

The Moderating Role of Social Support on the Relationship Between Impulsivity and Suicide Risk

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Abstract. *Background:* Suicide is the second leading cause of death among college students. There has been considerable research into risk factors for suicide, such as impulsivity, but considerably less research on protective factors. *Aims:* The present study examines the role that social support plays in the relationship between impulsivity and suicide risk. *Methods:* Participants were 169 undergraduates who completed self-report measures of impulsivity and social support. Suicide risk was assessed using an interview measure. *Results:* Social support moderates the relationship between impulsivity and suicide risk, such that those who are highly impulsive are less likely to be at risk for suicide if they also have high levels of social support. *Conclusions:* Social support can be a useful buffer to suicide risk for at-risk individuals who are highly impulsive.

Keywords: social support, suicide, impulsivity, protective factors

Introduction

Suicide is a problem of widespread concern. In the United States, nearly 35,000 people died from suicide during 2007, an increase of 3.75% over 2006 (Centers for Disease Control, 2010). Much research has been conducted on risk factors for suicide such as stress, depression, and dysfunctional cognitive styles. Moreover, there is also a large body of literature concerning low social support as a risk factor as well as a growing body of literature on impulsivity as a risk factor.

Impulsivity can be defined as a tendency to behave without reflecting on the possible consequences of that behavior (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). Numerous studies documented that individuals with higher trait impulsivity are more likely to engage in impulsive suicide attempts (Conner, Meldrum, Wiczorek, Duberstein, & Welte, 2004; Hull-Blanks, Kerr, & Robinson Kurpius, 2004; Kim & Lee, 2011; Maser et al., 2002; Neufeld & O'Rourke, 2009; Wyder & DeLeo, 2007; Yen et al., 2009). Impulsivity also predicts suicide in the absence of depression (Simon et al., 2001), and it may augment the risk for suicide associated with psychopathology such as depression (Dumais et al., 2005), borderline personality disorder (Chesin, Jeglic, & Stanley, 2010), and bipolar disorder (McGirr, Paris, Lesage, Renaud, & Turecki, 2009; Oquendo et al., 2009).

Lastly, research demonstrated that impulsivity increases the risk of suicide associated with high levels of negative life events (Fawcett, 2001; Zhiqing, Anwen, & Yongchen, 2003).

Although primarily studied with self-report measures, scores on laboratory-based behavioral measures of impulsivity also predicted past suicide attempts (Dougherty et al., 2004). Furthermore, high trait impulsivity was found in psychological autopsy studies with completed suicides (Dumais et al., 2005; Fawcett, 2001; Zouk, Toussignant, Seguin, Lesage, & Turecki, 2006).

Joiner's (2005) multifactor interpersonal-psychological theory of suicide may provide a framework for understanding the link between impulsivity and suicide as well as a mechanism for fostering possible protective factors. Joiner's (2005) model emphasizes two factors that increase risk of suicide ideation: (1) the perception of lack of belongingness (which corresponds to lack of social support) and (2) a feeling of burdensomeness on others. In addition, according to this model, a critical third factor, pain tolerance, is necessary for suicide ideation to proceed to become behavior. Impulsivity plays a role in this model as a factor that leads individuals to frequently expose themselves to "painful and provocative" events that increase their pain tolerance and thus increase their risk for suicide (Bender, Gordon, Bresin, & Joiner, 2011; Gordon et al., 2010).

Does Social Support Act as a Buffer for Impulsiveness?

