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Emergency Department patients with suicide risk: Differences in care by acute alcohol use☆,☆☆

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ABSTRACT

Objective: To compare Emergency Department (ED) care of suicidal patients with and without documented acute alcohol use.
Methods: Retrospective chart review of randomly sampled patient visits (n = 800; January 2014 to December 2015) at an urban ED with universal screening for suicide risk. Eligible visits were by adults (18+ years) who screened positive for suicide risk at the ED visit (i.e., suicidal ideation in past two weeks or suicide attempt in past six months). Analyses compared those with and without documentation of acute alcohol use.
Results: Among these patients with suicide risk, 19% had documented acute alcohol use (versus 43% with no use and 38% without documentation); individuals with acute alcohol use were more often male and aged 35–59 years. Overall, 62% were evaluated by a mental health professional in the ED. Individuals with acute alcohol use were significantly less likely (vs those without use) to be evaluated by a mental health professional in the ED (odds ratio 0.49, 95%CI 0.28–0.87) after adjustment for age, recent suicide ideation, current suicide plan, self-harm as a chief complaint, contact with family, and ED disposition.
Conclusions: Although alcohol use can increase suicide risk, ED patients with acute use appear to receive less thorough suicide risk assessments.

1. Introduction

Suicide is the tenth leading cause of death within the United States (US), with over 44,000 suicide deaths per year [1]. Those in acute crisis—with suicide ideation (SI) or self-harm behavior—often seek help at or are referred to an ED. [2] In fact, ED visits for attempted suicide and self-inflicted injury have more than doubled over recent decades, from 244,000 (1993–96) to 538,000 (2005–08) [3]. Thus accurate identification and appropriate care of suicidal patients in healthcare settings like EDs have become increasingly important.

Patients with substance use disorders—including alcohol misuse or abuse [4]—have a significantly elevated risk of suicidal thoughts, attempts, and deaths [5,6]. Those with alcohol abuse disorders have a 4.8 to 6.5 times greater risk of a lifetime suicide attempt (SA) compared to those without any substance use disorder [7]. Alcohol abuse can trigger suicidal behavior through physiologic effects as a central nervous system depressant, through its strong relationship with depression, and through association with psychosocial stressors (e.g., relationship deteriorations, work and financial problems) [8]. Acute alcohol intoxication can increase impulsive behaviors, feelings of sadness, aggression, and suicidal thoughts while simultaneously weakening prudent judgement, barriers to self-harm, and the ability to find

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alternate solutions to current problems [5,8].

The ED provides a window of opportunity to intervene with individuals at high-risk of suicide due to alcohol use and abuse, but care of these patients can be difficult. Alcohol intoxication can complicate an ED provider's assessment for suicide risk by impairing the patient's judgement and responses to questioning (e.g., patients who express suicidal thoughts while intoxicated but then deny them when sober). Typically, in the US, an ED patient who appears intoxicated and reports suicidal thoughts or behaviors will be observed until sober enough for a reassessment [9]. At that time, patients still expressing suicidal thoughts or behaviors ideally would undergo a more comprehensive risk assessment with a mental health consultant or the ED provider [2,9]. In a qualitative study of ED providers, alcohol or drug use was seen to complicate suicide risk assessment by adversely affecting patients' ability to participate and engage with the provider [10].

Whereas prior studies demonstrate the connection between alcohol use or misuse to self-harm ideation and behaviors [6], few have quantitatively examined the topic in ED settings in the US. Anecdotally, ED providers report that intoxicated suicidal patients are often observed until sober and then, recanting suicidal thoughts, are discharged home without a full evaluation, but formal data are sparse. Therefore, we sought to compare the assessment of suicidal patients with and without acute alcohol use. Our hypothesis was that patients with active suicide risk who also had acute alcohol use (positive alcohol tests or apparent intoxication)—even though observed in the ED until sober—would be less likely than those without acute alcohol use to receive a more comprehensive evaluation by a mental health professional in the ED.

