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The Role of Stressful Life Events Preceding Death by Suicide: Evidence from Two Samples of Suicide Decedents

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Abstract

Stressful life events (SLEs) are associated with increased risk for suicidal behavior. Less is known regarding the intensity of SLEs and how this may vary as a function of suicide attempt history. As a large percentage of suicide decedents do not have a history of suicidal behavior, SLEs precipitating suicide may help characterize suicidality in this understudied population. This paper examines the intensity, number, and accumulation of SLEs preceding death by suicide among decedents with varying suicide attempt histories. Suicide attempts, SLEs, and suicide methods were examined in two samples: 62 prison-based and 117 community-based suicide decedents. Regression was used to compare the level of stressor precipitating death by suicide in decedents who died on a first attempt versus multiple previous attempts. A non-significant trend was observed in the prison population which was supported by significant findings in the community-based sample. Decedents who died on a first attempt experienced a stressor of a lower magnitude when compared to decedents with multiple previous suicide attempts. We discuss the implications of these findings in relation to the stress-diathesis model for suicide.

Keywords

Suicide; Stress; Prisons

1. Introduction

Previous suicide attempts are a robust risk factor for future suicidal behavior (Brown et al., 2000). Despite the robustness of this risk factor (Christiansen and Jensen, 2007), 50–78% of individuals die by suicide on their first attempt (Isometsä and Lönnqvist, 1998; Innamorati et

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al., 2008). Furthermore, there is a relative dearth of studies investigating factors that distinguish individuals who die by suicide on their first attempt from decedents with a history of multiple attempts. Given the high percentage of individuals who die by suicide on a first attempt, more information is needed to reliably assess suicide risk in at-risk individuals *without* suicide attempt histories.

Stressful life events (SLEs) have been identified as important correlates for suicidal thoughts and behaviors (Heikkinen et al., 1994; Foster, 2011; Bryan and Rudd, 2012; Stack and Scourfield, 2015). For example, Pompili et al. (2011) found that individuals who attempted suicide were significantly more likely to report an SLE in childhood and adolescence and in the six months preceding the attempt than those with no history of attempts. Further, they found that individuals with multiple previous attempts had a higher number of SLEs across the lifespan when compared to those with only one previous attempt. Similarly, Conner and colleagues (2012) demonstrated that individuals who attempted suicide are more likely to endorse an SLE on the day of a non-fatal attempt compared to controls. Additionally, Martin et al. (2013) found that 74% of United States Air Force suicide decedents had a documented SLE during the 24 hours preceding death by suicide. These results suggest that SLEs are concurrently correlated with imminent suicidal behavior.

SLEs have also been identified as longitudinal risk factors for suicide attempts. For example, SLEs have been significantly associated with suicide attempts in individuals with major depressive disorder at three-year follow-up (Wang et al., 2015). However, results have been inconsistent. For example, Innamorati and colleagues (2008) found that suicide decedents had fewer SLEs during childhood and adolescence in comparison to those who attempted but did not die by suicide. Goldston et al. (2015) also failed to find an association between precipitating stressors and future suicide attempts.

Another limitation of the current literature on SLEs and suicide attempt history is that most studies investigating the role of SLEs in death by suicide have focused largely on community or clinical populations with few studies investigating SLEs in prison samples. Research suggests that incarcerated individuals exhibit elevated suicidality despite the many environmental precautions they encounter (Joukamaa, 1997; Goss et al., 2002). Additionally, studies have found that incarcerated individuals have greater exposure to SLEs (Jordan et al., 1996; Way et al., 2005), and the SLEs encountered by such individuals are often atypical in comparison to SLEs experienced by non-incarcerated individuals (e.g., disciplinary action, inmate-to-inmate conflict; Way et al., 2005). Indeed, the mere fact that such individuals have received prison sentences represents an SLE in and of itself (Holmes and Rahe, 1967). Thus, additional research is needed to understand the nature and impact prison-related SLEs have on this understudied population.

With respect to theories on how the relationship between SLEs and suicidality may vary as a function of attempt history, the kindling or behavioral sensitization model would suggest that the amount of stress experienced by an individual prior to a suicide attempt should decrease as history of suicide attempts increases (Beck, 1996; Joiner and Rudd, 2000). However, studies assessing the applicability of the behavioral sensitization model to suicide attempts have produced inconsistent results. For example, Joiner and Rudd (2000) provided

evidence in support of this model, while the findings of Pettit and colleagues (2004) failed to support this model in a sample of military members who attempted suicide. Instead, they found a significant and positive association between number of previous attempts and the amount of stress precipitating the most recent attempt.

In contrast to the behavioral sensitization model, the stress-diathesis model of suicidality (Mann et al., 1999) would suggest that individuals who die by suicide on a first attempt may have a greater underlying diathesis for suicidality than those who do not die on their first attempt. Thus, this model would purport that less stress is required to precipitate death in suicide decedents with no history of attempts due to their increased underlying vulnerability. Research supporting a strong genetic diathesis for both violent suicide attempts (Mann et al., 2001; Lin and Tsai 2004) and capability for suicide (Smith et al., 2012) support the stress-diathesis model, and suggest that individuals who die by suicide on a first attempt may require a less significant stressor to precipitate suicide. Further, such findings suggest that decedents who die on a first attempt would be more likely to employ violent methods for suicide in comparison to those with multiple previous attempts (Lin and Tsai, 2004). Indeed, research suggests that death by suicide in those who die on their first attempt is associated with the use of violent methods (Jamison and Bol, 2016).

To our knowledge, no studies have assessed the applicability of these models to stressors precipitating death by suicide, or specifically investigated how the role of SLEs in death by suicide may vary based on history of suicidal behaviors. Given that a large percentage of suicide decedents die on a first attempt, additional research is needed to identify factors associated with death by suicide in this understudied population. SLEs represent one such factor. The purpose of the present study was to determine the role of SLEs in death by suicide, and how this relationship may vary based on previous suicidal behavior. We examine the intensity, number, and accumulation of SLEs experienced prior to death in prison- and community-based samples of suicide decedents. In line with previous research and in support of the stress-diathesis model, we predicted that decedents with no history of suicide attempts would have a less significant stressor precipitating suicide (Pettit et al., 2004) and fewer SLEs (Pompili et al., 2011) in comparison to decedents with a history of multiple attempts. Additionally, consistent with the findings of Jamison and Bol (2016), we predicted that decedents with no previous attempts would utilize more violent methods for suicide in comparison to decedents with multiple previous attempts.

2. Study 1 Methods

2.1. Sample characteristics

Data were collected from case records on 64 individuals who died by suicide between 2000 and 2012 while incarcerated in state prisons.³ Cause of death was determined by medical examiners. Records included the decedents' comprehensive medical and criminal histories. Two cases were removed due to ambiguous cause of death (final $n = 62$).

³As Studies 1 and 2 used previously collected data on deceased subjects, the institutional review board classified both studies as exempt from review.