Joiner's proposal that lack of belongingness increases risk of suicide relates to a long history of sociological (e.g., Durkheim, 1951) and psychological research (Cobb, 1976; Cohen & Hoberman, 1983; Cohen & Wills, 1985; Paykel, Emms, Fletcher, & Rassaby, 1980) on the importance of lack of connectedness, group ties, and social support for suicide. Social support may act as a direct protective factor without considering risk factors, but it may also act as a buffer moderating the effect of other risk factors on suicide (Clum & Febraro, 1994; Harrison et al., 2010; Oyama et al., 2010; Yang & Clum, 1994). For instance, social support buffers individuals from the risk for suicide associated with depression (Chioqueta & Styles, 2007) and PTSD (Kotler, Iancu, Efroni, & Amir, 2001). Recent studies found that drug users who live in a residential treatment facility are less likely to attempt suicide than those living alone, because they report higher levels of perceived belongingness (Conner, Britton, Sworts, & Joiner, 2007) and perceived social support (You, Van Orden, & Conner, 2010). Finally, intervention programs that increase social support have been effective in reducing the suicide rate among the elderly (De Leo, Duono, & Dwyer, 2002; Oyama et al., 2005).

Taken together, Joiner's (2005) theory and other substantial theoretical and empirical work suggest that social support is indeed a buffer against risk factors and may thus mitigate the risk associated with impulsivity. The present study tests the buffering hypothesis suggested by this theory and prior research.

Suicide Expectancies

Many factors contributing to the decision to attempt suicide may serve as a measure of risk in suicide research. For instance, the presence of stressful life events or having a means to commit suicide may serve as research proxies for suicide risk. However, past research suggests that suicide expectancies, or self-rated likelihood of future suicidal behavior, is a strong correlate of suicide risk. Several other studies utilized measures of self-rated suicide expectancy as an index of suicide risk, yielding results similar to more direct measures (Greening & Dollinger, 1993; Greening & Stoppelbein, 2002). Osman et al. (2001) reported effect sizes ranging from 0.71 to 2.41 for discriminating suicidal from nonsuicidal adults and adolescents using only a one-item measure of suicide expectancies. The present study enhances this one-item measure by using a four-item measure to assess several domains of suicide risk expectancies,

including expectancies of ideation, gestures, and self-injury, in addition to actual suicidal behaviors. Suicide expectancies also constitute a key component of suicide risk assessment protocols, such as the suicide treatment manual by Rudd, Joiner, and Rajab (2001). Finally, Greening and Stoppelbein (2002) note that suicide expectancies may be more predictive of a serious suicide attempt than suicide ideation because mild, infrequent suicide ideation is common across the general population.

Purpose of the Present Study

The present study examines the role that social support plays in buffering the relationship between impulsivity and suicide expectancies. Specifically, the present study hypothesizes that, for individuals high in impulsivity, those with greater levels of social support will report less suicide risk than those with lower levels of social support. In other words, impulsive individuals who have high social support are better protected from suicide. To date, the hypothesis that social support moderates the relationship between impulsivity and suicide has not been tested.

Method

Participants

A group of 169 college students (75% female) at a large, ethnically diverse, suburban university participated in the study for course credit. Participants' ages ranged from 17–45 years ($M = 20.06$, $SD = 2.94$). The sample was 49% Caucasian, 20% Asian, 15% African American, 2% American Indian, and 14% listed as other. There were no significant interactions with sex and any of the other predictor or outcome measures, so it was not included in any further analyses¹.

Materials

Impulsivity was measured using the Impulse Control subscale of the Difficulties in Emotional Regulation Scale (DERS; Gratz & Roemer, 2004). The Impulse Control subscale of the DERS is a 6-item measure that assesses difficulty controlling behavior in the presence of negative emotions. The DERS Impulse Control subscale demonstrated good internal consistency in this sample ($\alpha = .80$). Although not typically used in suicide research, the DERS has been used to conceptualize impulsivity as a risk variable in

¹ Although there were no significant interactions between sex, social support, and impulsivity, when the main model in the study is conducted separately for each sex, there is no longer a significant effect for females. This is likely due to a restricted range of MSPSS scores at the low range (26–84 for females, 17–84 for males), which can actually be expected for this measure (Zimet, Dahlem, Zimet, & Farley, 1988). This can be expected for females, who typically report higher levels of perceived social support.

several studies on self-injury, which may be related to suicide (e.g., Franklin et al., 2010; Gratz & Tull, 2010).

