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## Characteristics of Individuals Who Make Impulsive Suicide Attempts

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### Abstract

**Background**—Previous research has identified only a few variables have been associated with making an impulsive suicide attempt. The aim of the current study was to compare individuals who made an impulsive suicide attempt with those who made a premeditated attempt on both previously examined and novel characteristics.

**Method**—Participants were classified as making an impulsive or premeditated attempt based on the *Suicide Intent Scale* (Beck, Schuyler, & Herman, 1974) and were compared on a number of characteristics relevant to suicidality, psychiatric history, and demographics.

**Results**—Individuals who made an impulsive attempt expected that their attempts would be less lethal; yet the actual lethality of both groups' attempts was similar. Those who made an impulsive attempt were less depressed and hopeless than those who made a premeditated attempt. Participants who made an impulsive attempt were less likely to report a history of childhood sexual abuse and more likely to be diagnosed with an alcohol use disorder than those who made a premeditated attempt.

**Limitations**—Although the sample size was adequate for bivariate statistics, future studies using larger sample sizes will allow for multivariate analyses of characteristics that differentiate individuals who make impulsive and premeditated attempts.

**Conclusions**—Clinicians should not minimize the significance of impulsive attempts, as they are associated with a similar level of lethality as premeditated attempts. Focusing mainly on depression and hopelessness as indicators of suicide risk has the potential to under-identify those who are at risk for making impulsive attempts.

### Keywords

Impulsive Suicide Attempts; Lethality; Childhood Sexual Abuse; Alcohol

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Contributors: Megan Spokas managed the literature searches, data analysis, and wrote the majority of the first draft of the manuscript. Amy Wenzel designed the aims of the current study, wrote the first draft of the conclusion section, and edited the manuscript. Gregory K. Brown and Aaron T. Beck designed the original study, collected the data, and edited the final manuscript.

Research indicates that a significant proportion of suicides are made impulsively (e.g., Simon et al., 2001; Wojnar et al., 2009). The identification of factors that are associated with making an impulsive suicide attempt can shed light on prevention efforts, which may need to be modified for this subgroup of suicidal individuals (Simon et al., 2001).

Recently, several research teams have attempted to identify characteristics of individuals who make impulsive suicide attempts, yet only a few variables have been identified consistently across studies. For example, several investigations have demonstrated that those who make impulsive attempts tend to report lower expectations of death as a result of their attempt as compared to individuals who make premeditated attempts (Baca-García et al., 2001; Williams, Davidson, & Montgomery, 1980; Wyder & De Leo, 2007). In addition, studies have shown that those who make impulsive attempts tend to be less depressed than those who make premeditated attempts (Baca-García et al., 2005; Simon et al., 2001; Williams et al., 1980; Wyder & De Leo, 2007). Furthermore, several single studies have identified characteristics such as reporting less suicide ideation (Wyder & De Leo, 2007) and less hopelessness (Simon et al., 2001), and being unemployed (Wojnar et al., 2009), with making an impulsive attempt.

It is important to acknowledge that these same studies have failed to find differences between individuals who make impulsive and premeditated attempts on variables such as marital status, years of education, and history of past attempts (Simon et al., 2001; Wojnar et al., 2009). Preliminary evidence also suggests that ethnicity (Simon et al., 2001) and history of childhood abuse (Wojnar et al., 2009) do not distinguish individuals who make impulsive attempts from those who make planned attempts, but again, these findings have only been reported in a single study. Finally, there are several variables that have received mixed support regarding their association with impulsive attempts, such as gender (Baca-García et al., 2001; Simon et al., 2001; Weyrauch, Roy-Byrne, Katon, & Wilson, 2001; Wojnar et al., 2009; Wyder & De Leo, 2007), lower lethality of the attempt (Baca-García et al., 2001; Baca-García et al., 2005; Simon et al., 2001; Wyder & De Leo, 2007), and use of alcohol prior to suicide attempt (Baca-García et al., 2001; Simon et al., 2001; Williams et al., 1980; Wojnar et al., 2009).

Overall, further investigation of the characteristics of individuals making impulsive suicide attempts is indicated in order to clarify the mixed results that characterize this literature to date. This study compared individuals who made an impulsive suicide attempt with those who made a premeditated attempt on many characteristics that have been examined in previous studies, including demographics (i.e., gender, ethnicity, employment status, marital status, education level), suicide attempt characteristics (i.e., attempt lethality, use of alcohol or drugs immediately prior to attempt), and clinical characteristics (i.e., history of multiple suicide attempts, child sexual abuse history, severity of suicide ideation, depressive symptoms, hopelessness). On the basis of previous research, it was expected that in comparison to those making a premeditated attempt, individuals making an impulsive attempt would be more likely to be unemployed, report lower expectations of death, as well as lower levels of suicide ideation, hopelessness, and depression. No differences in ethnicity, marital status, education level, history of past suicide attempts, and history of childhood sexual abuse were expected. On the basis of previous inconsistent findings, no hypotheses were made in regard to gender differences, differences in lethality of attempt, or differences in the use of drugs and alcohol prior to the attempt.

