Alcohol Use to Facilitate a Suicide Attempt: An Event-Based Examination

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ABSTRACT. Objective: The current study is based on the hypothesis that alcohol-involved suicide attempts are characterized by lower premeditation and intent, but only when the use of alcohol is not motivated by the desire to facilitate the attempt. Test of this idea was conducted by comparing proximal suicide premeditation and intent of suicide attempts among three groups: individuals who (a) drank to facilitate the attempt (e.g., to “numb fears” about attempting), (b) drank for nonfacilitative motives, and (c) did not use alcohol before the attempt. **Method:** Participants included 324 (62% female) recent suicide attempters presenting to a Level 1 trauma hospital. The Timeline Followback Interview for Suicide Attempts and a novel Suicide Facilitative Drinking Motives Scale were used to assess facilitative motives for drinking and characteristics of the attempt. **Results:** One third of participants drank before the at-

tempt, and most (73%) who used alcohol did not do so to facilitate the attempt. As hypothesized, attempts carried out by this group had shorter proximal suicide premeditation and lower suicide intent compared with the other study groups; in contrast, individuals who drank to facilitate the attempt were similar to non-alcohol users on these indices. **Conclusions:** Alcohol-involved suicide attempts are heterogeneous. Motives for drinking are a key source of heterogeneity insofar as fundamental characteristics of attempts (proximal premeditation, intent) differ as a function of drinking motivation. Clinical implications include that individuals making suicide attempts with facilitative motives for drinking cannot be assumed to be at lowered risk upon a drop in blood alcohol level. (*J. Stud. Alcohol Drugs*, 76, 474–481, 2015)

GIVEN THE CLINICAL AND PUBLIC HEALTH significance of suicidal behavior, there is considerable interest in identifying proximal factors that increase the risk for suicide attempts. Proximal risk factors are temporally close to a suicide attempt and exert their influence in the day, hours, or minutes before an attempt (Bagge & Sher, 2008; Hufford, 2001). Acute alcohol use is one such proximal factor that has been shown to increase risk for suicide attempts. An empirical review of published studies finds that a median of 40% of suicide attempts by adults were preceded by ingestion of alcohol (Cherpitel et al., 2004). Controlled studies demonstrate that acute alcohol use confers marked risk for suicide attempt (e.g., Bagge et al., 2013b; Borges & Rosovsky, 1996; Borges et al., 2004; Powell et al., 2001) and that risk is intensified at high drinking levels (Bagge et al., 2013b; Borges & Rosovsky, 1996).

Although there is strong evidence of the importance of acute alcohol use as a proximal risk factor for suicide attempts, there are also data suggesting that the presence of acute alcohol use contributes to less intensive psychiatric

treatment and referral by hospital providers. For instance, individuals making suicide attempts in the context of acute alcohol use are more likely to receive emergency department treatment only and less likely to receive a referral to a psychiatrist (or psychiatric hospital) and to have arranged aftercare post-discharge for them (e.g., Suokas & Lönnqvist, 1995; Suominen & Lönnqvist, 2006). Data also suggest that patients hospitalized for suicide risk who are judged to have risk related to alcohol (or other drug) intoxication are discharged sooner than patients who are perceived not to have substance-related risk (Ries et al., 2009). The use of less intensive care with individuals who make suicide attempts in the context of acute alcohol use may be attributable to the widely held clinical belief that such attempts are characterized by a period of short proximal suicide premeditation and have low intent to die: factors used in weighing the severity of suicide attempts and risk for eventual suicide.

However, the empirical evidence is surprisingly mixed with regard to acute use of alcohol and proximal premeditation and intent, with some studies showing no differences on such measures in attempts preceded by alcohol use and those that are not (Lejoyeux et al., 2008; Nielsen et al., 1993; Power et al., 1985; Simon et al., 2001) and other studies showing lower proximal suicide premeditation in alcohol-involved attempts (Beck et al., 1976; Merrill et al., 1992; Suokas & Lönnqvist, 1995). It is our contention that the associations between acute alcohol use with proximal premeditation and intent to die depend on the patient's motivation (or reason) for drinking on the day of the attempt. To explain, it is well

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established that alcohol is used for a variety of purposes (Kuntsche et al., 2005), such as drinking for social (to be sociable), enhancement (to get high), and coping (to forget worries) reasons. Although seldom considered, alcohol may be used deliberately before suicide attempts to facilitate the act, for example to increase courage, numb fears, and anesthetize the pain of dying (as discussed in Bagge & Sher, 2008; Conner et al., 2014; Hufford, 2001). In the scenario in which alcohol is used *a priori* to facilitate the attempt, we argue that there is no reason to expect low proximal premeditation or intent.