2.2. Study variables

2.2.1. Attempt history—Previous suicide attempts were coded categorically (0 = *no previous attempts*, 1 = *one prior suicide attempt*, and 2 = *more than one previous attempt*) based on reported suicide attempts in the case records. Consistent with previous studies, these categories confer varying levels of clinically significant risk (Rudd et al., 1996). To allow comparisons across attempt history (i.e., no previous suicide attempts, 1 previous attempt, and 2+ previous attempts), the attempt variable was dummy coded with no previous attempts serving as the reference group. This variable served as our predictor.

2.2.2. Precipitant stressors—A combination of the 12-item List of Threatening Experiences (LTE; Brugha et al., 1985) and the Social Readjustment Rating Scale (SRRS; Holmes and Rahe, 1967) was used to measure precipitant stressors leading up to death by suicide. The LTE is a dichotomous measure assessing the presence or absence of major SLEs (e.g., death of loved ones, major physical injury). The LTE scale has high test-retest reliability ($\kappa = 0.61\text{--}0.87$; Motrico et al., 2013). Weighted scores of stressfulness were applied to these items from equivalent items on the SRRS; a 100-point scale that assigns individual weights to different types of events based on the severity of stress they generate (Holmes and Rahe, 1967). The SRRS and its weighting is a robust and valid tool for assessing the severity of stress-related outcomes (Scully et al., 2000).

For the current study, a composite measure was created using the LTE items, SRRS stressor ratings, and additional items from each individual's case history that were deemed stressful based on empirical research (i.e., separation from family, hospitalizations, family member problems, miscarriage, work conflict, threat to well-being, and solitary confinement; Heikkinen et al., 1994; Gissler et al., 1996; Joukamaa, 1997; Way et al., 2005; Foster, 2011). The composite coding scheme utilized in the present study correlated highly with the original coding scheme for lifetime SLEs ($r = 0.71$). The first two authors independently recorded SLEs from each case and scored each event based on the composite measure. Any noted discrepancies between identifications and ratings of events were discussed with the third author until agreement was met. Interrater reliability was found to be good ($\kappa = 0.64$). Three stress-related outcome variables were calculated: final SLE score (stressor score of SLE preceding death), total SLE number (number of stressors overall), and total SLE score (summed score of all stressors). Final SLE score was identified as the last recorded stressor precipitating death by suicide.

2.2.3. Suicide method—In line with previous research (Soloff et al., 2000), suicide methods of overdose and poisoning via carbon monoxide were classified as nonviolent whereas all other methods (i.e., hanging, firearm, jumping, train/automobile, stabbing, drowning, and cutting of wrists) were classified as violent. Suicide method served as an outcome variable.

2.2.4. Covariates

2.2.4.1. Age: Age was coded as a continuous variable and served as a covariate in multivariate analyses.

2.2.4.2. Ethnicity: Ethnicity was coded dichotomously (0 = White/Caucasian, 1 = Non-White/Non-Caucasian) and served as a covariate.

2.2.4.3. Gender: Gender was coded dichotomously (1 = male, 2 = female) and was entered as a covariate in main analyses.

2.2.4.4. Prison sentence length: Total prison sentence length was coded as follows: 1 = less than 1 year, 2 = less than 2 years, 3 = 2–5 years, 4 = 5–10 years, 5 = 10–15 years, 6 = 15–20 years, 7 = 20–30 years, 8 = 30–45 years, 9 = 45+ years, 10 = life in prison, 11 = death penalty. Prison sentence length was entered as a covariate in multivariate analyses.

2.2.2.5. Time served: Length of incarceration was coded as the number of days in prison prior to death (range = 1–12,620 days, $M = 2,374$, $SD = 2,662$) and served as a covariate.

2.3. Statistical Analyses

2.3.1. Final SLE score—Hierarchical regression was used to examine the effect of attempt history on the final SLE score, while controlling for age, ethnicity, gender, prison sentence length, and time served. These variables were entered as covariates due to their known association with suicide-related behaviors (Kessler et al., 1999; Blaauw et al., 2005; Fazel et al., 2008). All covariates were entered at Step 1; the predictor variable was entered at Step 2.

2.3.2. Total SLE number—To test whether the total number of SLEs precipitating suicide was associated with attempt history, hierarchical regression was again used while controlling for the aforementioned covariates.

2.3.3. Total SLE score—The same hierarchical regression approach described above was used to test whether the total SLE score was associated with attempt history.

2.3.4. Suicide method—We used regression to test the hypothesis that decedents with no previous attempts would utilize more violent methods for suicide in comparison to those with multiple previous attempts. Specifically, the violence of method employed on the first (or final, for those with no previous suicide attempts) was compared across suicide attempt history.

3. Study 1 Results

3.1. Sample characteristics

Subjects' ages ranged from 16 to 73 years ($M = 39.10$, $SD = 12.05$). The majority of subjects were White/Caucasian (61.3%) and male (91.9%). In this sample, 28.6% of the decedents died on their first attempt, 19.6% on their second attempt, and 51.8% died after making multiple previous nonfatal attempts. The most frequently occurring prison sentence length was life (26%).

3.2. Final SLE score

The overall model accounted for 6.9% of the variance in final SLE score at step 1 and 17.5% of the variance in final SLE score at step 2. Results were not significant for any of the covariates (p s = 0.11–0.65). See Tables 1 and 2 for descriptives and Table 3 for multivariate results. Controlling for the covariates, the results indicated a non-significant trend regarding the comparison between subjects with no versus multiple previous attempts ($t[7, 48] = 2.01$, $p = 0.05$, $\beta = 0.32$; see Figure 1); decedents who died by suicide on a first attempt experienced a stressor of a lower magnitude in comparison to those with multiple previous suicide attempts. No significant difference was observed between subjects with no versus one previous attempt ($t[7, 48] = -0.22$, $p = 0.83$).

3.3. Total SLE number

Results were not significant for any of the covariates (p s = 0.16–0.94). Additionally, no significant differences were observed between subjects with no previous attempts and those with one ($t[7, 48] = 0.76$, $p = 0.45$) or multiple previous attempts ($t[7, 48] = 1.37$, $p = 0.18$).

3.4. Total SLE score

Results were not significant for any of the covariates (p s = 0.20–0.84). Additionally, no significant differences were observed between subjects with no previous attempts and those with one ($t[7, 48] = 0.79$, $p = 0.43$) or multiple previous attempts ($t[7, 48] = 1.41$, $p = 0.17$).

3.5. Suicide method

While results indicated no significant difference between subjects with no versus one previous attempt ($t[2, 40] = -0.90$, $p = 0.38$, $\beta = -0.14$), a significant difference was observed between decedents with no versus multiple previous attempts ($t[2, 40] = -3.26$, $p = 0.002$, $\beta = -0.49$). Decedents who died on their first attempt were significantly more likely to use violent means for suicide in comparison to those with multiple previous attempts.

4. Study 1 Discussion

Within the incarcerated sample, a non-significant trend was observed between number of previous attempts and the severity of the SLE precipitating suicide. Specifically, inmates with no previous suicide attempts experienced a less stressful precipitating event than those with a history of multiple attempts. Although the results did not meet conventional significance levels, the pattern of findings suggests that the amount of stress experienced prior to a suicide attempt is lower in individuals with no previous attempts.