An additional feature of the present study was that structured diagnostic assessments were conducted with each participant. It is possible that those who make impulsive suicide attempts may be more likely to meet criteria for a diagnosis of an alcohol or drug use disorder and/or borderline personality disorder (BPD) than those who make premeditated

attempts, given the high prevalence of impulsivity and risk-taking behaviors in these populations (e.g., Casillas & Clark, 2002). Therefore, these diagnoses were examined as novel characteristics that have not been previously investigated in previous studies.

## Method

### Participants

Analyses included baseline data gathered from recent suicide attempters participating in a preliminary or full clinical trial (Brown et al., 2005) investigating the use of cognitive therapy in reducing repeat suicide attempts. Participants were recruited from psychiatric or medical emergency departments following a suicide attempt, and informed consent was obtained. The mean age of the sample was 34.4 years ( $SD = 9.9$ , 18 to 66 years), and 57.8% were female. Self-reported ethnicity was 62.2% Black, 28.9% White, and 8.9% Other. Most were single (64.5%), 17.4% were divorced or separated, 10.5% were married, and 7.6% were widowed. All participants completed interviews with postdoctoral or master's level clinicians and were paid \$50. The Institutional Review Board of the University of Pennsylvania approved and monitored this research study.

### Measures

**Impulsive attempts**—The *Suicide Intent Scale* (SIS; Beck, Schuyler, & Herman, 1974) is a 20-item, clinician administered assessment of the intensity of the attempter's wish to die at the time of the index suicide attempt. Each item is rated on a scale of 0 to 2. Responses on Item 15 (amount of premeditation) were used to classify the impulsiveness of the attempt. Those reporting no premeditation (score = 0) were classified as making an impulsive attempt, whereas those reporting that suicide was contemplated for three hours or more prior to the attempt (score = 2) were classified as making a premeditated attempt<sup>1</sup>.

**Attempt characteristics**—The *Lethality Scale* (LS; Beck, Beck, & Kovacs, 1975) is a measure of the medical lethality of the most recent suicide attempt. The measure is scored on a scale from 0 to 10, with higher scores indicating greater lethality. There are eight separate scales, one of which is rated based on the method of the suicide attempt (e.g., shooting, jumping, drug overdose). In addition, a 7-item, factor-analytically defined SIS lethality subscale (Diaz et al., 2003) was utilized as a measure of *expected* lethality. The internal consistency of this scale was modest in the current study,  $\alpha = .67$ . Finally, Items 19 and 20 of the SIS were used to assess the use of drugs and alcohol prior to the suicide attempt. Those reporting that drugs/alcohol were not used prior to the attempt (score = 0) and those reporting intentional drugs/alcohol use to help facilitate the attempt (score = 2) were included in these analyses.

**Clinical characteristics**—The *Number and Dates of Suicide Attempts* (NDSA) is a clinician-administered measure assessing number of previous suicide attempts. Responses on this interview were used to determine whether the individual had a history of multiple suicide attempts. The *Psychiatric History Questionnaire* is a self-report measure of past psychiatric treatments, as well as past traumatic events. Childhood sexual abuse history was assessed using the self-report question: “*Did you ever experience sexual abuse as a child?*” Responses to this question correlated strongly with responses to another self-report item assessing the experience of any type of child abuse ( $\phi = .67$ ). The *Scale for Suicide Ideation*

<sup>1</sup>We had also planned to use an alternative definition of an impulsive attempt: the Planning subscale of the SIS that was utilized by Baca-García and colleagues (2005). This subscale was established using exploratory factor analysis in two large samples, and the reported internal consistency was adequate ( $\alpha = .70$ ; Diaz et al., 2003). However, in our sample, the internal consistency of the planning subscale was not satisfactory ( $\alpha = .56$ ).

(SSI; Beck, Kovacs, & Weissman, 1979) is a 19-item clinician-administered scale used to evaluate the intensity of current attitudes, behaviors, and plans to commit suicide. The *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996) is the most widely used self-report of depressive symptoms. The *Beck Hopelessness Scale* (BHS; Beck, Weissman, Lester, & Trexler, 1974) is a self-report measure consisting of 20 true-false statements assessing the extent of positive and negative beliefs about the future. The internal consistencies of these latter three measures were .76 (coefficient alpha), .93 (coefficient alpha), and .02 (KR-20), respectively.