Overwhelmingly, prior studies of acute alcohol use and suicide attempts have treated acute alcohol using attempters as a homogeneous group, failing to consider different motivations for drinking before suicide attempts. This oversight may help to explain the occurrence of previous mixed findings regarding any acute alcohol use and clinical correlates. Our central premise is that the association between acute alcohol use and proximal suicide premeditation/intent depends on the patient's motivation for drinking before the attempt. The focus of the current article is to compare three groups of recently hospitalized suicide attempters: (a) individuals who used alcohol for facilitative reasons (FAC), (b) those who used alcohol for nonfacilitative reasons (NON-FAC), and (c) those who did not use alcohol before their attempt (No ALC) on key characteristics of the attempt (e.g., proximal suicide premeditation and suicide intent). Better understanding of the reason for consumption is essential to understanding the mechanisms responsible for increased alcohol-related suicide risk and can inform the utility of clinical assumptions pertaining to use of alcohol and key characteristics of attempts.

Although the use of alcohol to facilitate a suicide attempt has rarely been examined, two studies reported that approximately one third of attempts preceded by acute alcohol use fit this pattern (Baca-García et al., 2001; Spokas et al., 2012). These studies used the Suicide Intent Scale (Beck et al., 1974) item 19, which codes the presence of intentional intake of alcohol in order to facilitate implementation of attempts. One study (Spokas et al., 2012) found that FAC were less likely to have short proximal contemplation than No ALC. A second study (Baca-García et al., 2001) found that FAC were no more likely to have short proximal premeditation (a composite of length of contemplation and planning) than NON-FAC ($OR = 1.57, p = .32$). Thus, the available database is small and without a consistent pattern.

In the examination of drinking motives and suicidal behavior, it is important to adjust for factors that may be associated with acute alcohol use before a suicide attempt. For instance, previous research shows that men, younger adults, those with problematic alcohol use (see Bagge & Schumacher, 2010, for review) and problematic drug use (Lejoyeux et al., 2008) are generally more likely to drink alcohol before their suicide attempt. A mixed literature exists regarding the severity of depressive symptomatology (Beck et al., 1976;

Goldney, 1981; Lejoyeux et al., 2008) and history of suicide attempts (e.g., Lejoyeux et al., 2008; Suokas & Lönnqvist, 1995) in their relations with acute alcohol use before a suicide attempt. No study of acute drinking motives and suicidal behavior has adjusted for these key demographic and clinical suicide risk factors.

For the current study, we hypothesized that FAC and NON-FAC have a different pattern of associations with proximal premeditation and intent of suicide attempts compared with the No ALC group. Specifically, we hypothesized that the NON-FAC group is more likely to have short proximal premeditation and lower suicide intent than No ALC, whereas we did not anticipate differences in these measures between the FAC and No ALC groups. Last, we hypothesized that the NON-FAC group would also be more likely to have short proximal premeditation and lower suicide intent than the FAC group. If the hypotheses are supported, a major clinical implication is that the assessment of acute alcohol use without drinking motivation could lead to misperceptions of lowered suicide risk (i.e., indicated by level of proximal suicide premeditation and intent) for the FAC group. Consequently, suicide attempters using alcohol for facilitative motives would need to be identified and could not be assumed to be at lowered suicide risk with a drop in blood alcohol.

Method

Participants

Adults ages 18–64 years presenting to a hospital within 24 hours after a suicide attempt—conceptualized as a non-fatal, self-injurious behavior with some intent to die (Silverman et al., 2007)—were recruited from a Level 1 trauma hospital in the southeastern United States. A consecutive sample of suicide attempt patients was recruited between October 2008 and March 2014 ($N = 416$; see Bagge et al., 2014, for further details). Beginning with participant number 121, participants were compensated \$35 for their time and interviews were audiotaped. The current study uses complete data from participants ($n = 324, 77.9\%$). This sample was 62.0% female and self-identified as White (63.0%), African American (31.2%), Native American (0.9%), and other/mixed race/ethnicity (4.9%), with a mean age of 36.1 years ($SD = 11.7$).

Procedure

This study was approved by the hospital's institutional review board, and informed consent was obtained before study initiation. Patients were approached after initial medical/psychological evaluations, and the 2.5-hour study assessment session occurred close to discharge. Participants completed a battery of self-report questionnaires and were interviewed using the semi-structured Timeline Followback Interview for

Suicide Attempts (TLFB-SA; see Bagge et al., 2013a, 2013b, 2013c).