Our use of an incarcerated sample – an understudied population at high risk for suicide – was one strength of Study 1 (Joukamaa, 1997). Although these results did not reach conventional levels of significance, given the medium effect size observed ($\beta = 0.32$) it is possible that the results would have met traditional significance levels with a larger sample size. Indeed, power analysis revealed that a sample size of 72 was needed for sufficient power. The fact that SLEs were coded by researchers and not suicide decedents is another limitation. This limitation is somewhat mitigated by the fact that the reports included in the

case studies were made by doctors, nurses, and prison staff, thereby reducing self-report bias that would have been introduced if inmates had reported SLEs directly. The composite coding scheme approach is limited by the addition of events not included in the original measure, and therefore construct validity may be compromised. However, the coding scheme used to assess SLEs relied on previous research to determine the events added, and we therefore view this as an acceptable approach (Heikkinen et al., 1994; Gissler et al., 1996; Joukamaa, 1997; Way et al., 2005; Foster, 2011).

5. Study 2 Methods

In Study 2, we quantitatively examined case studies of 134 suicide decedents who died in St. Louis, Missouri, between 1956 and 1957 (Robins, 1981). The original researchers gathered information about the decedents through structured interviews with family members, friends, and close associates (Robins et al., 1959; Robins, 1981). The two primary authors fully reviewed the information provided in Robins (1981) and used information drawn from this source to derive data regarding variables of interest (described below), as the present authors did not have access to the original psychological autopsy charts.

5.1. Sample characteristics

The original sample consisted of 134 decedents. Consistent with standard psychological autopsy methods (Isometsä, 2001), subjects with ambiguity regarding their cause of death ($n = 4$) and cases with no primary informant ($n = 13$) were removed (final $n = 117$).

5.2. Study variables

5.2.1. Attempt history—Previous suicide attempts were coded categorically (0 = *no previous attempts*, 1 = *one prior suicide attempt*, and 2 = *more than one previous attempt*) based on suicide attempts reported in the case records. Again, the attempt variable was dummy coded with no previous attempts serving as the reference group to allow comparisons across groups. Attempt history served as our predictor variable.

5.2.2. Precipitant stressors—The same composite stress measure described in Study 1 was used for Study 2. The identification of stressful situations in Robins' data (i.e., hospitalizations, family problems, miscarriage, work/school conflict, threat to well-being, military service, and solitary confinement) was based on empirical research (Heikkinen et al., 1994; Gissler et al., 1996; Joukamaa, 1997; Way et al., 2005; Smith et al., 2008; Foster, 2011). Again, the two primary authors independently recorded SLEs from each case history and scored events based on the composite measure ($\kappa = 0.69$). As in Study 1, final SLE score, total SLE number, and total SLE score were included as outcome variables.

5.2.3. Suicide method—Utilizing the same methods employed in Study 1, suicide methods of overdose and poisoning were classified as nonviolent while all remaining methods were classified as violent. Suicide method was used as an outcome variable.

5.2.4. Covariates

5.2.4.1. Age: Age was coded as a continuous variable and was entered as a covariate in multivariate analyses.

5.2.4.2. Ethnicity: Ethnicity was coded as a dichotomous variable (0 = White/Caucasian, 1 = Black/African American) and was entered as a covariate in main analyses.

5.2.4.3. Gender: Gender was coded dichotomously (1 = male, 2 = female) and served as a covariate.

5.2.4.4. Diagnosis: For the purposes of the main analyses, diagnoses were coded dichotomously (0 = no diagnosis of a mental disorder, 1 = diagnosis of a mental disorder), and the variable was entered as a covariate in the multivariate model.

5.2.4.5. Marital status: Marital status was coded dichotomously (0 = not married, 1 = married). Marital status served as a covariate in multivariate analyses.

5.2.4.6. Employment status: Status of employment was also coded dichotomously (0 = not employed, 1 = employed) and was entered as a covariate in main analyses.

5.3. Statistical Analyses

5.3.1. Final SLE score—Analyses were conducted using hierarchical regression with suicide decedents with primary informants only ($n = 117$). The effect of suicide attempt history on final SLE score was examined while controlling for age, ethnicity, gender, diagnosis, marital status, and employment status.

5.3.2. Total SLE number—To test whether the total number of SLEs precipitating suicide was associated with attempt history, hierarchical regression was again used while controlling for the aforementioned covariates.

5.3.3. Total SLE score—We used hierarchical regression to assess for a relationship between total SLE scores and attempt history while controlling for covariates.

5.3.4. Suicide method—We used the same regression analyses utilized in Study 1 to test whether individuals who died by suicide on their first attempt employed more violent means relative to those who did not.

6. Study 2 Results

6.1. Sample characteristics

The majority of the sample was male (79.5%) and White/Caucasian (94.9%). Average age at death was 53.17 years ($SD = 14.11$). The majority (82.9%) of decedents met criteria for a mental disorder diagnosis as determined by psychological autopsy. Diagnostic breakdown was as follows: 49.6% affective disorder, 26.5% alcohol use disorder, 3.4% organic brain syndrome, 1.7% schizophrenia, 1.7% drug dependence, and 14.0% undiagnosed. 2.6% were diagnosed with terminal cancer. Most (71.8%) subjects were married at the time of death.

Additionally, 19.7% of decedents were unemployed at the time of death. The majority (78.5%) of decedents died on their first attempt, 13.8% on their second attempt, and 7.7% died after making multiple previous nonfatal attempts.

6.2. Final SLE score

Results were not significant for any of the covariates (p s = 0.14–0.91). The model accounted for 3.8% of the variance in final SLE score at step 1 and accounted for 10.6% of the variance in final SLE score at step 2. Controlling for the covariates, results indicated a significant difference between subjects with no previous suicide attempts and those with multiple previous attempts ($t[8, 108] = 2.80, p = 0.006, \beta = 0.26$). Thus, above and beyond our covariates, a history of multiple attempts was associated with greater stress before death. No significant difference was observed between subjects with no versus one previous attempt ($t[8, 108] = -0.03, p = 0.77$).⁴ See Tables 2 and 4 for descriptives and Table 3 for multivariate results.

6.3. Total SLE number

A significant association was observed between age and attempt history ($t[8, 108] = -2.52, p = 0.01, \beta = -0.24$). Results were not significant for any of the remaining covariates (p s = 0.07–0.55). Additionally, no significant differences were observed between subjects with no previous suicide attempts and those with one ($t[8, 108] = 1.05, p = 0.30$) or multiple previous attempts ($t[8, 108] = 1.09, p = 0.28$) on total number of SLEs.

6.4. Total SLE score

A significant association was observed between age and attempt history ($t[6, 108] = -2.06, p = 0.042, \beta = -0.20$). Results were not significant for any of the remaining covariates (p s = 0.13–0.62). Additionally, no significant differences were observed between subjects with no previous suicide attempts and those with one ($t[8, 108] = 0.56, p = 0.58$) or multiple previous attempts ($t[8, 108] = 1.22, p = 0.23$) on total SLE score.