2. Methods

2.1. Design & sample

We performed a chart review study of electronic medical records at a single urban ED that had universal screening for suicide risk. The ED's screening tool, administered by the primary nurse, assessed depressive symptoms, SI in the past 2 weeks, and prior SA. A positive screen was defined as SI in the past 2 weeks or SA within six months. The study ED had mental health providers available 24/7, although the ED physician must request the consultation and the evaluation couldn't occur until the patient appeared sober.

We selected a random sample of charts from adult (≥18 years) ED patients with a positive suicide screen (January 2014 to December 2015). We reviewed charts in three a priori age groups (18–34 years, n = 300; 35–59 years, n = 300; and ≥60 years, n = 200) because the overarching study examined age-related differences in care [11]. Research staff abstracted Epic electronic medical record data using standardized forms, with direct entry into an online database [12]. The XXX Institution Review Board approved this study.

2.2. Measures

Variables included demographic, medical, and ED visit characteristics. Medical characteristics included ED visits in past 6 months, lifetime SA, and severity of prior attempt. ED visit characteristics included current suicide plan, current SI, evaluation by a mental health professional, ED disposition, and family or friends present or contacted during visit.

For blood or breathalyzer alcohol tests, we coded any value greater than zero as “positive blood alcohol concentration (BAC+)” [13]. Example of notes provider used to identify intoxication within the free-text review included the provider specifically noting that the patient reported drinking alcohol before the ED visit, appeared intoxicated, had slurred speech, or smelled of alcohol. For analysis, our primary exposure of interest was “acute alcohol use,” which we defined as “yes (BAC+/intoxicated),” “no (BAC-/not intoxicated),” or “not documented” based on combined laboratory BAC values and free-text provider notes. Our primary outcome of interest was whether the patient was individually evaluated by a mental health professional in the ED. Consultation with a mental health provider was determined by review of all provider notes and orders from the ED visit.

2.3. Data analysis

All analyses were conducted using SAS University edition software (SAS, Cary, NC). We first examined the frequency of the key exposure variable (acute alcohol use) in relation to other potential confounding demographic and medical variables. For this, we used descriptive analyses with percentages (with 95% confidence intervals [CI]) or medians (with interquartile ranges [IQR]), as appropriate. Chi-square tests were used to test for statistical significance.

Next we used logistic regression backwards modeling to examine the association between acute alcohol use (key exposure/predictor) and mental health consultation (outcome), including adjustment for other potential confounding variables. To account for a priori differences, age and disposition were included in the multivariate model regardless of statistical significance in the initial unadjusted testing, as patients being transferred to a psychiatric facility are required to be seen by a mental health provider at the ED in this study. In addition to age and disposition, the final multivariable logistic regression model included variables with a significant ($P < 0.05$) unadjusted association with receipt of a mental health evaluation at the current ED visit. All odds ratios (ORs) were reported with 95% CIs. A two-tailed $P < 0.05$ was considered statistically significant. Reporting follows STROBE guidelines [14].

3. Results

3.1. Patient characteristics

Of these 800 ED visits by adults with a positive suicide screen, most patients were Non-Hispanic Whites (59%) and English-speaking (93%); half (51%) were women. One in five (19%, n = 149) had documentation indicating acute alcohol use (BAC+ or intoxicated), 43% (n = 346) had documentation indicating they had no acute alcohol use, and 38% (n = 305) had no documentation about intoxication status.

Table 1 displays the characteristics of demographic and medical variables in relation to our key exposure variable (acute alcohol use). Individuals who screened positive for suicide and acute alcohol use were more often males and aged 34–59 years (Table 1). Alcohol-using suicidal individuals were more likely to be divorced or legally separated (30%) as compared to the non-alcohol-using, suicidal individuals (17%) or those in the not documented group (23%; omnibus P = 0.01). Individuals without a recorded acute alcohol use were more likely to have no prior SAs as compared to those who did or did not have acute alcohol use, respectively ($P < 0.01$).