Measures: Event-based assessments

Suicide Facilitative Drinking Motives Scale. The Suicide Facilitative Drinking Motives Scale (SFDMS) is a novel 3-item measure that is informed by the Drinking Motives Questionnaire (DMQ; Cooper et al., 1992), a 15-item assessment of general motives for drinking. Unlike the DMQ, which focuses on overall reasons for drinking, the first author developed the SFDMS to assess facilitative motives for drinking before a suicide attempt, a specific event. First, participants were instructed to report their level of agreement that each item reflected a reason that they drank within 24 hours of the suicide attempt. Response options included the following: 1 (*strongly disagree*), 2 (*disagree somewhat*), 3 (*uncertain*), 4 (*agree somewhat*), and 5 (*agree strongly*). Three novel items were used to assess the desire to facilitate the suicide attempt (see Bagge & Sher, 2008; Hufford, 2001). These items included (a) to increase my motivation to commit suicide, (b) to commit suicide painlessly, and (c) to numb my fears about committing suicide. Only participants who reported drinking within 24 hours of the attempt were asked to complete the SFDMS. The three-item SFDMS alpha was excellent (.92), with inter-item correlations ranging from .75 to .81. The mean of the SFDMS was 2.46 ($SD = 1.51$). Additional items about non-suicide-specific motives for drinking before the suicide attempt were adapted more directly from the DMQ and are not a focus of this study.

To compare individuals who did not drink on the day of their attempt with individuals who drank for nonfacilitative or facilitative reasons on the day of their attempt, we created a three-level nominal variable that included the following groups: no alcohol (no alcohol consumed on the day of the attempt, No ALC), nonfacilitative drinkers (those who did not use alcohol to facilitate the attempt, NON-FAC), and facilitative drinkers (those who drank to facilitate their suicide attempt, FAC). We classified FAC as those with an average item-level score of 4 or greater on the SFDMS and those scoring less than 4 on average as NON-FAC. A cutoff of 4 or greater for FAC was chosen because a score of 4 (*somewhat agree*) or 5 (*strongly agree*) on an SFDMS item indicates agreement with a facilitative motive at a conceptual level. The majority of participants did not drink (No ALC; 67.0%, $n = 217$) and, using the SFDMS cutoffs, the remainder was grouped as NON-FAC (24.1%, $n = 78$) and FAC (9.0%, $n = 29$). The average item-level SFDMS scores for the FAC and NON-FAC groups were 4.52 ($SD = 0.45$) and 1.70 ($SD = 0.93$), respectively. Last, of the 107 participants who used alcohol before the attempt, 29 (27.1%) were categorized as FAC, similar to the results obtained by two prior studies (33%; Baca-García et al., 2001; Spokas et al., 2012).

Timeline Followback Interview For Suicide Attempts.

This measure (see Bagge et al., 2013a, 2013b, 2013c) uses a TLFB methodology (Sobell & Sobell, 1992) focusing on precursors of suicide attempts. For the current study, this interview was used to gather retrospective information on the timing of proximal suicide premeditation during the 48 hours before the attempt. First, information was gathered about activities, events, and location to serve as anchors for recall over this period. After re-creating activities, etc., participants estimated the timing of their first suicidal thought, initial making of a suicide plan (or referencing a previous suicide plan), and first decision to attempt suicide during the specified period (see Bagge et al., 2013c, for further details). Participants were also asked whether these various categories of proximal premeditation (i.e., first suicide contemplation, planning, and decision to act) were present during the week before the 48-hour period. Consistent with previous research (Bagge et al., 2013c), dichotomous groups were created such that those individuals who reported first contemplation, planning, and decision to act within the last 3 hours (and also not within the week prior) were coded as having short proximal premeditation: 39.8% (contemplation), 71.6% (planning), and 84.3% (decision to act). These three facets of proximal premeditation have shown high interrater reliability (see Bagge et al., 2013c).

Method of attempt. To assess suicide method, participants were asked, "What method(s) did you use?" (Kessler & Üstün, 2004). Most attempted suicide using overdose of medications (73.2%). Other methods (not mutually exclusive) included overdose of alcohol (8.3%), sharp instrument (17.6%), gun (4.3%), poison (3.4%), hanging (2.2%), illicit drug overdose (2.5%), and various other methods (4.9%) endorsed at low rates. Most participants (84.3%) used only one method.