6.5. Suicide method

Results indicated a significant difference between subjects with no previous suicide attempts and those with both one ($t[2, 112] = -2.99, p = 0.003, \beta = -0.26$) and multiple previous attempts ($t[2, 112] = -3.24, p = 0.002, \beta = -0.29$). Subjects who died by suicide on their first attempt were significantly more likely to use violent means for suicide in comparison to those who did not.

7. Study 2 Discussion

Results of Study 2 indicate that in a community sample of suicide decedents, those who died by suicide on their first attempt experienced a less significant stressor prior to death in comparison to those with multiple previous attempts. Thus, suicide decedents who die by

⁴Of note, analyses were conducted without covariates. Again, a significant difference was observed between decedents with no previous versus multiple previous attempts ($t[2, 114] = 2.83, p = 0.005, \beta = 0.26; R^2 = 0.07$). No significant difference was observed between those with no versus one previous attempt ($t[2, 114] = -0.05, p = 0.96$).

suicide on their first attempt may require a precipitating stressor of a lesser magnitude than those with multiple previous attempts. Additionally, our results indicate that individuals who died by suicide on a first attempt employed more violent means for suicide than those who did not.

The psychological autopsy method represents a strength of Study 2, as it offers a comprehensive review of suicide decedents' lives from various sources. It is also notable that the observed pattern of results was replicated in two distinct populations of suicide decedents. However, several limitations are worth noting. Data gathered through psychological autopsy may be subject to methodological concerns. Despite these limitations, previous research supports the utility of this approach to studying suicide decedents (Isometsä, 2001). The current study was also limited by its quantitative analysis of previously summarized qualitative data, as the current researchers did not have access to original psychological autopsy charts. As such, replication of the current study in a more comprehensive dataset is needed (although it should again be noted that the results of Study 1 corroborate findings from Study 2).

8. General Discussion

Our studies provide evidence suggesting that individuals who die by suicide on a first attempt require a less intense stressor to precipitate suicide than suicide decedents with a history of multiple attempts. The trend toward significance in the results from Study 1 was bolstered by statistically significant results in Study 2. In contrast to the findings of Pompili et al. (2011), our results did not indicate that the number of stressors precipitating death by suicide varied depending on suicide attempt history. However, these findings are consistent with other studies in suicide attempters (e.g., Menon et al., 2016). Our finding that those who died on a first attempt experienced a less intense stressor prior to death by suicide is also consistent with the results reported by Pettit and colleagues (2004) – this study found that the number of suicide attempts was significantly and positively associated with level of stress precipitating the attempt. Thus, our results do not support the basic tenants of the behavioral sensitization model as it pertains to suicide.

One possible explanation for our pattern of results is that individuals who die by suicide on a first attempt have a stronger underlying predisposition for suicidal behavior, which is in line with the stress-diathesis model (Mann et al., 1999). This model purports that suicidal behavior is accounted for by an underlying predisposition for suicide in combination with traumatic life experiences, psychopathology, and neurobiological alterations resulting from such experiences (Mann et al., 1999; Oquendo et al., 2014). Family and twin studies support a strong genetic component to suicidal behavior with research suggesting increased genetic loading for violent suicide methods (Mann et al., 2001; Lin and Tsai, 2004). Additionally, numerous studies support an association between SLEs and suicidal behavior (Bryan and Rudd, 2012; Conner et al., 2012; Martin et al., 2013).

Regarding the present findings, one possible explanation for the observed results is that individuals who die on their first suicide attempt may demonstrate an increased genetic loading, or “diathesis,” for suicidal behavior compared to individuals dying after multiple

attempts. Findings suggestive of a strong genetic diathesis for violent suicidal behaviors are of particular relevance to the present study (Mann et al., 2001; Lin and Tsai, 2004), as we found that subjects who died by suicide on a first attempt were more likely to utilize violent means in comparison to those with previous attempts. However, we were unable to directly test this assertion in the present study. Thus, future research investigating the role of SLEs in individuals who die by suicide on their first attempt would benefit from the inclusion of measures assessing specific diatheses for suicide, including genetic predispositions. If this holds true, then the stress-diathesis model would suggest that less intense stress is required to trigger suicidal behavior in those who die on their first attempt due to increased suicidal diathesis in such decedents.

It is also possible that individuals who die on their first suicide attempt exhibit a predisposition for high levels of capability for suicide. The Interpersonal Theory of Suicide (Joiner, 2005) identifies capability for suicide as a key distinguishing variable between individuals who desire, but do not attempt suicide, and those who will make a fatal suicide attempt (Van Orden et al., 2010). Previous research demonstrated that additive genetic and environmental effects accounted for suicide capability (Smith et al., 2012). These results suggest that both genetic (diathesis) and environmental (stress) factors are responsible for individual variation in suicide capability. A stress-diathesis model of capability for suicide has also been proposed, which suggests that individuals presenting with a greater number of specific diatheses are more vulnerable to high levels of suicide capability (Smith and Cukrowicz, 2010). Consequently, these individuals engage in fewer severe diathesis-expressing events (e.g., suicide attempts) prior to a lethal or near-lethal attempt and are at increased suicide risk. Our findings align well with this model and suggest that high levels of capability may be one causal mechanism that accounts for our findings. However, additional research is necessary to test these assertions.

9. Future Directions

Future research examining the effects of SLEs across the continuum of suicide-related behaviors may be informative in determining the potential differential effects of stress on such behaviors, and how this relationship may transform over time. Longitudinal methods should be employed to study how stress may initiate suicidal ideation and interact with suicide-related behaviors over time. Additionally, some SLEs are more prominent in older age (e.g., divorce, terminal illnesses, etc.). Thus, research investigating the impact of SLEs on death by suicide may benefit from the inclusion of analyses assessing the interaction between specific SLEs and age, and whether such interactions may vary across attempt history. Although the results from Studies 1 and 2 suggest that individuals who die by suicide on their first attempt experience a less significant stressor prior to suicide, future research is needed to confirm this finding and clarify potential underlying mechanisms. Future research examining capability for suicide in the context of SLEs may also elucidate the relationship between stress and suicide over time.

Additionally, research in individuals who attempted but did not die by suicide suggest that feelings of hopelessness may vary based on suicide attempt history. For example, Menon and colleagues (2016) found individuals with multiple previous attempts to have higher

levels of hopelessness in comparison to those with only one previous attempt. Thus, future studies should investigate if and how these findings may relate to populations of suicide decedents. Other studies suggest that intensity and acceptance of suicidal ideation may vary based on attempt history (Forman et al., 2004). However, this remains to be tested in suicide decedents. Thus, longitudinal studies utilizing death by suicide as a dependent variable would clarify whether and how these findings extend to death by suicide.