3.2. Emergency Department care

Patients with acute alcohol use, as compared to those without, were more likely to be discharged home (69% versus 60%, $P < 0.01$) and less likely to be admitted to a psychiatric ward or facility (13% versus 28%, $P < 0.01$). When compared to the not documented group, patients with acute alcohol use were less likely to be discharged home (69% versus 77%, $P < 0.01$) and more likely to be admitted to a psychiatric facility (13% versus 6%, $P < 0.01$).

3.3. Treatment and resources received

Of the 800 ED visits by patients with a positive suicide risk screen, 62% (n = 494) had a full evaluation by a mental health professional in the ED, and 380 (48%) received mental health resources such as contact information for outpatient clinics (Table 1). Individuals without

Table 1
Patient and ED characteristics, by acute alcohol use (n = 800).

		Acute alcohol use (n = 149) n (%)	No acute alcohol use (n = 346) n (%)	Not documented (n = 305) n (%)	P-value[a]
Demographics					
Age group (years)					< 0.001
	18–34[c]	41 (27.5)	165 (47.7)	94 (30.8)	
	35–59[a]	74 (49.7)	119 (34.4)	107 (35.1)	
	60 + [c]	34 (22.8)	62 (17.9)	104 (34.1)	
Sex					< 0.01
	Male[b]	92 (61.7)	162 (46.8)	136 (44.6)	
	Female[b]	57 (38.3)	184 (53.2)	169 (55.4)	
Race/ethnicity					0.91
	Non-Hispanic white	89 (61.4)	208 (62.7)	174 (60.6)	
	Non-Hispanic black	30 (20.7)	66 (19.9)	66 (23.0)	
	Hispanic	26 (17.9)	58 (17.47)	47 (13.4)	
Primary language is English		137 (92.0)	329 (95.1)	275 (90.2)	0.17
Marital status					0.01
	Married/significant other[a]	24 (16.1)	89 (25.7)	89 (29.2)	
	Single	80 (53.7)	198 (57.2)	144 (47.2)	
	Divorced/legally separated/widowed[b]	45 (30.2)	57 (16.5)	70 (23.0)	
Tobacco use					< 0.001
	Current[c]	105 (70.5)	175 (50.6)	123 (40.3)	
	Prior/never[c]	44 (29.5)	171 (49.4)	182 (59.7)	
Intentional illegal or prescription drug misuse					< 0.001
	No	82 (55.0)	197 (57.1)	186 (61.2)	
	Yes[c]	63 (42.3)	142 (41.2)	79 (26.0)	
	Not documented[c]	4 (2.7)	6 (1.7)	39 (12.8)	
Positive urine toxicology screen					< 0.001
	Yes[a]	112 (75.2)	159 (46.0)	24 (7.9)	
	No[a]	8 (5.4)	163 (47.1)	15 (4.9)	