Overall suicide intent. To assess the extent of suicide intent, participants were asked, "Which option best describes your intent during your suicide attempt?" The response option "wanting to die" was coded 1 and compared to responses with more ambivalence (somewhat or did not want to die, coded 0). Approximately 64.5% reported wanting to die at the time of the suicide attempt. Importantly, all participants reported at least minimal (>0%) intent to die on a standard item as a criterion for study entry, consistent with the requirement of nonzero intent to be considered a suicide attempt (Silverman et al., 2007).

Measures: Clinical covariates

The study also included validated measures of alcohol problems (the Alcohol Use Disorders Identification Test, AUDIT; Saunders et al., 1993), drug problems (10-item brief version of the Drug Abuse Screening Test, DAST-10; Bohn et al., 1991), and depressive symptoms (the Center for Epidemiological Studies Depression Screening Index-10, CESD;

Andresen et al., 1994). The descriptive statistics for each total score were as follows: AUDIT ($M = 8.03$, $SD = 9.68$), DAST-10 ($M = 2.53$, $SD = 3.19$), and CESD ($M = 20.29$, $SD = 6.97$). Last, a question from the Self-Injurious Thoughts and Behaviors Interview (Nock et al., 2007), "How many suicide attempts have you made in your lifetime?" was used to assess the history of attempts. Most participants (64.2%) reported at least one prior attempt.

Data analytic strategy

First, we present descriptive analyses for demographics (age, gender, minority status), clinical correlates (history of attempt, levels of depression, problematic alcohol and substance use), and current attempt characteristics (short proximal premeditation and suicide intent) by drinking groups. Next, we conducted three series of multinomial logistic regression analyses (Stokes et al., 2000) to compare the FAC and NON-FAC groups, respectively, with No ALC group on demographics, clinical correlates, and current attempt characteristics. We also redefined the reference group to be FAC and re-ran the analyses to directly compare associations between NON-FAC and FAC. For the first series, unadjusted odds ratios (ORs) are presented. The second series was adjusted for all demographic independent variables. The third series provided additional adjustment for all clinical independent variables. Given the novelty of this area of study and our limited sample size, we report exact p values and use $p \leq .10$ as the level of statistical significance.

Results

Descriptive statistics and results of unadjusted multinomial logistic regression analyses

Table 1 (columns 2–4) presents descriptive data for demographics, clinical correlates, and current attempt characteristics by drinking group. In addition, Table 1 (columns 5–7) presents unadjusted ORs for all study variables' associations with drinking groups. Results indicate that demographic variables, history of a suicide attempt, and level of depressive symptomatology were not related to group membership ($ps > .10$). Total problematic alcohol use as measured by the AUDIT was greater in both the FAC ($OR = 1.22$, $p = .0001$) and NON-FAC groups ($OR = 1.17$, $p = .0001$) compared with the No ALC group. Further, problematic alcohol use was lower in the NON-FAC group ($OR = 0.97$, $p = .08$) compared with the FAC group. Total problematic drug use as measured by the DAST-10 was greater in the FAC ($OR = 1.18$, $p = .003$) and NON-FAC group ($OR = 1.11$, $p = .01$) compared with the No ALC group. In terms of current attempt characteristics, short proximal suicide premeditation (ORs range from 2.11 to 3.82, $ps \leq .10$) and lower suicide intent ($OR = 0.47$, $p = .10$) were greater in the NON-FAC

group compared with FAC, whereas these variables were not related to FAC compared with the No ALC group. Further, short proximal suicide contemplation and planning (ORs range from 1.56 to 2.54, $ps \leq .10$) and lower suicide intent ($OR = 0.61$, $p = .07$) were greater in the NON-FAC compared with the No ALC group.

Results of the associations between current attempt characteristics adjusted for demographics and clinical correlates

Table 2 (top half) presents results of the multinomial logistic regression analyses examining whether current attempt characteristics differ by study groups adjusting for demographics. Of note, ORs for current attempt characteristics, adjusting for demographic variables, yielded similar estimates as the unadjusted estimates presented in Table 1. Table 2 (bottom half) presents the results adjusted for both demographics and clinical correlates. These analyses revealed that short proximal suicide decision and planning (ORs range from 2.28 to 4.46, $ps \leq .10$) were greater in the NON-FAC compared with the FAC group, whereas no current attempt characteristic variables were related to FAC compared with the No ALC group. Further, short proximal suicide contemplation ($OR = 1.90$, $p = .07$) and lower suicide intent ($OR = 0.52$, $p = .05$) were greater in the NON-FAC compared with the No ALC group after adjusting for demographic and clinical correlates. Of note, we also conducted a series of analyses adjusting only for clinical correlates, which resulted in a similar pattern of findings as the fully adjusted analyses.

