, Reck, Backenstrass, Kronmuller, & Fiedler, 2000). Despite the robustness of the love–marriage event category as being a significant predictor of suicide attempts, no particular event in this category stood out as being significantly associated with suicide attempts. This is most likely a result of the relatively small cell sizes in each of these event categories. However, it may be that the way in which an event affects an individual is more meaningful than the occurrence of such an event. For example, seemingly negative events such as divorce can have positive emotional consequences for some people. In some circumstances, such events can even improve emotional well-being (Gunderson et al., 2003). In a recent study of stressful life events in which events were rated on dimensions of loss, humiliation, entrapment, and danger, high ratings of loss and humiliation were found to predict onsets of major depression and mixed depression–anxiety (Kendler, Hettema, Butera, Gardner, & Prescott, 2003). It seems likely that many negative events related to love and marriage do involve either loss or humiliation but that making predictions on the basis of specific events (e.g., ending a relationship, divorce) entails greater details about the circumstances surrounding the event and the emotional sequelae of the event.

In contrast to the love–marriage event category, analyses of specific types of crime–legal events determined that some specific events were associated with a significant risk factor, whereas others were not. These included being a victim of a physical attack–assault, being accused of a crime, being arrested, being sent to jail, and being involved in a court case. The higher frequency of these events compared with the love–marriage events may partially explain why specific crime–legal events were found to be predictive of suicide attempts. However, it is telling that such high frequencies of crime–legal related events, both as victim and perpetrator, were observed in our sample. One possible explanation is that certain types of crime–legal life events are internally generated by personality characteristics. The events that were significant are not independent of certain PD traits, particularly those of Cluster B PDs. For example, PD traits such as impulsivity and aggression can increase the chances of being the victim of a physical assault, being accused of a crime, being arrested, being sent to jail, and being involved in a court case. These same traits have been related to increased risk for suicidal behaviors. However, the relationship between these variables and whether crime–legal events mediate the relationship between impulsivity–aggression and suicidal behaviors, to the best of our knowledge, is uninvestigated.

Regardless of whether one is the victim or perpetrator, crime–legal events can also lead to feelings of loss, humiliation, and other emotionally vulnerable outcomes, though presumably

how these events are cognitively and emotionally processed would be different. In addition, these events seem more likely to generate similar emotional responses within a specific event than the love–marriage events. Most individuals experiencing crime–legal experiences (particularly as perpetrator) have a greater degree of personal contribution to the event, whereas events relating to love–marriage almost invariably involve shared contributions. Even the event of an unprovoked physical attack or assault is likely to generate more universal emotions or experiences (e.g., feelings of violation and injustice, humiliation) than most love–marriage events (with the possible exception of the death of a loved one). This suggests the importance of a relational-cognitive-orientation approach that emphasizes the meaning attributed to the event and the subjective impact of the event (Lazarus, Delongis, Folkman, & Gruen, 1985).

The question of whether life events are predictive of suicidal behavior among those with more severe psychiatric disturbance is not easily addressed by our data because all participants had a baseline diagnosis of a PD and most had other additional diagnoses. Our analyses to determine whether there was a significant interaction effect between baseline global functioning (which is a proximate measure of psychopathology and overall psychosocial functioning) and life event category were not significant, suggesting that the degree of psychopathology–functioning does not affect the extent to which life events predict subsequent suicide attempts. Furthermore, our data suggest that even among those with severe psychiatric disturbance, life events can predict suicide attempts. Despite studies that have questioned the impact of life events on suicidal behaviors in severe psychiatric populations, our findings strongly support the importance of considering recent life events in evaluating suicide risk among those with PDs.

The strength of the present study is the prospective design and the documentation that the life event under investigation preceded the suicide attempt. However, our analyses of life events that predicted suicidal behavior were necessarily based on retrospective reporting because of our hypothesized time-varying association (i.e., that life events would be an imminent risk factor). Most studies of suicide attempts have been mainly retrospective and correlational, thereby precluding inferences of a causal relationship. The results of the present study clearly suggest that negative life events are significantly associated with suicide attempts and that individuals experiencing events relating to love–marriage are 3 times more likely to make a subsequent suicide attempt within the next 1–2 months compared with those who have not experienced a negative love–marriage event. Furthermore, those who reported crime–legal events are 2.5 times more likely to make a suicide attempt compared with those who have not had such experiences.

There are several limitations to the present study. As previously mentioned, the same life event may bring about different emotional consequences depending on the circumstances. This is particularly notable with regard to love and marriage related events. The instrument used in this study did not assess participants' subjective experiences of each of their significant life events, and this lack of distinction may have obscured some of our findings. The determination of positive and negative events was not instrument based but rather was made by a team of three investigators within the present study who agreed by a conservative consensus on what constituted a positive event. Although potentially problematic for reasons cited above, leaving in the positive events (e.g., promoted, married, birth of child) along with the negative events within any given life event category could have neutralized our findings. Finally, we did not assess daily hassles or chronic stress, experiences that can also predict suicidal behaviors. As with all life events research, the timing of events reported was solely based on the participants' memory and recall. Clearly, methods to assess the valence or context of life events need further development.