Social support was measured using The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). The MSPSS is a 12-item measure that yields scores for perceived support from family, friends, and a significant other as well as overall social support. The MSPSS has demonstrated strong internal consistency in previous studies (Dahlem, Zimet, & Walker, 1991) as well as in the present study ($\alpha = .94$).

Suicide expectancies were computed using items from the Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007). The SITBI is a structured interview that assesses aspects of self-injurious behavior including suicidal ideation, suicide plans, and actual suicide attempts. By design, the SITBI does not have predetermined scales, so that individual items can be configured into theoretically or empirically relevant scales. Suicide expectancies were assessed by four items that asked participants to rate their likelihood of having future suicide ideation and their likelihood of making a suicide plan, attempt, or gesture. These four items assessed the construct of suicide expectancies more broadly than the single-item subscale on the Suicide Behaviors Questionnaire (Addis & Linehan, 1989) used by Osman et al. (2001) – and it had a satisfactory internal consistency ($\alpha = .77$).

Procedure

Data collection occurred within the context of a larger study on self-injurious behavior and suicide. After giving informed consent, participants filled out a computerized or paper-and-pencil questionnaire packet consisting of a demographics screener, MSPSS, and DERS, among other measures. After completion of the measures packet, participants were brought to a separate room where the SITBI was administered. Interviewers were graduate-level clinicians and trained undergraduate research assistants, supervised by two licensed clinical psychologists. Suicide risk assessment protocols were established according to all applicable ethical guidelines.

Results

Table 1 displays the means, standard deviations, and inter-correlations for all study variables. Suicide expectancies were positively correlated with DERS impulsivity ($r = .33$, $p < .001$) and negatively correlated with MSPSS total support ($r = -.18$, $p < .05$).

Table 2 presents the results of a hierarchical multiple regression analysis in which suicide risk was regressed onto the interaction between perceived social support (MSPSS) and impulsivity (DERS). MSPSS and DERS scores were centered prior to calculating the interaction

Table 1. Correlations, means, and standard deviations for the study variables

Variables	1	2	3
1. DERS Impulsivity	–		
2. MSPSS Total Support	–.08	–	
3. SITBI Suicide Expectancies	.33***	–.18*	–
Mean	13.41	70.12	0.71
SD	3.30	14.45	1.83

Note. LES = Life Events Scale; MSPSS = Multidimensional Scale of Perceived Social Support; SITBI = Self-Injurious Thoughts and Behaviors Interview; * $p < .05$, *** $p < .001$.

Table 2. Results of hierarchical regression analysis of the buffering effect of social support on the relationship between impulsivity and suicide expectancies

Variable	<i>B</i>	<i>SE B</i>	<i>T</i>
Step 1			
DERS Impulsivity	.50***	.13	3.75
MSPSS Total Support	–.33**	.14	–2.40
Step 2			
Impulsivity \times Social Support	–.33**	.16	–2.13

Notes. DERS = Difficulties in Emotion Regulation Scale; MSPSS = Multidimensional Scale of Perceived Social Support. ** $p < .01$, *** $p < .001$. Step 1 $R^2 = .15$; Step 2 $R^2 \Delta = .06$, $p < .001$.

term to facilitate the interpretation of the interaction according to the recommendations of Aiken and West (1991). This analysis yielded a significant interaction between MSPSS social support and DERS impulsivity, suggesting a moderation effect for social support on the relationship between impulsivity and suicide risk.

Given that the interaction term was significant, the pattern of the interaction was probed based on Aiken and West's (1991) recommendation. When the interaction was probed, it was found that social support moderated the impact of impulsivity, such that individuals with higher levels of impulsivity reported lower suicide expectancies if they had high levels of social support. In Figure 1, the association between impulsivity and suicide expectancies is presented as a function of high vs. low levels of social support.