Discussion

We examined adults hospitalized following a suicide attempt and conducted hypothesis-driven comparisons of those who used alcohol to facilitate the attempt (FAC), did not drink for this purpose (NON-FAC), and used no alcohol within 24 hours of the attempt (No ALC). Hypotheses that the NON-FAC group would make attempts that were more likely to have short proximal premeditation (i.e., based on contemplation and decision to act) and had lower overall intent than the other two study groups were generally supported.

One third of suicide attempts were preceded by use of alcohol, similar to the results of an empirical review that reported a median of 40% of suicide attempts in published studies are preceded by drinking (Cherpitel et al., 2004). Results indicate that FAC is the least frequent scenario, representing 9% of the sample overall and 27% of those who drank before the attempt. Previous studies reported that a similar proportion (33%) of individuals who drank before a suicide attempt did so for facilitative reasons (Baca-García et al., 2001; Spokas et al., 2012). More commonly, individu-

TABLE 1. Descriptive data and unadjusted odds ratios (ORs) for associations between characteristics with drinking groups

Independent variable	NON-FAC <i>n</i> (%)	FAC <i>n</i> (%)	No ALC <i>n</i> (%)	FAC vs. No ALC OR [95% CI]	NON-FAC vs. No ALC OR [95% CI]	NON-FAC vs. FAC OR [95% CI]
Demographics						
Age	35.8 (10.8)	37.4 (9.0)	36.0 (12.3)	1.01 [0.98, 1.04], <i>p</i> = .56	0.99 [0.98, 1.02], <i>p</i> = .89	0.99 [0.95, 1.03], <i>p</i> = .54
Female	44 (56%)	17 (59%)	140 (65%)	0.78 [0.35, 1.72], <i>p</i> = .54	0.71 [0.42, 1.21], <i>p</i> = .21	0.91 [0.39, 2.17], <i>p</i> = .84
Minority	28 (36%)	13 (45%)	79 (36%)	1.41 [0.65, 3.10], <i>p</i> = .38	0.98 [0.57, 1.68], <i>p</i> = .93	0.69 [0.29, 1.64], <i>p</i> = .39
Clinical correlates						
History of suicide attempt	49 (63%)	22 (76%)	137 (63%)	1.84 [0.75, 4.49], <i>p</i> = .18	0.98 [0.58, 1.69], <i>p</i> = .96	0.54 [0.21, 1.41], <i>p</i> = .21
Depression	19.5 (7.7)	20.0 (6.8)	20.6 (6.7)	0.99 [0.94, 1.04], <i>p</i> = .66	0.98 [0.94, 1.02], <i>p</i> = .25	0.99 [0.93, 1.05], <i>p</i> = .77
Problematic drug use	3.2 (3.4)	4.0 (3.6)	2.1 (3.0)	1.18 [1.06, 1.32], <i>p</i> = .003	1.11 [1.02, 1.20], <i>p</i> = .01	0.94 [0.83, 1.05], <i>p</i> = .28
Problematic alcohol use	15.3 (11.0)	19.5 (9.7)	3.9 (5.4)	1.22 [1.16, 1.29], <i>p</i> = .0001	1.17 [1.13, 1.23], <i>p</i> = .0001	0.97 [0.93, 1.01], <i>p</i> = .08
Current attempt characteristics						
Short proximal: Contemplate	38 (49%)	9 (31%)	82 (38%)	0.74 [0.32, 1.71], <i>p</i> = .48	1.56 [0.92, 2.64], <i>p</i> = .09	2.11 [0.86, 5.21], <i>p</i> = .10
Short proximal: Decision	72 (92%)	22 (76%)	179 (82%)	0.67 [0.27, 1.67], <i>p</i> = .39	2.54 [1.03, 6.29], <i>p</i> = .04	3.82 [1.16, 12.56], <i>p</i> = .03
Short proximal: Planning	60 (77%)	17 (59%)	155 (71%)	0.57 [0.26, 1.26], <i>p</i> = .16	1.33 [0.73, 2.44], <i>p</i> = .35	2.35 [0.95, 5.83], <i>p</i> = .06
Suicide intent	43 (55%)	21 (72%)	145 (67%)	1.30 [0.55, 3.09], <i>p</i> = .55	0.61 [0.36, 1.03], <i>p</i> = .07	0.47 [0.19, 1.19], <i>p</i> = .10

Notes: *n* = 324. NON-FAC = nonfacilitative use of alcohol within 24 hours of attempt (*n* = 78); FAC = facilitative use of alcohol within 24 hours of attempt (*n* = 29); No Alc = no alcohol use within 24 hours of suicide attempt (*n* = 217); CI = confidence interval. All independent variables are coded present (1) versus absent (0) with the exception of depression, problematic drug use, and problematic alcohol use (continuous measures). **Bold** values represent *p* ≤ .10.

als drink before suicide attempts for nonfacilitative reasons (NON-FAC), characteristic of 24% of participants in the current sample overall and 73% of those who drank before the attempt.