	Not documented/not done[a]	29 (19.5)	24 (6.9)	266 (87.2)	
Residence					< 0.001
	Private home[b]	72 (48.3)	166 (48.1)	97 (32.1)	
	Homeless[a]	28 (18.8)	64 (18.6)	24 (8.0)	
	Nursing home/assisted living facility	3 (2.0)	13 (3.8)	8 (2.7)	
	Not documented[c]	46 (30.9)	102 (29.6)	173 (57.3)	
ED visits in past 6 months (N, SD)		2.09 (3.04)	2.44 (4.80)	2.07 (4.01)	
Mental health					
Suicidal ideation in past 2 weeks		146 (98.0)	327 (94.5)	270 (88.5)	< 0.01
Plan to hurt or kill self					< 0.001
	Yes[c]	86 (58.1)	191 (55.4)	67 (22.0)	
	No[c]	53 (35.8)	130 (37.7)	199 (65.5)	
	Not answered[a]	9 (6.1)	24 (7.0)	38 (12.5)	
Lifetime suicide attempt					< 0.001
	No[c]	48 (32.2)	115 (33.2)	160 (52.5)	< 0.01
	Yes[b]	88 (59.1)	212 (61.3)	126 (41.3)	< 0.01
Self-harm behavior in chief complaint		73 (49.0)	145 (41.9)	47 (15.4)	< 0.01
ED visit for suicide attempt					< 0.001
	No[c]	86 (57.7)	225 (65.0)	272 (89.2)	
	Yes, attempt in past week, but not the reason for ED visit	6 (4.0)	18 (5.2)	5 (1.6)	
	Yes, reason for visit				
	No physical damage[c]	49 (32.9)	89 (25.7)	23 (7.5)	
	Minor to moderately severe damage	8 (5.4)	14 (4.1)	5 (1.6)	
ED visit					
Weekend ED arrival day		109 (73.2)	266 (76.9)	221 (72.5)	0.40
High ESI (triage) priority		136 (91.9)	327 (94.8)	272 (89.2)	0.09
Altered mental status		134 (89.9)	66 (19.1)	37 (12.1)	< 0.01
ED length of stay (mean hours, SD)		16.5 (17.6)	18.7 (24.2)	9.0 (17.3)	< 0.01
ED disposition					< 0.001
	Home[a]	102 (68.5)	208 (60.1)	235 (77.1)	
	Admitted to medical ward/observation/ICU[a]	8 (5.4)	8 (2.3)	22 (7.2)	
	Admitted/transferred to psychiatric ward/facility[c]	19 (12.8)	96 (27.8)	17 (5.6)	
	Admitted/transferred to substance abuse facility[b]	12 (8.1)	8 (2.3)	7 (2.3)	
	Other	8 (5.4)	26 (7.5)	24 (7.9)	
Evaluated by mental health professional		105 (70.5)	292 (84.4)	97 (31.8)	< 0.01
Referral resources given		94 (63.1)	194 (56.1)	92 (30.3)	< 0.01
Contact made with family or friend					< 0.01
	Yes, present in ED[a]	30 (20.1)	112 (32.5)	70 (23.0)	
	Contacted by telephone	16 (10.7)	27 (7.8)	17 (5.6)	
	No contact	55 (36.9)	106 (30.7)	88 (28.9)	
	Not documented[a]	48 (32.2)	100 (29.0)	130 (42.6)	