Extensions beyond these findings also point to areas of clinical relevance. Clinicians who treat individuals with symptoms of suicidality should be mindful of how stress may differentially impact a patient's specific suicide-related symptoms. Clinicians may incorporate stress management techniques as an adjunctive component of treatment (Antoni et al., 2001). For example, dialectical behavior therapy, a treatment used to treat individuals with symptoms of suicidality, teaches distress tolerance skills which may help patients manage stress (Linehan, 1993).

Our results also indicate that a less significant stressor may precipitate suicide, in part, due to an increased likelihood to utilize violent methods on first attempt. As such, the inclusion of measures of capability for suicide may be useful in identifying patients at increased risk for death by suicide on first attempt (Ribeiro et al., 2014). Assessment of acute risk factors for suicidality, including agitation (Sani et al., 2011), marked irritability (Balázs et al., 2006), severe weight loss (Akiskal et al., 2005), and severe affective states (c.f., acute suicidal affective disturbance; Hendin et al., 2010; Tucker et al., 2016) may also be useful when determining imminent risk for suicide. Additionally, implementation of means safety protocols is highly recommended for any patients endorsing suicidality (c.f., means restriction; Conwell et al., 2002; Mann et al., 2005; Stanley et al., 2017).

The purpose of this study was to investigate the relationship between stressful life events and suicide. We provided evidence to suggest that less significant stressors precede death by suicide among decedents without a history of suicide attempts compared to those with a history of multiple attempts. Thus, our findings provide preliminary support for the stress-diathesis model in death by suicide. Stress is a pervasive facet of the human experience and influences our ability to function. Thus, a greater understanding of the role of stress in human behavior will allow us to better prevent and treat maladaptive stress responses and suicidal thoughts and behaviors.

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References

- Akiskal HS, Benazzi F, Perugi G, Rihmer Z. Agitated "unipolar" depression re-conceptualized as a depressive mixed state: Implications for the antidepressant-suicide controversy. *J. Affect. Disord.* 2005; 85:245–258. DOI: 10.1016/j.jad.2004.12.004 [PubMed: 15780694]

- Antoni MH, Lehman JM, Kilbourn KM, Boyers AE, Culver JL, Alferi SM, Yount SE, McGregor BA, Arena PL, Harris SD, Price AA, Carver CS. Cognitive-behavioral stress management intervention decreases the prevalence of depression and enhances benefit finding among women under treatment for early-stage breast cancer. *Health Psychol.* 2001; 20:20–32. DOI: 10.1037//0278-6133.20.1.20 [PubMed: 11199062]
- Balázs J, Benazzi F, Rihmer Z, Rihmer A, Akiskal KK, Akiskal HS. The close link between suicide attempts and mixed (bipolar) depression: Implications for suicide prevention. *J. Affect. Disord.* 2006; 91:133–138. <https://doi.org/10.1016/j.jad.2005.12.049>. [PubMed: 16458364]
- Beck, AT. Beyond belief: A theory of modes, personality, and psychopathology. In: Salkovskis, PM., editor. *Frontiers of Cognitive Therapy*. New York: Guilford Press; 1996. p. 1-25.
- Blaauw E, Kerkhof AJFM, Hayes LM. Demographic, criminal, and psychiatric factors related to inmate suicide. *Suicide Life-Threat.* 2005; 35:63–75. DOI: 10.1521/suli.35.1.63.59268
- Brown GK, Beck AT, Steer RA, Grisham JR. Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *J. Consult. Clin. Psych.* 2000; 68:371–377. DOI: 10.1037//0022-006X.68.3.371
- Brugha T, Bebbington P, Tennant C, Hurry J. The List of Threatening Experiences: A subset of 12 life event categories with considerable long-term contextual threat. *Psychol. Med.* 1985; 15:189–194. DOI: 10.1017/S003329170002105X [PubMed: 3991833]
- Bryan CJ, Rudd MD. Life stressors, emotional distress, and trauma-related thoughts occurring in the 24 h preceding active duty US Soldiers' suicide attempts. *J. Psychiat. Res.* 2012; 46:843–848. DOI: 10.1016/j.jpsychires.2012.03.012 [PubMed: 22464944]
- Christiansen E, Jensen BF. Risk of repetition of suicide attempt, suicide or all deaths after an episode of attempted suicide: A register-based survival analysis. *Aust. NZ J. Psychiat.* 2007; 41:257–265. DOI: 10.1080/00048670601172749
- Conner KR, Houston RJ, Swogger MT, Conwell Y, You S, He H, Gamble SA, Watts A, Duberstein PR. Stressful life events and suicidal behavior in adults with alcohol use disorders: Role of event severity, timing, and type. *Drug Alcohol. Depen.* 2012; 120:155–161. <http://dx.doi.org/10.1016/j.drugalcdep.2011.07.013>.
- Conwell Y, Duberstein PR, Connor K, Eberly S, Cox C, Caine ED. Access to firearms and risk for suicide in middle-aged and older adults. *Am. J. Geriat. Psychiat.* 2002; 10:407–416. DOI: 10.1097/00019442-200207000-00007
- Fazel S, Cartwright J, Norman-Nott A, Hawton K. Suicide in prisoners: a systematic review of risk factors. *J. Clin. Psychiat.* 2011; 69:1721–1731. DOI: 10.4088/JCP.v69n1107
- Forman EM, Berk MS, Henriques GR, Brown GK, Beck AT. History of multiple suicide attempts as a behavioral marker of severe psychopathology. *Am. J. Psychiatry.* 2004; 161:437–443. <https://doi.org/10.1176/appi.ajp.161.3.437>. [PubMed: 14992968]
- Foster T. Adverse life events proximal to adult suicide: a synthesis of findings from psychological autopsy studies. *Arch. Suicide Res.* 2011; 15:1–15. DOI: 10.1080/13811118.2011.540213 [PubMed: 21293996]
- Gissler M, Hemminki E, Lonnqvist J. Suicides after pregnancy in Finland, 1987–94: Register linkage study. *BMJ.* 1996; 313:1431–1434. <https://doi.org/10.1136/bmj.313.7070.1431>. [PubMed: 8973229]
- Goldston DB, Daniel SS, Erkanli A, Heilbron N, Doyle O, Weller B, Sapyta J, Mayfield A, Faulkner M. Suicide attempts in a longitudinal sample of adolescents followed through adulthood: Evidence of escalation. *J. Consult. Clin. Psych.* 2015; 83:253–264. DOI: 10.1037/a0038657
- Goss JR, Peterson K, Smith LW, Kalb K, Brodey BB. Characteristics of suicide attempts in a large urban jail system with an established suicide prevention program. *Psych Serv.* 2002; 53:574–579. <http://dx.doi.org/10.1176/appi.ps.53.5.574>.
- Heikkinen M, Aro H, Lonnqvist J. Recent life events, social support and suicide. *Acta Psychiat.* 1994; 89:65–72. DOI: 10.1111/j.1600-0447.1994.tb05805.x
- Hendin H, Al Jurdi RK, Houck PR, Hughes S, Turner JB. Role of intense affects in predicting short-term risk for suicidal behavior: A prospective study. *J. Nerv. Ment. Dis.* 2010; 198:220–225. DOI: 10.1097/NMD.0b013e3181d13d14 [PubMed: 20216000]