Referring to Table 1, it is unsurprising that the FAC and NON-FAC groups have greater alcohol misuse (based on higher total AUDIT scores) in the past year than the No ALC group. However, the FAC group also has greater alcohol misuse than the NON-FAC group, a result that was not hypothesized. Of note, the FAC and NON-FAC groups did not differ in alcohol use as a method of suicide attempt, and only 21.5% of individuals who drank before the attempt used alcohol as part of their method. Therefore, these results are not attributable to use of alcohol as a method of suicide attempts. It may be that NON-FAC occurs across the continuum of severity of alcohol use and problems but FAC is more likely to be observed with (or perhaps unique to) severe alcohol use and problems, a hypothesis for future study.

As hypothesized, the NON-FAC group's suicide attempts had greater odds of short proximal suicide premeditation (i.e., for suicide contemplation and decision to act) and less suicide intent compared with the other study groups, after we adjusted for demographics. One potential explanation is that these attempts occur abruptly in reaction to an acute stressful event (Conner, 2004), such as one that occurs during the drinking bout. It is well established that drinking events may promote acute interpersonal stressful events including disruptive arguments and acts of interpersonal aggression (Leonard, 2005). Moreover, prior research of the first author's laboratory documents that acute stressful events within 24 hours of an attempt are prevalent, with interpersonal conflicts being most common (Bagge et al., 2013a), and that negative life events served as proximal risk factors for suicide attempts only among patients who were not currently planning their attempt (Bagge et al., 2013a).

Other potential explanations for short proximal suicide premeditation during NON-FAC drinking occasions include a

TABLE 2. Adjusted odds ratios (AOR) for associations between current suicide attempt characteristics and drinking groups

Independent variable	FAC vs. No ALC AOR [95% CI]	NON-FAC vs. No ALC AOR [95% CI]	NON-FAC vs. FAC AOR [95% CI]
Adjusting for demographics			
Short proximal: Contemplate	0.76 [0.33, 1.77], <i>p</i> = .53	1.63 [0.96, 2.77], <i>p</i> = .07	2.14 [0.86, 5.33], <i>p</i> = .10
Short proximal: Decision	0.67 [0.26, 1.70], <i>p</i> = .40	2.58 [1.04, 6.41], <i>p</i> = .04	3.85 [1.16, 12.82], <i>p</i> = .03
Short proximal: Planning	0.58 [0.26, 1.32], <i>p</i> = .19	1.42 [0.77, 2.64], <i>p</i> = .26	2.45 [0.97, 6.22], <i>p</i> = .06
Suicide intent	1.27 [0.53, 3.04], <i>p</i> = .59	0.58 [0.34, 0.99], <i>p</i> = .04	0.46 [0.18, 1.18], <i>p</i> = .10
Adjusting for demographics and clinical correlates			
Impulsive SA: Contemplation	1.08 [0.37, 3.12], <i>p</i> = .89	1.90 [0.94, 3.85], <i>p</i> = .07	1.76 [0.64, 4.92], <i>p</i> = .28
Impulsive SA: Decision	0.50 [0.15, 1.69], <i>p</i> = .27	2.24 [0.78, 6.49], <i>p</i> = .14	4.46 [1.23, 16.16], <i>p</i> = .03
Impulsive SA: Planning	0.62 [0.22, 1.72], <i>p</i> = .36	1.41 [0.65, 3.07], <i>p</i> = .39	2.28 [0.86, 6.05], <i>p</i> = .10
Suicide intent	1.06 [0.38, 2.97], <i>p</i> = .91	0.52 [0.27, 1.01], <i>p</i> = .05	0.49 [0.18, 1.34], <i>p</i> = .16