Pathways that link stressful life events and suicidal behaviors most likely include mediating and moderating variables. Many have speculated that the relationship between life events and negative outcomes, including suicidal behaviors and onsets–relapses of Axis I disorders, follows a diathesis stress model in which the individual has a preexisting vulnerability that becomes activated when his or her threshold for stressful events becomes breached. For most individuals, negative stressful life events occur repeatedly over one's lifetime but do not generally elicit extreme responses such as suicidal behaviors. When this occurs, it is most likely because of individual vulnerabilities or repeated events that push people beyond a certain threshold. Future longitudinal studies are needed to examine the process by which life events affect suicidal behavior and should examine cognitive and psychological processes that shape how an event is appraised and how individuals cope or respond to such events.

Acknowledgments

References

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: Author; 1994.

Cavanagh JTO, Owens DGC, Johnstone EC. Life events in suicide and undetermined death in southeast Scotland: A case-control study using the method of psychological autopsy. Social Psychiatry and Psychiatric Epidemiology. 1999; 34:645–650. [PubMed: 10703274]

Cheng ATA, Chen THH, Chen CC, Jenkins R. Psychosocial and psychiatric risk factors for suicide: Case-control psychological autopsy study. British Journal of Psychiatry. 2000; 177:360–365. [PubMed: 11116779]

Clark, LA. Manual for the Schedule for Nonadaptive and Adaptive Personality. Minneapolis, MN: University of Minnesota Press; 1993.

Cooper J, Appleby L, Amos T. Life events preceding suicide by young people. Social Psychiatry and Psychiatric Epidemiology. 2002; 37:271–275. [PubMed: 12111032]

Cox DR. Regression models and life tables. Journal of the Royal Statistical Society. 1972; 34:187–220.

Dohrenwend BS, Krasnoff L, Askenasy AR, Dohrenwend BP. Exemplification of a method for scaling life events: The PERI Life Event Scale. Journal of Health and Social Behavior. 1978; 19:205–229. [PubMed: 681735]

First, MD.; Gibbon, M.; Spitzer, RL.; Williams, JBW. Structured Clinical Interview for DSM–IV Axis I Disorders (SCID-I). New York: New York State Psychiatric Institute, Biometrics Research Department; 1996.

Foster T, Gillespie K, McClelland R, Patterson C. Risk factors for suicide independent of *DSM–III*–R Axis I disorder: Case-control psychological autopsy study in northern Ireland. British Journal of Psychiatry. 1999; 175:175–179. [PubMed: 10627802]

Friis RH, Wittchen HU, Pfister H, Lieb R. Life events and changes in the course of depression in young adults. European Psychiatry. 2002; 17:241–253. [PubMed: 12381493]

Gunderson JG, Bender D, Sanislow C, Yen S, Rettew JB, Dolan Sewell R, et al. Plausibility and possible determinants of sudden "remissions" in borderline patients. Psychiatry: Interpersonal and Biological Processes. 2003; 66:111–119.

Gunderson JG, Shea MT, Skodol AE, McGlashan TH, Morey LC, Stout RL, et al. The Collaborative Longitudinal Personality Disorders Study: Development, aims, design, and sample characteristics. Journal of Personality Disorders. 2000; 14:300–315. [PubMed: 11213788]

Heikkinen ME, Henrikson MM, Isometsa ET, Marttunen MJ, Aro HM, Lonnqvist JK. Recent life events and suicide in personality disorders. Journal of Nervous and Mental Disease. 1997; 185:373–381. [PubMed: 9205423]

Holmes TH, Rahe RH. The Social Readjustment Rating Scale. Journal of Psychosomatic Research. 1967; 11:213–218. [PubMed: 6059863]

Horesh N, Sever J, Apter A. A comparison of life events between suicidal adolescents with major depression and borderline personality disorder. Comprehensive Psychiatry. 2003; 44:277–283. [PubMed: 12923705]

Joiner TE Jr, Rudd MD. Intensity and duration of suicidal crises vary as a function of previous suicide attempts and negative life events. Journal of Consulting and Clinical Psychology. 2000; 68:909–916. [PubMed: 11068977]

Keller MB, Lavori PW, Friedman B, Nielsen E, Endicott J, McDonald-Scott P, Andreason NC. The Longitudinal Follow-Up Evaluation. Archives of General Psychiatry. 1987; 44:540–548. [PubMed: 3579500]

Kelly TM, Soloff PH, Lynch KG, Haas GL, Mann JJ. Recent life events, social adjustment, and suicide attempts in patients with major depression and borderline personality disorder. Journal of Personality Disorders. 2000; 14:316–326. [PubMed: 11204339]

Kendler KS, Hettema JM, Butera F, Gardner CO, Prescott CA. Life event dimensions of loss, humiliation, entrapment, and danger in the prediction of onsets of major depression and generalized anxiety. Archives of General Psychiatry. 2003; 60:789–796. [PubMed: 12912762]

Lazarus RS, Delongis A, Folkman S, Gruen R. Stress and adaptational outcomes. American Psychologist. 1985; 40:770–785. [PubMed: 4037513]

Mundt C, Reck C, Backenstrass M, Kronmuller K, Fiedler P. Reconfirming the role of life events for the timing of depressive episodes. A two-year prospective follow-up study. Journal of Affective Disorders. 2000; 59:23–30. [PubMed: 10814767]

Paykel ES, Prusoff BA, Myers JK. Suicide attempts and recent life events: A controlled comparison. Archives of General Psychiatry. 1975; 32:327–333. [PubMed: 1115573]

Shea MT, Glass DR, Pilkonis PA, Watkins J, Docherty JP. Frequency and implications of personality disorders in a sample of depressed inpatients. Journal of Personality Disorders. 1987; 1:27–42.