(*continued on next page*)

Table 1 (*continued*)

		Acute alcohol use (n = 149) n (%)	No acute alcohol use (n = 346) n (%)	Not documented (n = 305) n (%)	P-value*
Outpatient appointment made					< 0.001
	No	139 (93.3)	297 (85.8)	286 (93.8)	
	Yes[c]	7 (4.7)	35 (10.1)	6 (2.0)	

Legend: figures may not add to total or 100% (missing/not documented not shown if < 5%).
* Omnibus P value for chi-square comparison across columns and multiple rows.
[a] P < 0.05.
[b] P < 0.01.
[c] P < 0.001 for chi-square tests across columns and single row.

documented acute alcohol use status had lower rates of being evaluated by a mental health professional and receiving resources, as compared to those with documented (either positive or negative) acute alcohol use. Compared to the patients with documentation of no acute alcohol use, patients with acute alcohol use were less likely to be seen by a mental health professional (71% versus 84%, P < 0.01), but were more likely to receive mental health resources within the ED (63% versus 56%, P < 0.01).

Table 2 displays associations between our primary outcome (mental health consultation) and factors including our key exposure variable (acute alcohol use). In unadjusted logistic regression, patients with acute alcohol use were less likely to receive a mental health evaluation compared to individuals without acute alcohol use (OR 0.44, 95%CI 0.28–0.70, Table 2). Collapsed across alcohol use status, younger adults (aged 18–34) were significantly more likely to receive a mental health evaluation compared to middle aged adults within the ED (OR 1.77, 95%CI 1.25–2.49); older adults (aged 60+) were significantly less likely to receive a mental health evaluation compared to middle aged adults (OR 0.53, 95%CI 0.37–0.76; Table 2). Individuals with a suicide ideation in the past two weeks or a current suicide plan were significantly more likely to receive a mental health evaluation within the ED (OR 7.19, 95%CI 3.65–14.16; OR 5.71, 95%CI 4.05–8.07, respectively; Table 2). Similarly, individuals with self-harm noted in the chief complaint were more likely to receive a mental health evaluation in the ED (OR 7.06, 95%CI 4.74–10.51; Table 2) compared to those without noted self-harm. Compared to those with contact with family in the ED, those who did not have family contact made (OR 0.45, 95%CI 0.30–0.68) or not documented (OR 0.20, 95%CI 0.13–0.30) were less likely to have a mental health evaluation; conversely, those who had a follow-up outpatient appointment made for them (OR 7.17, 95%CI 2.55–20.14, versus no appointment made) were more likely to have had a mental health evaluation (Table 2).

In multivariable logistic regression, patients with acute alcohol use were significantly less likely to receive a mental health evaluation within the ED (odds ratio 0.49, 95%CI 0.28–0.87) compared to the patients without acute alcohol use, after adjusting for age, disposition, current suicide ideation or plan, having self-harm in the chief complaint, and family contact.

4. Discussion

In this review of ED care among a large sample of suicidal patients in the US, there were notable discrepancies in care between patients with and without acute alcohol use. Current ED best practice recommendations are that every individual who screens positive for suicide risk be evaluated by a mental health provider [2]. Yet in our study, overall only 62% of individuals who screened positive for suicide risk during the ED visit had such an evaluation—and suicidal patients with a positive alcohol test or who appeared intoxicated were significantly less likely to receive a mental health evaluation within the ED as compared to suicidal individuals with negative alcohol tests and no sign of intoxication.

Our study is the first large examination of the impact of acute alcohol use on ED care of suicidal patients in the United States, although prior international studies exist. In an examination of patients seen for deliberate self-harm at an ED in England, patients with “difficult behavior” (including intoxication) were less likely to have a mental health evaluation; interestingly, the documented prevalence of intoxication was only 8.8% in that sample [15]. In a subsequent study at 32 EDs in England, 57% of patients discharged themselves (i.e., left before care completed); patients who discharged themselves were less likely to have a mental health evaluation and more likely to have used drugs or alcohol. Interestingly, among patients discharged by staff (not by themselves), alcohol or drug use was not associated with receiving a mental health evaluation [16]. In another large English study, alcohol use was also not significantly associated with identification of patients with self-harm as high risk for suicide [17]. Other international work includes examining associations between alcohol and self-harm injuries (in Taiwan [18]) or agitation in the ED (in Turkey [19]).

Prior work has shown that alcohol intoxication and abuse are associated with an increased risk of suicide [5,6]. Review of completed suicides in 17 US states showed that 28% of women and 36% of men who died by suicide had alcohol in their system at the time of death [13,20]. Other work also supports the hypothesis that alcohol intoxication increases the risk of suicide attempt, especially when it is combined with use of other central nervous system depressants (i.e., opioids or sedatives/anxiolytics) [21]. Chronic alcohol abuse also raises the risk of suicide. In a study of patients seen at an ED after an attempt, 43% of the patients had an alcohol use disorder; these were more likely to be male and have had prior SAs, compared to those without alcohol use disorders [22]. Another study showed that those who died by suicide were 2 to 4 times more likely to have consumed alcohol prior to death as compared to the general population [13]. Our study cannot parse out information on acute versus chronic alcohol use and the risk of suicide – but overall, combined prior research findings highlight the need for clinicians to identify and have elevated concern for patients with concomitant suicide risk and alcohol use or abuse.

Indeed, as alcohol misuse is a significant risk factor for suicide [6], intoxicated patients need to receive the same—if not more—care than their non-intoxicated counterparts. Bringing awareness of this issue to ED providers through training will be important to improve care. But there are also system changes that are necessary to address the issue adequately. These include standardized definitions of “clinical sobriety” (when a patient can be evaluated for suicide risk) [23], more inpatient psychiatric units that also address substance abuse, and increasing availability of mental health providers in EDs [24]. While this study's ED had mental health professionals available 24/7 that is not always the case, and in smaller or rural hospitals, patients may have a long wait time to see a mental health professional. Future work in EDs without embedded mental health professionals will be critical to understand the scope of care of intoxicated patients with suicide risk.