Notes: *n* = 324. FAC = facilitative use of alcohol within 24 hours of attempt (*n* = 29); No Alc = no alcohol use within 24 hours of suicide attempt (*n* = 217); NON-FAC = nonfacilitative use of alcohol within 24 hours of attempt (*n* = 78); CI = confidence interval; SA = suicide attempt. All ORs are adjusted for demographics (top half) and demographics and clinical correlates (bottom half), and one variable within the "current attempt characteristics category" simultaneously. **Bold** values represent *p* ≤ .10.

range of deleterious effects of acute alcohol use on cognition and emotion potentially promoting stress reactive behavior including attempted suicide (Hufford, 2001). In support of this idea, a recent investigation (Bagge et al., 2014) demonstrated that drinking is associated with subsequent-hour intensification of suicidal ideation in the 24 hours before a suicide attempt. Ultimately, a single mechanism seems less likely than intersecting mechanistic factors; for example, acute alcohol use may promote interpersonal disruptions and other stressful events while drinking and may increase potential for suicidal behavior in reaction to these events, mediated by alcohol-related changes in cognition and emotion. Along with having shorter proximal premeditation, the NON-FAC group also showed lower suicide intent compared with the other study groups. This result is consistent with data that (greater) state impulsivity and (lower) intent of suicidal behaviors are correlated and aligns with the idea that individuals who have short proximal suicide premeditation are apt to form intent hurriedly and with lower conviction (Conner, 2004).

Models including the simultaneous adjustment of demographics and clinical correlates (i.e., history of suicide attempt, depression, and problematic substance use) resulted in the same general pattern of results obtained from models adjusting for demographics only. When analyses also adjusted for clinical correlates, the association between short proximal decision to act and NON-FAC (vs. No ALC) resulted in a significance level above our predetermined level of significance (i.e., $p \leq .10$). Sensitivity analyses were conducted to determine which combination of clinical correlates resulted in an increased significance level for short proximal decision, and results indicated that it was the simultaneous inclusion of both depression and problematic alcohol use into the model. Further, the effects of short proximal contemplation and suicide intent on NON-FAC (vs. FAC) also fell above $p \leq .10$ once clinical correlates were added to models. Sensitivity analyses reveal that the inclusion of history of attempt, alcohol problems, or other drug problems, singularly, resulted in increased significance levels for both variables. Further research is needed with larger samples, and thus increased statistical power, to determine the magnitude and the statistical significance of these adjusted relations between drinking groups.

Unlike the NON-FAC group, the suicide attempts of the FAC group did not differ in proximal premeditation or overall intent to die from the No ALC group, regardless of adjustment by demographics and/or clinical correlates. These results seem straightforward, because FAC drinkers in the current study used alcohol to increase motivation to make an attempt, overcome relevant fear, and/or lower anticipated pain associated with the attempt. As a result, they formulated the idea to attempt suicide before drinking bouts, suggesting longer proximal suicide premeditation, and their use of alcohol to follow through with the act is indicative of intent.

Our finding that the FAC group did not differ on short proximal premeditation (i.e., suicide contemplation) from the No ALC group is different from those of Spokas et al. (2012), who found that FAC were less likely to have short proximal contemplation than No ALC. Potential differences in drinking motives methodology may contribute to this discrepancy, and future studies should consider including both scales in subsequent reports on this topic.

In terms of associations with any acute alcohol use (drinking regardless of motive) and proximal suicide premeditation and intent, previous research is mixed. Some studies show no differences between recent attempters with and without acute alcohol use (Lejoyeux et al., 2008; Nielsen et al., 1993; Power et al., 1985; Simon et al., 2001), and other studies show that attempters with acute alcohol use have shorter proximal suicide premeditation before the suicide act compared to those without acute alcohol use (Beck et al., 1976; Merrill et al., 1992; Suokas & Lönnqvist, 1995). Thus, in secondary analyses (not shown), we created a group, any acute alcohol use (drinking regardless of motive), to compare with No ALC, in order to relate our findings to the existing body of literature. No group differences emerged between those with and without any acute alcohol use on short proximal premeditation (contemplation: OR = 1.29, 95% CI [0.81, 2.06], $p = .29$; decision: OR = 1.53, 95% CI [0.78, 3.02], $p = .22$; planning: OR = 1.03, 95% CI [0.61, 1.72], $p = .92$) and intent (OR = 0.74, 95% CI [0.46, 1.19], $p = .22$) of the suicide attempt.

Given that the NON-FAC group comprises the majority of those who drink before the attempt, it is not surprising that some investigations find that acute alcohol use is globally associated with attempts with shorter proximal premeditation and less intent. Our results—which incorporate acute drinking motivations—shed light on the mixed state of the any acute alcohol-use–suicide attempt literature and demonstrate that clinically important associations between acute alcohol use and current attempt characteristics are likely to be masked if drinking motives are ignored.