As shown in Figure 1, under low levels of social support (1 *SD* below the mean), impulsivity was positively associated with suicide expectancies (standardized simple slope = 0.84, $p < .001$). Conversely, under high levels of social support (1 *SD* above the mean), the association between impulsivity and suicide expectancies was nonsignificant (standardized simple slope = 0.16, $p = .71$). Thus, as predicted, highly impulsive individuals who had low levels of social support reported higher levels of suicide expectancies than the rest of the sample.

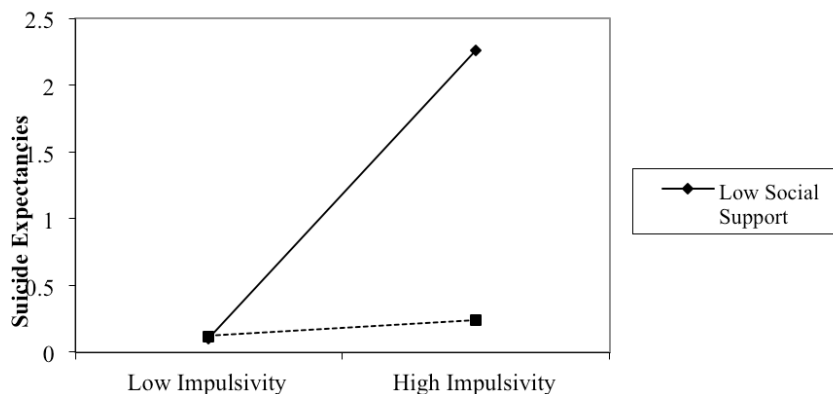


Figure 1. Plot of the interaction between impulsivity and suicide risk as a function of high vs. low levels of social support.

Discussion

The present study examined the role social support plays in buffering the relationship between impulsivity and suicide expectancies. Although past studies examined social support as a protective factor in suicide risk, the present study examined social support as a protective factor buffering the effects of impulsivity. Consistent with the original hypothesis, impulsivity was not predictive of suicide expectancies when social support was high; there was, however, a strong predictive relationship between impulsivity and suicide expectancies when social support was low. Thus, the present study contributes some of the first evidence to the literature that social support has a protective function in highly impulsive people. Other studies showed that social support functions as a buffer to suicide risk (Harrison et al., 2010) conferred by depression (Chioqueta & Styles, 2007), PTSD (Kotler et al., 2001), drug abuse (Conner et al., 2007; You et al., 2010), and life stress (Clum & Febraro, 1994; Yang & Clum, 1994). However, a unique contribution of the present study is that it appears to be the first to date to examine social support as a buffer to impulsivity. It is important to examine protective factors specific to impulsivity because impulsivity may provide a different pathway to suicide than other risk factors and thus not respond to the same protective factors as the other risk factors do.

The findings of this study are in general accord with Joiner's (2005) interpersonal-psychological theory of suicide, to the effect that one must have both the desire and the ability to attempt suicide before one will in fact do so. Impulsive individuals may be more likely to experience repeated exposure to painful events and are thus more likely to acquire the capacity to commit suicide. According to his theory, desire for suicide can result from perceived lack of belongingness due to lack of social support, group ties, or social connectedness. Thus, higher social support reduces a facet of lack of belongingness and reduces suicide risk. Consistent with the logic of Joiner's model, the present study hypothesized that an increased capacity for suicide due to impulsivity can be buffered by social support, which

decreases the desire to commit suicide. Despite its relative recency, Joiner's model received support from multiple studies in large samples of college students. It should be noted, however, that the present study is relevant to only one facet of his multifactor model and is not a comprehensive test of his complex formation.