- Holmes TH, Rahe RH. The social readjustment rating scale. *J. Psychosom. Res.* 1967; 11:213–218. DOI: 10.1016/0022-3999(67)90010-4 [PubMed: 6059863]
- Innamorati M, Pompili M, Masotti V, Pearsoné F, Lester D, Tatarelli R, Girardi P, Amore M. Completed versus attempted suicide in psychiatric patients: A psychological autopsy study. *J. Psychiatr. Pract.* 2008; 14:216–224. DOI: 10.1097/01.pra.0000327311.04153.01 [PubMed: 18664890]
- Isometsä ET. Psychological autopsy studies – a review. *Eur Psychiatry.* 2001; 16:379–385. [https://doi.org/10.1016/S0924-9338\(01\)00594-6](https://doi.org/10.1016/S0924-9338(01)00594-6). [PubMed: 11728849]
- Isometsä ET, Lönnqvist JK. Suicide attempts preceding completed suicide. *Br. J. Psychiatry.* 1998; 173:531–535. DOI: 10.1192/bjp.173.6.531 [PubMed: 9926085]
- Jamison EC, Bol KA. Previous suicide attempt and its association with method used in a suicide death. *Am. J. Prev. Med.* 2016; 51:S226–S233. <https://doi.org/10.1016/j.amepre.2016.07.023>. [PubMed: 27745611]
- Joiner, TE. *Why People Die by Suicide*. Cambridge, Massachusetts: 2005.
- Joiner TE, Rudd MD. Intensity and duration of suicidal crises vary as a function of previous suicide attempts and negative life events. *J. Consult. Clin. Psychol.* 2000; 68:909–916. DOI: 10.1037//0022-006X.68.5.909 [PubMed: 11068977]
- Jordan BK, Schlenger WE, Fairbank JA, Caddell JM. Prevalence of psychiatric disorders among incarcerated women: II. Convicted felons entering prison. *Arch. Gen. Psychiatry.* 1996; 53:513–519. DOI: 10.1001/archpsyc.1996.01830060057008 [PubMed: 8639034]
- Joukamaa M. Prison suicide in Finland, 1969–1992. *Forensic. Sci. Int.* 1997; 89:167–174. DOI: 10.1016/S0379-0738(97)00119-9 [PubMed: 9363625]
- Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Arch. Gen. Psychiatr.* 1999; 56:617–626. DOI: 10.1001/archpsyc.56.7.617 [PubMed: 10401507]
- Lin PY, Tsai GC. Association between serotonin transporter gene promoter polymorphism and suicide: Results of a meta-analysis. *Biol. Psychiatr.* 2004; 55:1023–1030. DOI: 10.1016/j.biopsych.2004.02.006 [PubMed: 15121487]
- Linehan, M. *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York, New York: 1993.
- Mann JJ, Apter A, Bertolote J, Beautrais A, Currier D, Haas A, Hegerl U, Lonnqvist J, Malone K, Marusic A, Mehlum L, Patton G, Phillips M, Wolfgang R, Rihmer Z, Schmidtke A, Shaffer D, Silverman M, Takahashi Y, Varnik A, Wasserman D, Yip P, Hendin H. Suicide prevention strategies: a systematic review. *JAMA.* 2005; 294:2064–2074. DOI: 10.1001/jama.294.16.2064 [PubMed: 16249421]
- Mann JJ, Brent DA, Arango V. The neurobiology and genetics of suicide and attempted suicide: A focus on the serotonergic system. *Neuropsychopharmacol.* 2001; 24:467–477. DOI: 10.1016/S0893-133X(00)00228-1
- Mann JJ, Waternaux C, Haas GL, Malone KM. Toward a clinical model of suicidal behavior in psychiatric patients. *Am. J. Psychiatr.* 1999; 156:181–189. <http://ajp.psychiatryonline.org/>. [PubMed: 9989552]
- Martin JS, Ghahramanlou-Holloway M, Englert DR, Bakalar JL, Olsen C, Nademin EM, Jobes DA, Branlund S. Marital status, life stressor precipitants, and communications of distress and suicide intent in a sample of United States Air Force suicide decedents. *Arch. Suicide Res.* 2013; 17:148–160. DOI: 10.1080/13811111 [PubMed: 23614487]
- Menon V, Kattimani S, Sarkar S, Mathan K. How do repeat suicide attempters differ from first timers? An exploratory record based analysis. *J. Neurosci Rural Pract.* 2016; 7:91–96. DOI: 10.4103/0976-3147.168435 [PubMed: 26933353]
- Motrico E, Moreno-Küstner B, de Dios Luna J, Torres-González F, King M, Nazareth I, Montón-Franco C, Gómez-Barragán MJG, Sánchez-Celaya M, Díaz-Barreiros MÁ, Vicens C, Moreno-Peral P, Bellón JÁ. Psychometric properties of the List of Threatening Experiences—LTE and its association with psychosocial factors and mental disorders according to different scoring methods. *J. Affect. Disord.* 2013; 150:931–940. DOI: 10.1016/j.jad.2013.05.017 [PubMed: 23726778]