**Diagnoses**—The *Structured Clinical Interview for DSM-IV-Axis I* (SCID-IV; First, Spitzer, Gibbon, & Williams, 1995) was administered to assess Axis I disorders. The current study analyses included the diagnoses of alcohol and drug use disorders, which have demonstrated satisfactory reliability across previous studies (kappa values > .75; Zanarini et al., 2000). The *Structured Clinical Interview for DSM-IV-Axis II* (SCID-II, First, Spitzer, Gibbon, & Williams, 1997) was administered to assess BPD. Previous studies have illustrated satisfactory reliability (kappa values > .71; Dreesen & Arntz, 1998).

## Results

Seventy eight (43.3%) individuals were classified as making an impulsive attempt, whereas 65 (36.1%) were classified as making a premeditated attempt. The remaining 37 (20.6%) individuals reported considering suicide for three hours or less prior to the attempt (i.e., scored 1 on SIS Item #15), and they were not included in subsequent analyses.

There were no statistically significant differences between individuals who made an impulsive attempt and those who made a premeditated attempt on any demographic characteristics (i.e., gender, race, marital status, employment status, education level, all  $ps > .12$ ). Group differences on the remaining characteristics are presented in Table 1. Those classified as making an impulsive attempt were no different in their history of making multiple suicide attempts,  $\chi^2(1, N = 143) = .18, p = .67$ , but they were significantly less likely to report a history of childhood sexual abuse,  $\chi^2(1, N = 134) = 6.01, p = .01$ . Relative to those who made a premeditated attempt, individuals who made an impulsive attempt were significantly less likely to report using drugs to facilitate the attempt  $\chi^2(1, N = 102) = 6.48, p = .01$ , and there was a trend level effect for being less likely to use alcohol prior to the attempt,  $\chi^2(1, N = 98) = 3.10, p = .08$ . Although there were no group differences in the actual medical lethality of the attempt,  $t(137) = 1.50, p = .14$ , those who made an impulsive attempt reported significantly lower expectations of death as a result of the attempt than those who made a premeditated attempt,  $t(141) = -3.35, p = .001$ . Individuals who made an impulsive attempt reported significantly less depression,  $t(140) = -3.94, p < .001$ , and hopelessness,  $t(139) = -2.59, p = .01$ , but reported similar levels of suicide ideation as individuals who made a premeditated attempt,  $t(138) = -0.84, p = .40$ . Finally, there were no group differences in the prevalence of BPD,  $\chi^2(1, N = 143) = .001, p = .98$ , or drug use disorders,  $\chi^2(1, N = 143) = .28, p = .60$ . However, individuals who made an impulsive attempt were significantly more likely to meet criteria for an alcohol use disorder,  $\chi^2(1, N = 143) = 9.89, p = .002$ , than individuals who made a premeditated attempt.

## Discussion

Findings from this study support many of those that have been reported in the literature. For example, individuals who made an impulsive attempt, defined as a self-report of no premeditation before their attempt, expected that their attempts would be less lethal than those who made a premeditated attempt. Nevertheless, the lethality of both groups' attempts was at a similar level of severity. In addition, those who made an impulsive attempt were

less depressed and hopeless than those who made a premeditated attempt. Collectively, these results suggest that clinicians should not (a) minimize the significance of impulsive attempts, as they are associated with a similar level of lethality as premeditated attempts, and (b) assume that a patient is not at risk for suicidal behavior on the basis of the absence of depression and hopelessness. The presence of impulsive suicide attempts may be a marker for membership in a distinct subgroup of suicidal individuals who do not follow the depression-hopelessness pathway to suicidal behavior (Wenzel, Brown, & Beck, 2009). For instance, trait aggression/impulsivity has been discussed as a promising endophenotype for suicide (e.g., Mann et al., 2009), and this may be particularly relevant for those making impulsive suicide attempts.

Participants in this study who made an impulsive attempt were less likely report a history of childhood sexual abuse than those who made a premeditated attempt. This finding contrasts with a previous empirical study that found no difference in a history of childhood abuse among individuals who made impulsive and premeditated attempts (Wojnar et al., 2009). Moreover, it also is at odds with contemporary theory that links childhood abuse and suicide through impulsivity, such that childhood abuse diminishes the development of inhibitory processes in the frontal cortex (Braquehais, Oquendo, Baca-García, & Sher, 2010). However, in our previous work, hopelessness was a significant mediator of childhood sexual abuse and suicide ideation (Spokas, Wenzel, Stirman, Brown, & Beck, 2009), and current findings suggest hopelessness is not as prominent for those who make impulsive attempts. However, it should be acknowledged that our assessment of childhood sexual abuse consisted of one question that simply indicated whether or not a person reported that it had occurred. Some research suggests that it is early, prolonged, and/or severe abuse that is most strongly associated with adverse consequences (e.g., Kendall-Tackett, 2002). It will be important for future research to include finer-grained assessment of these and other dimensions of childhood sexual abuse in order to confirm that there is an effect, and if so, its precise relation with impulsive and suicidal behaviors.