In our study, factors associated with an increased likelihood of being seen by a mental health provider included documented provider contact with a family member or friend. It is important to note that the

Table 2
Factors associated with having a mental health consultation in the ED, among patients discharged home (n = 800).

Variable		Unadjusted odds ratio	95% CI	Adjusted OR	95% CI
Acute alcohol use	No	1.0 (Ref)	–	1.0 (Ref)	–
	Not documented	0.08	0.06–0.12	0.16	0.10–0.26
	Yes	0.44	0.28–0.70	0.49	0.28–0.87
Age group (years)	18–34	1.77	1.25–2.49	1.58	0.97–2.57
	35–59	1.0 (Ref)	–	1.0 (Ref)	–
	60+	0.53	0.37–0.76	0.64	0.38–1.08
Female sex		0.95	0.71–1.26		
Race/ethnicity	Non-Hispanic white	1.0 (Ref)	–		
	Non-Hispanic black	0.91	0.64–1.32		
	Hispanic	1.18	0.79–1.77		
	Other	1.07	0.52–2.22		
Primary language other than English		0.70	0.41–1.19		
Marital status	Married/significant other	1.0 (Ref)	–		
	Single	1.50	1.06–2.10		
	Divorced/legally separated/widowed	1.14	0.76–1.72		
	Not documented	2.34	0.24–22.63		
Prior/never tobacco use		1.35	1.02–1.80		
Intentional illegal or prescription drug use	No	1.0 (Ref)	–		
	Yes	1.53	1.12–2.09		
	Not documented	0.66	0.36–1.18		
Positive urine toxicology screen	No	1.0 (Ref)	–		
	Yes	0.70	0.40–1.20		
	Not documented	0.05	0.03–0.08		
Residence	Private home	1.0 (Ref)	–		
	Homeless	1.10	0.64–1.89		
	Nursing home/assisted living	0.34	0.14–0.79		
	Not documented	0.14	0.10–0.19		
Mental health					
Suicidal ideation in past 2 weeks		7.19	3.65–14.16	2.30	1.04–5.09
Plan to hurt or kill self	No	1.0 (Ref)	–	1.0 (Ref)	–
	Yes	5.71	4.05–8.07	3.05	1.91–4.88
	Not answered	0.92	0.55–1.52	1.09	0.56–2.14
Lifetime suicide attempt	No	1.0 (Ref)	–		
	Yes	2.67	1.98–3.62		
	Not documented	1.14	0.47–2.74		
Self-harm behavior in chief complaint		7.06	4.74–10.51	4.00	2.40–6.67
ED visit for suicide attempt	No	1.0 (Ref)	–		
	Attempt in past week, but not the reason for ED visit	2.80	1.18–6.63		
	Yes, no physical damage	7.65	4.52–12.96		
	Yes, minor to moderately-severe damage	3.96	1.48–10.56		
ED visit					
ED arrival on weekend		0.95	0.69–1.32		
ED disposition	Home	1.0 (Ref)	–	1.0 (Ref)	–
	Admitted to medical ward/observation/ICU	0.29	0.14–0.59	0.33	0.12–0.92
	Admitted/transferred to psychiatric ward/facility	16.50	7.14–38.16	9.15	3.06–27.31
	Admitted/transferred to substance abuse facility	1.54	0.68–3.47	0.92	0.32–2.65
	Other	1.12	0.65–1.93	1.10	0.52–2.30
High ESI priority		1.68	0.96–2.95		
Altered mental status		1.56	1.13–2.15		
Referral resources given		7.87	5.58–11.10		
Contact made with family or friend	Yes, present in ED	1.0 (Ref)	–	1.0 (Ref)	–
	Contacted by telephone	1.54	0.71–3.38	2.64	0.91–7.71
	No contact	0.45	0.30–0.68	0.41	0.23–0.72
	Not documented	0.20	0.13–0.30	0.22	0.13–0.39
Outpatient appointment made	No	1.0 (Ref)	–		
	Yes	7.17	2.55–20.14		
	Not documented	0.53	0.25–1.11		