- Oquendo MA, Sullivan GM, Sudol K, Baca-Garcia E, Stanley BH, Sublette ME, Mann JJ. Toward a biosignature for suicide. *Am. J. Psychiat.* 2014; 171:1259–1277. <http://dx.doi.org/10.1176/appi.ajp.2014.14020194>. [PubMed: 25263730]
- Pettit JW, Joiner TE, Rudd MD. Kindling and behavioral sensitization: Are they relevant to recurrent suicide attempts? *J. Affect. Disord.* 2004; 83:249–252. DOI: 10.1016/j.jad.2004.08.010 [PubMed: 15555722]
- Pompili M, Innamori M, Szanto K, Di Vittorio C, Conwell Y, Lester D, Tatarelli R, Girardi P, Amore M. Life events as precipitants of suicide attempts among first-time suicide attempters, repeaters, and non-attempters. *Psychiatry Res.* 2011; 186:300–305. DOI: 10.1016/j.psychres.2010.09.003 [PubMed: 20889216]
- Ribeiro JD, Witte TK, Van Orden KA, Selby EA, Gordon KH, Bender TW, Joiner TE JR. Fearlessness about death: The psychometric properties and construct validity of the revision to the acquired capability for suicide scale. *Psychol. Assessment.* 2014; 26:115–126. DOI: 10.1037/a0034858
- Robins, E. *The Final Months: A Study of the Lives of 134 Persons Who Committed Suicide.* Oxford, New York: 1981.
- Robins E, Gassner S, Kayes J, Wilkinson RH, Murphy GE. The communication of suicidal intent: A study of 134 consecutive cases of successful (completed) suicide. *Am. J. Psychiatry.* 1959; 115:724–733. <http://dx.doi.org/10.1176/ajp.115.8.724>. [PubMed: 13617503]
- Rudd MD, Joiner T, Rajad MH. Relationships among suicide ideators, attempters, and multiple attempters in a young-adult sample. *J. Abnorm. Psychol.* 1996; 105:541–550. DOI: 10.1037/0021-843X.105.4.541 [PubMed: 8952187]
- Sani G, Tondo L, Koukopoulos A, Reginaldi D, Kotzalidis GD, Koukopoulos AE, Manfredi G, Mazzarini L, Pacchiarotti I, Simonetti A, Ambrosi E, Angeletti G, Girardi P, Tatarelli R. Suicide in a large population of former psychiatric inpatients. *Psychiat. Clin. Neuros.* 2011; 65:286–295. DOI: 10.1111/j.1440-1819.2011.02205.x
- Scully JA, Tosi H, Banning K. Life event checklists: Revisiting the social readjustment rating scale after 30 years. *Educ. Psychol. Meas.* 2000; 60:864–876. DOI: 10.1177/00131640021970952
- Smith AR, Ribeiro JD, Mikolajewski A, Taylor J, Joiner TE, Iacono WG. An examination of environmental and genetic contributions to the determinants of suicidal behavior among male twins. *Psychiat. Res.* 2012; 197:60–65. DOI: 10.1016/j.psychres.2012.01.010
- Smith PN, Cukrowicz KC. Capable of suicide: A functional model of the acquired capability component of the interpersonal-psychological theory of suicide. *Suicide Life-Threat.* 2010; 40:266–275. DOI: 10.1521/suli.2010.40.3.266
- Smith TC, Ryan MAK, Wingard DL, Slymen DJ, Sallis JF, Kritz-Silverstein D. New onset and persistent symptoms of post-traumatic stress disorder self reported after deployment and combat exposures: Prospective population based US military cohort study. *BMJ.* 2008; 336:366–371. <https://doi.org/10.1136/bmj.39430.638241.AE>. [PubMed: 18198395]
- Soloff PH, Lynch KG, Kelly TM, Malone KM, Mann JJ. Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: a comparative study. *Am. J. Psychiat.* 2000; 157:601–608. <http://dx.doi.org/10.1176/appi.ajp.157.4.601>. [PubMed: 10739420]
- Stack S, Scourfield J. Recency of divorce, depression, and suicide risk. *J Fam Issues.* 2015; 36:695–715. <https://doi.org/10.1177/0192513X13494824>.
- Stanley IH, Hom MA, Rogers ML, Anestis MD, Joiner TE. Discussing firearm ownership and access as part of suicide risk assessment and prevention: “Means safety” versus “means restriction” *Arch. Suicide Res.* 2017; 21:237–253. DOI: 10.1080/13811118.2016.1175395
- Tucker RP, Michaels MS, Rogers ML, Wingate LR, Joiner TE Jr. Construct validity of a proposed new diagnostic entity: Acute suicidal affective disturbance (ASAD). *J. Affect. Disord.* 2016; 189:365–378. <http://dx.doi.org/10.1016/j.jad.2015.07.049>. [PubMed: 26476421]
- Van Orden KA, Witte TK, Cukrowicz KC, Braithwaite S, Selby EA, Joiner TE. The interpersonal theory of suicide. *Psychol. Rev.* 2010; 117:575–600. DOI: 10.1037/a0018697 [PubMed: 20438238]
- Wang Y, Sareen J, Afifi TO, Bolton S, Johnson EA, Bolton JM. A population-based longitudinal study of recent stressful life events as risk factors for suicidal behavior in major depressive disorder.

Arch. Suicide Res. 2015; 19:202–217. DOI: 10.1080/13811118.2014.957448 [PubMed: 25559346]

Way BB, Miraglia R, Sawyer DA, Beer R, Eddy J. Factors related to suicide in New York state prisons. Int. J. Law Psychiatry. 2005; 28:207–221. DOI: 10.1016/j.ijlp.2004.09.003 [PubMed: 15950281]

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Highlights

- Examined SLEs preceding suicide death in prison-based and community-based samples.
- Decedents with no past attempts had less severe stressor than multiple attempters.
- Non-significant trend found in prison-based sample.
- Significant result found in community-based sample.

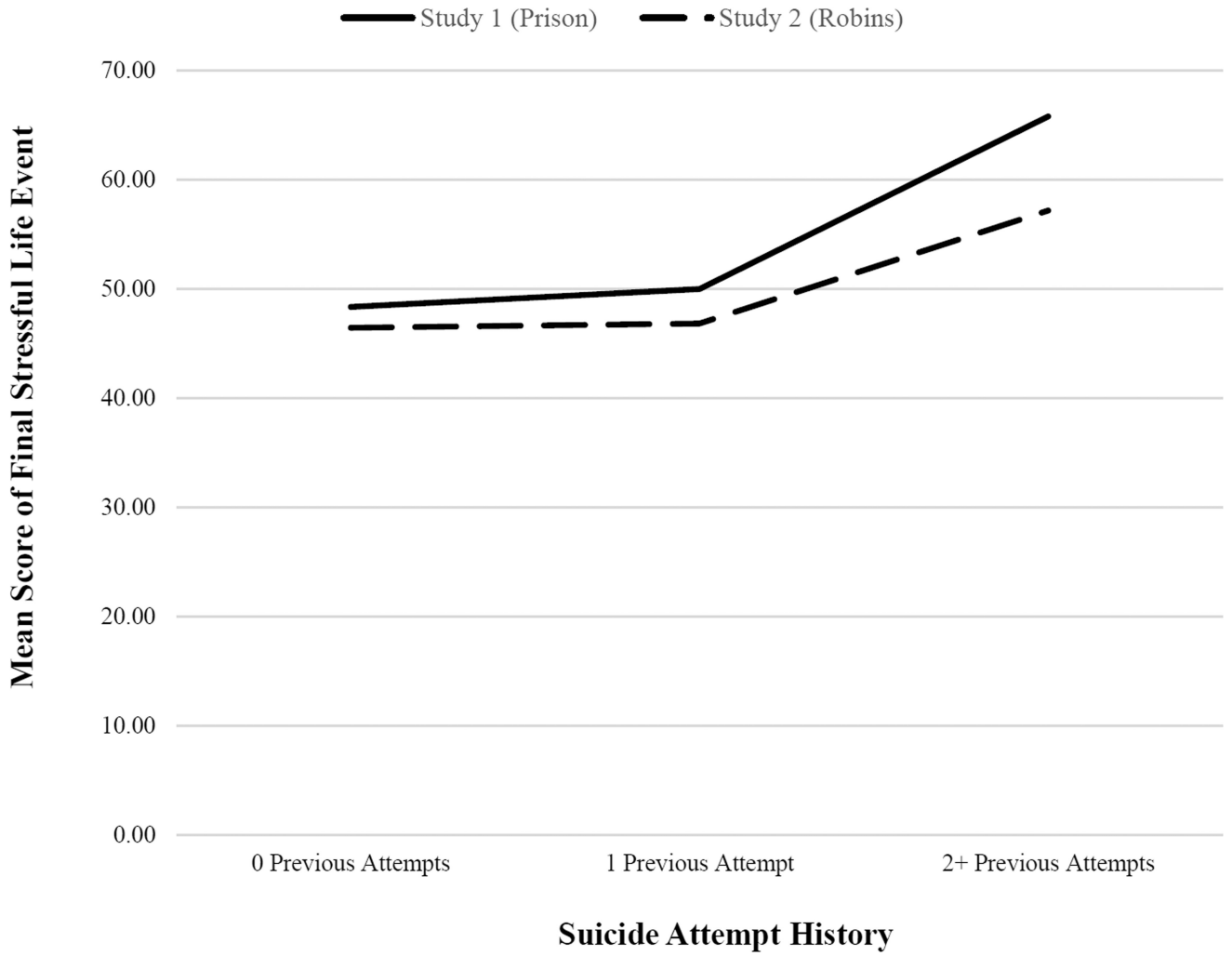


Figure 1. Association between previous suicide attempts and stressful life events.