Finally, results from this study demonstrated that a greater percentage of individuals who made an impulsive attempt were diagnosed with an alcohol use disorder than individuals who made a premeditated attempt. Previous research has documented that individuals with alcohol use disorders with a history of suicidal behavior score higher on self-report inventories of impulsivity than individuals with alcohol use disorders but no history of suicidal behavior (Koller, Preuß, Bottlender, Wenzel, & Soyka, 2002) and that impulsive attempts may be more common in individuals with alcohol use disorders than in individuals without alcohol use disorders (Suominen, Isometsä, Henriksson, Ostamo, & Lönqvist, 1997). It is curious, then, that results from this study yielded a trend toward a lower percentage of individuals who made an impulsive attempt to have drunk alcohol prior to their attempt than those who made a premeditated attempt. It is likely that alcohol use and misuse pose both distal and proximal risk factors for suicidal behavior. For example, an alcohol use disorder might serve as a distal risk factor for suicidal behavior by creating life stress and disrupted relationships, whereas using alcohol prior to an attempt serves as a proximal risk factor by lowering inhibitions, increasing aggression, and fixating one's attention on suicide (cf. Hufford, 2001). It will be important for future research to verify that these latter processes are associated with premeditated attempts and to outline the mechanism by which they facilitate premeditated, rather than impulsive attempts.

Strengths of this study include the comprehensive assessment battery and the use of well-established inventories with good psychometric properties to measure many of the constructs of interest in this study. Moreover, there were no group differences in the presence of a drug use disorder or BPD, so results cannot be better explained by these diagnoses. However, several limitations of this study must be acknowledged. Two of the

main constructs of interest—the presence or absence of an impulsive attempt and a history of childhood sexual abuse—were measured with single items, and the construct validity of these items is unknown. Although the sample size was adequate for a study of this nature using bivariate statistics, future studies using larger sample sizes should be conducted in order to conduct multivariate analyses of characteristics that differentiate individuals who make impulsive and premeditated attempts so that the psychological mechanisms that lead to both outcomes can be elucidated.

The main finding from this study is that individuals who make impulsive attempts are characterized by a different clinical profile than individuals who make premeditated attempts, in terms of lower expected lethality, lower depression, lower hopelessness, a lower likelihood of a history of childhood sexual abuse, and a higher likelihood of the presence of an alcohol use disorder. These results suggest that focusing mainly on the presence of depression and hopelessness as indicators of suicide risk has the potential to overlook those who are at risk for making impulsive attempts. In addition, it also will be important for clinicians not to assume that a person is not at risk for making an impulsive attempt if he or she does not exhibit impulsivity as a general personality trait. Research is accumulating that individuals who make impulsive attempts do not necessarily score higher on self-report inventories of impulsivity than individuals who make premeditated attempts (Giegling et al., 2009; Witte et al., 2008; Wojnar et al., 2009). Thus, we encourage clinicians to make appraisals of risk for impulsive attempts on this basis of this and other empirical studies, and we encourage researchers to identify the pathway by which distal and proximal risk factors converge to facilitate impulsive attempts in the absence of impulsive personality traits.

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**Table 1**

## Characteristics of Individuals Making Impulsive and Premeditated Suicide Attempts

	Impulsive Attempt		Premeditated Attempt	
	<i>n</i>	%	<i>n</i>	%
History of multiple suicide attempts	60	76.9	48	73.8
Child sexual abuse history*	18	25.0	28	45.2
SIS Item 19: Use of alcohol prior <sup>†</sup>				
None	45	83.3	30	68.2
Used to facilitate attempt	9	16.7	14	31.8
SIS Item 20: Use of drugs prior*				
None	51	86.4	28	65.1
Used to facilitate attempt	8	13.6	15	34.9
Diagnosis of BPD	29	37.2	24	36.9
Diagnosis of alcohol use disorder**	29	37.2	9	13.8
Diagnosis of drug use disorder	49	62.8	38	58.5
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Lethality Scale	3.74	2.28	3.19	1.96
SIS Expected Lethality scale**	9.40	2.76	10.91	2.59
SSI	6.55	8.31	7.80	9.10
BDI-II***	28.65	14.25	37.86	13.45
BHS*	10.28	5.94	12.82	5.68

Note. SIS = Suicide Intent Scale; BPD = Borderline Personality Disorder; SSI = Scale of Suicide Ideation; BDI-II = Beck Depression Inventory-II; BHS = Beck Hopelessness Scale;

<sup>†</sup>  $p < .10$ ,

\*  $p < .05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p < .001$ .