The present study also builds on a broad literature on the protective functions of social support predating Joiner's model. The social support portion relevant to Joiner's model is rooted in sociological arguments since Durkheim (1951). For example, sociological literature identified that groups who lack social integration (i.e., widows, people living alone, and more recently people who do not attend religious services) are at increased risk for suicide (Stack, 2000). Furthermore, social support has long been regarded as a buffer from depression (a risk factor for suicide) and stress (Cohen & Hoberman, 1983; Habif & Lahey, 1980; Paykel et al., 1980) as well as impulsive behaviors associated with alcohol and drug use (Conner et al., 2007; You et al., 2010). Social support may also function as an "antisuicidal barrier," that is, having social support may ensure the presence of individuals who can physically stop an impulsive suicide attempt (e.g., by removing physical means of self-harm).

Questions also remain about the reasons that impulsivity is related to suicide expectancies. According to Joiner's theory, repeated risk-taking by impulsive individuals causes them to experience painful outcomes that increase their pain tolerance, which in turn makes the pain of suicide more tolerable. Another possible explanation is that impulsivity leads to disappointing events that then lead to hopelessness. For example, impulsive individuals may engage in the generation of stressful events where they get into conflicts, endanger their jobs, etc. This could lead to greater pessimism and contemplation of suicidal action. Although exposure to painful events that result in desensitization to pain may be a mechanism by which impulsivity is associated with suicide expectancies, another possible explanation is that it is mediated by discouragement produced by the negative outcomes resulting from impulsive actions.

Within the context of Joiner's theory (and other literature mentioned, e.g., Durkheim, 1951) this study has important

implications for suicide prevention because it suggests that suicide-prevention programs may not need to directly target a specific risk factor (i.e., impulsivity) to be effective. This is important because it may be easier to implement programs that increase external factors such as social support rather than decrease internal characteristics such as impulsivity.

Limitations and Future Directions

The present study has several limitations. One issue is that it conceptualized impulsivity as a one-dimensional construct. Although one-dimensional constructs of impulsivity are commonly used, there are also multidimensional construct measures. One way they differ is that the typical one-dimensional measure assesses the difficulty that an individual has in controlling behavior, oftentimes in the presence of negative moods; multidimensional measures, on the other hand, assess individuals' deficits in premeditating the outcome of events. Klonsky and May (2010) suggested that multidimensional measures that assess both of these deficits are preferable when studying suicide, because one-dimensional measures of difficulties in behavior control do not differentiate suicide ideators from attempters. However, the one-dimensional approach we used in this study is appropriate because the study focuses on expectations of suicide in the future, rather than on actual attempts. Moreover, the impulsivity measure in this study assessed the difficulty of controlling behavior in the presence of negative mood states, which are highly relevant to suicide. Most other measures of impulsivity assess the construct across all mood states. Future studies could build upon the present results by including the multidimensional measure of impulsivity as well as assessing actual suicide attempts.

Another impulsivity-related issue that warrants further attention is the differentiation between state and trait impulsivity. Although the present study measured impulsivity as a trait characteristic, it is possible that state impulsivity is a more important risk factor for actual suicide attempts that are made at the time without planning (Baca-Garcia et al., 2005). However, state impulsivity in the absence of a longer trait pattern of impulsive acts and painful experiences, according to Joiner (2005), would not be expected to lead to completed suicide. In addition, trait impulsivity may be more predictive of actual suicide ideation and behavior in the future than a random present state of transitory impulsivity in isolation. Moreover, trait measures of impulsivity implicitly assume that individuals who are typically more impulsive than others across time are more likely to experience state impulsivity in the future. Future studies could benefit from including both trait and state impulsivity.

Two other limitations of the present study must be acknowledged. First, it was cross-sectional study and does not support any temporal sequencing or possible cause-effect relationship between risk factor and outcomes. Future studies should examine this research question using a

longitudinal design to demonstrate a casual link between impulsivity and suicide. Second, the present study used a college sample. Future studies should examine the relationship between impulsivity, social support, and suicide in a community or clinical sample to demonstrate the generalizability of this relationship. Finally, future studies could use a multimethod approach to assessing impulsivity including experimental tasks, such as the Balloon Analog Risk Task (BART; Lejuez et al., 2002), Immediate and Delayed Memory Task (Dougherty et al., 2004), or possible interview methods.

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