Weyrauch KF, Roy-Byrne P, Katon W, Wilson L. Stressful life events and impulsiveness in failed suicide. Suicide and Life Threatening Behavior. 2001; 31:311–319. [PubMed: 11577915]

Yen S, Shea T, Pagano M, Sanislow CA, Grilo CM, McGlashan TH, et al. Axis I and Axis II disorders as predictors of prospective suicide attempts: Findings from the Collaborative Longitudinal Personality Disorders Study. Journal of Abnormal Psychology. 2003; 112:375–381. [PubMed: 12943016]

Yen S, Shea MT, Sanislow CA, Grilo CM, Skodol AE, Gunderson JG, et al. Borderline personality disorder criteria associated with prospectively observed suicidal behavior. American Journal of Psychiatry. 2004; 161:1296–1298. [PubMed: 15229066]

Zanarini, MC.; Frankenburg, FR.; Sickel, AE.; Yong, L. The Diagnostic Interview for DSM–IV Personality Disorder. Belmont, MA: McLean Hospital, Laboratory for the Study of Adult Development; 1996.

Zanarini MC, Skodol AE, Bender DS, Dolan R, Sanislow CA, Schaefer E, et al. The Collaborative Longitudinal Personality Disorders Study: Reliability of Axis I and II diagnoses. Journal of Personality Disorders. 2000; 14:291–299. [PubMed: 11213787]

Table 1

Life Event Categories Predicting Suicide Attempts

Life event type	β	SE	$\chi^2(1)$	HR	95% CI
Any life event	0.83	0.26	9.96	2.29**	1.37–3.84
Negative life event	0.87	0.27	10.72	2.40**	1.42–4.04
Positive life event	0.47	0.28	2.77	1.59	0.92–2.76
Work–school	0.61	0.30	4.12	1.84	1.02–3.32
Love–marriage	1.11	0.32	11.56	3.03***	1.60–5.76
Children	0.58	1.01	0.33	1.78	0.24–12.99
Other family matters	0.12	0.40	0.09	1.13	0.51–2.49
Crime–legal	0.93	0.37	6.26	2.53*	1.22–5.23
Money–financial	0.33	0.60	0.30	1.39	0.43–4.46
Social–recreation	0.31	0.41	0.59	1.37	0.62–3.04
Health	0.82	0.41	3.98	2.27	1.02–5.08

Note. Baseline diagnoses of borderline personality disorders, major depressive disorders, alcohol use disorders, substance use disorders, and childhood sexual abuse were entered as covariates.

HR = hazards ratio; CI = confidence interval.

*
  $p \le .05$.

**
  $p \le .01$.

***
  $p \le .001$.

Table 2

Specific Types of Life Events as Predictors of Suicide Attempt (SA)

Life event	SA (n = 61)		No SA (n = 428)		$\chi^2(1)$	HR	95% CI
	n	%	n	%			
Love–marriage							
Broken engagement	3	4.9	13	3.0	—	—	—
Relationship worsened	17	27.9	90	21.0	1.98	2.32	0.72–7.48
Separation from spouse	5	8.2	28	6.5	—	—	—
Divorce	4	6.6	27	6.3	—	—	—
Respondent infidelity	6	9.8	19	4.4	0.00	0.00	0.00
Spouse infidelity	3	4.9	15	3.5	—	—	—
Spouse–mate died	1	1.6	2	0.5	—	—	—
Ended love affair	27	44.3	176	41.1	2.67	2.16	0.86–5.43
Crime–legal							
Physical assault–attack	14	23.0	43	10.1	7.14	4.16**	1.46–11.82
Robbed	10	16.4	38	8.9	0.00	0.00	0.00
Burglarized	6	9.8	38	8.9	0.00	0.00	0.00
Accused of a crime	11	18.3	29	6.8	29.58	13.67***	5.33–35.07
Arrested	10	16.4	37	8.6	13.60	7.25***	2.53–20.76
Went to jail	9	14.8	27	6.3	18.18	9.77***	3.43–27.86
Involved in a court case	21	34.4	80	18.7	9.60	4.43**	1.73–11.36
Convicted	5	8.2	20	4.7	—	—	—

Note. Baseline diagnoses of borderline personality disorders, major depressive disorders, alcohol use disorders, substance use disorders, and childhood sexual abuse were entered as covariates. Dashes indicate that the analysis was not performed because of insufficient sample size in a cell.

HR = hazards regression; CI = confidence interval.

**
$p \leq .01$.

***
$p \leq .001$.