Table 1

Intercorrelations and descriptive statistics for Study 1 (prison decedents, n = 62).

Correlations (r)	1	2	3	4	5	6	7	Mean	SD
1. Attempt History	--							1.23	.88
2. Final SLE Score	0.19	--						57.63	41.72
3. Total Number of SLEs	0.21	-0.02	--					9.56	8.08
4. Age	-0.06	-0.08	-0.14	--				39.10	12.05
5. Time in Prison	-0.10	-0.10	0.04	0.45**	--			2373.56	2662.00
6. Prison Sentence	-0.13	0.10	-0.13	0.43*	0.58**	--		6.49	3.01
t-test and χ^2	<i>t</i>						χ^2	%	Descriptor
7. Gender	-2.15*	0.94	-1.41	1.51	1.41	5.10**	7.53*	91.9%	Male
8. Ethnicity	-1.71	0.57	-0.91	0.99	-0.89	-0.19	--	66.7%	White

Note.

*** p<.001;

* p<.01.

SD = standard deviation. Attempt History; previous suicide attempts (0, 1, 2+). SLE = stressful life event. Gender (1 = male, 2 = female). Ethnicity (0 = White, 1 = not White).

Descriptives for SLEs by attempt history in Study 1 (prison decedents, n = 62) and Study 2 (Robins decedents, n = 117).

Table 2

SLEs	No Previous Attempt		1 Previous Attempt		2+ Previous Attempts		Full Sample	
	Prison	Robins	Prison	Robins	Prison	Robins	Prison	Robins
Injury/illness/assault	45.0%	30.4%	40.0%	22.2%	21.9%	10.0%	32.3%	24.8%
Hospitalization	10.0%	7.8%	10.0%	27.8%	25.0%	50.0%	17.7%	13.7%
Court/problem with police	10.0%	1.0%	10.0%	0.0%	15.6%	10.0%	12.9%	1.7%
Relocation	10.0%	2.0%	20.0%	0.0%	6.3%	0.0%	9.7%	1.7%
Separation from family	5.0%	2.9%	10.0%	0.0%	9.4%	0.0%	8.1%	2.6%
Threat to well-being	10.0%	2.0%	0.0%	0.0%	9.4%	0.0%	8.1%	0.9%
Major financial crisis	5.0%	10.8%	0.0%	0.0%	3.1%	0.0%	3.2%	8.5%
Friend/relative altercation	5.0%	14.7%	10.0%	38.9%	0.0%	10.0%	3.2%	19.5%
Friend/relative died	0.0%	2.0%	0.0%	0.0%	3.1%	0.0%	1.6%	0.9%
Relationship dissolution	0.0%	4.9%	0.0%	5.6%	3.1%	10.0%	1.6%	6.0%
Injury/illness of relative	0.0%	7.8%	0.0%	0.0%	3.1%	0.0%	1.6%	6.8%
Unemployed (>1 month)	--	3.9%	--	0.0%	--	10.0%	--	4.3%
Employment termination	--	3.9%	--	0.0%	--	0.0%	--	2.6%
Work/school conflict	0.0%	5.9%	0.0%	5.6%	0.0%	0.0%	0.0%	6.0%
Final SLE score	48.35	46.46	50.00	46.83	65.81	57.20	57.62	46.42
Total SLE number	7.10	6.33	10.20	7.89	10.91	9.20	9.56	7.01
Total SLE score	393.60	328.43	578.40	378.72	616.31	505.40	538.35	363.26

Note. SLE(s) = stressful life event(s)

Table 3

Multivariate analyses for suicide attempt history predicting score of final SLE in Study 1 (prison decedents, n = 62) and Study 2 (Robins decedents, n = 117).

Prison Decedents	β	<i>t</i>	<i>p-value</i>
Age	-0.12	-0.79	0.44
Ethnicity	0.07	-0.46	0.65
Gender	-0.13	-0.79	0.43
Prison Sentence Length	0.28	1.63	0.11
Time Served	-0.25	-1.43	0.16
One Previous Attempt	-0.04	-0.22	0.83
Multiple Previous Attempts	0.32	2.01	0.05
Robins Decedents	β	<i>t</i>	<i>p-value</i>
Age	0.09	0.95	0.34
Ethnicity	-0.06	-0.66	0.51
Gender	-0.01	-0.12	0.91
Diagnosis	0.05	0.55	0.59
Marital Status	0.02	0.16	0.87
Employment Status	-0.17	-1.48	0.14
One Previous Attempt	-0.03	-0.30	0.77
Multiple Previous Attempts	0.26	2.80	0.006

Note. The attempt variable was dummy coded with no previous attempts serving as the reference group.

Table 4

Intercorrelations and descriptive statistics for Study 2 (Robins decedents, n = 117).

Correlations	1	2	3	4	5	6	7	8	M	SD
1. Attempt History	--								.30	.62
2. Final SLE Score	0.22*	--							46.42	12.81
3. Total Number of SLEs	0.13	-0.06	--						7.01	6.80
4. Age	-0.01	0.07	-0.23*	--					53.17	14.11
t-test and χ^2	<i>t</i>				χ^2				%	Descriptor
5. Gender	-1.04	-1.02	0.44	0.98	--				79.5	Male
6. Ethnicity	0.54	1.10	0.74	2.17*	0.06	--			94.9	White
7. Employment Status	0.05	1.37	1.40	-0.92	31.76**	0.04	--		80.3	Employed
8. Marital Status	1.56	-0.14	0.96	-1.24	0.14	0.08	0.07	--	71.8	Married
9. Diagnosis	-1.70	-0.88	-0.69	0.67	0.95	0.001	0.002	1.03	82.9	Mental Dx

Note.

** p<.001;

* p<.05.

Attempt History: previous suicide attempts (0, 1, 2+). SLE = stressful life event. Gender (1 = male, 2 = female). Ethnicity (0 = White, 1 = not White). Employment Status (0 = unemployed, 1 = employed). Marital Status (0 = not married, 1 = married). Diagnosis (0 = no diagnosis of a mental disorder, 1 = mental disorder diagnosis).