It is essential to highlight the practical implications of a divergent pattern of findings pertaining to FAC versus No ALC and Non-FAC versus No ALC comparisons on clinical attempt characteristics. Specifically, there is a clinical assumption that those who drink before a suicide attempt have attempts that involve less premeditation and lower intent to die compared with those who do not drink any alcohol before the attempt. However, our results show that there is a significant subgroup of individuals who drink before a suicide attempt to facilitate their attempt that do not show lower proximal premeditation or intent and, indeed, seem no different from non-alcohol-involved attempts on these characteristics. The results make it clear that individuals who drink before a suicide attempt cannot be assumed to have low premeditation and intent, and underscore the importance of determining the motive for alcohol use as a

potential aid in these determinations. This guidance is also bolstered by evidence showing that the presence of acute alcohol use before a suicide attempt contributes to less intensive psychiatric treatment and referral by hospital providers (e.g., Suokas & Lönnqvist, 1995; Suominen & Lönnqvist, 2006).

Providers should consider asking recent suicide attempters about their motivation for drinking before their attempt, and using individualized acute treatment strategies, such as chain analysis, to determine the sequence of events (e.g., interpersonal stressor), thoughts (e.g., suicide premeditation and drinking motivations), and behaviors (e.g., drinking) that led up to the suicidal act (Linehan, 1993). Such techniques may provide patients with important information about high-risk periods for intentional self-injury. For instance, chain analysis may reveal that active drinking could be an especially risky period for the NON-FAC group, whereas additional periods could be identified and targeted that preceded drinking, especially for the FAC group. The short period of proximal premeditation before suicide attempts that occur during nonfacilitative drinking bouts creates a challenge to clinical strategies that rely on proximal risk recognition of suicide premeditation/intent (i.e., as warning signs) because such attempts tend to proceed rapidly, suggesting the importance of alternative clinical approaches such as removal of access to preferred means of suicidal behavior. Unfortunately, chain analysis may be too complex or time consuming to implement routinely in emergency settings, yet the simple three-item scale of facilitative motivations for drinking analyzed in this study, with further study and validation, may be able to be implemented and could represent an important, incremental step forward.

There were limitations of the study. The sample consisted of suicide attempters admitted to a university medical center in the southeastern United States, with unclear generalizability to other populations. Generalizability of the current results to suicide deaths is also unclear. The controlled analyses were limited by low statistical power to detect effects due to the small sample sizes of the NON-FAC and FAC groups, particularly comparisons between the two drinking groups (NON-FAC $n = 78$ vs. FAC $n = 29$). The measure of drinking to facilitate suicide attempts used in this report is novel and requires further study. Data are based on retrospective reports that are vulnerable to biases and gaps in recall. Tempering this concern, TLFB methodology provided continuous hourly snapshots before the suicide attempt and was administered shortly after the attempt occurred. Moreover, there are not good alternatives to retrospective methodology, and the low incidence rate of suicidal behavior in most populations may make it impractical to study experiences immediately before suicidal behavior using intensive prospective study designs, such as experience sampling, because most participants will not make an attempt during the observation period.

Conclusions

This study breaks new ground by demonstrating that the motives for drinking before attempted suicide are a key source of heterogeneity and by suggesting that there is a different pattern of associations between acute alcohol use and proximal suicide premeditation and intent depending on the presence of a facilitative drinking motive. Drinking that is not for the purpose of facilitating the attempt is generally associated with shorter, proximally premeditated acts of low suicide intent; drinking that is motivated by the desire to follow through with the act is typified by longer proximal suicide premeditation and greater levels of intent that are similar to attempts that do not involve drinking.

Our results highlight the clinical value of considering drinking motivations during risk assessments among populations at high risk for future suicide attempts. For instance, in working with an individual in an emergency department setting who made a suicide attempt while intoxicated, the determination that a drinking bout was “facilitative” of the attempt may give a provider pause before discharging the patient to home after the patient’s blood alcohol level drops. The desire to make the attempt likely preceded the drinking and, therefore, is not a consequence of it, and may still be in evidence while sober. In all likelihood, explicating the motives for drinking immediately before suicidal behavior cannot be accomplished realistically in studies of suicide deaths, yet detailed studies of suicide attempts can move the field forward. Needed are hypothesis-driven studies that replicate and extend the current results with the use of larger samples and that analyze potential changes in drinking motives across the continuum of alcohol-related severity.

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