Legend. NC: not calculable as sample size was too small within that subgroup.

contact of family or friends may have been done by the mental health provider—leading to the observed association. Thus, being alone in the ED may not in itself be a marker of suicide risk, although isolation is related to suicide risk and is a key component of Joiner's Interpersonal Theory of Suicide [25]. ED guidelines recommend that a suicide risk assessment include contacting a patient's family or friends for "collateral" confirmation and safety planning [2,9]. In practice, this may be difficult in busy EDs without access to mental health providers to help with phone calls, or with patients who do not have reachable contacts [24].

Another interesting finding was that individuals without any documentation about acute alcohol use had baseline differences from those documented to have (or not have) acute alcohol use, which is why we analyzed them as a third, distinct category. At this ED, like at many others [9], alcohol testing is required only for psychiatric admission and is otherwise only done at the discretion of the treating physician [23]. Reasons to document intoxication or check alcohol levels include justification of the need for observation (until sobriety), explanation of the patient's mental status or the physician's inability to obtain a complete history, or simply, documentation of a thorough physical exam (e.g., "appears intoxicated") [9]. Conversely, documentation of sobriety could support a decision to let a patient leave the ED (via

discharge or leaving “against medical advice”) or demonstrate the ability of the patient to think clearly. Based on clinical experience, we would have suspected that lack of intoxication documentation would suggest sobriety (i.e. hypothesizing that physicians are more likely to document intoxication versus its absence), yet we found that those without documentation were different from the other groups. Future research in samples with universal testing or documentation – either research cohorts or EDs with universal practices – will be important to expand knowledge in this important yet understudied area.

Limitations of the study include a single site of data collection and a high number of patients with undocumented alcohol use status. There was no standard ED protocol or location in the chart for documenting alcohol use or apparent intoxication, which may be why there were many patients missing the variable. Another limitation is that we categorized any blood alcohol or breathalyzer value over zero as “BAC+,” but some of these patients may have appeared sober at the time. Previous studies have similarly defined any level of alcohol in the blood as positive [13]. We also recognize that patients described as intoxicated by providers, but who did not have laboratory testing, may have been impaired by substances other than alcohol. Another limitation is that this study was secondary analysis of a project using existing medical record data, so some variables of interest were not abstracted from nor consistently recorded in the medical records. We did not have complete data on prior suicide attempts or methods used; future work should examine the relationship between acute alcohol use and choice of method, as well as how knowledge of a patient's recent attempt (and methods) might affect clinician decision-making. It was also a cross-sectional analysis, so we are unable to assess longitudinal outcomes, including whether suicide screening in patients with alcohol use reduces subsequent suicide risk. Focused future work examining alcohol use will be important; this should include attention to temporal concerns (i.e., in whom, when and how often during an ED visit intoxication is assessed) and potential effect modifiers (e.g., drug intoxication) that might affect the association between alcohol intoxication and receiving a mental health evaluation. Finally, the individuals within this study were selected based on a positive suicide risk screen at an ED visit; therefore, they could have been in the study numerous times, but each of these ED visits would have included different combinations of ED providers and acute alcohol use status.

5. Conclusion

ED patients with suicide risk appear to receive a less thorough mental health evaluation if they have signs of acute alcohol use, as compared to those who are sober. Further research is needed to determine the best practices and reasons patients with alcohol use are not receiving the same level of care as their non-intoxicated counterparts. Areas to explore include fluctuating risk and physician perception of intoxicated, suicidal patients. Beyond research, training and system changes may be needed to enhance best practices for these complex patients.

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