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Addiction and suicidal behavior in acute psychiatric inpatients

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Abstract

Objective: This study aims to evaluate the relationship of alcohol/drug use and effect severities to the degree of suicidality in acutely admitted psychiatric patients. Both degree of substance dependency and degree of substance-induced syndrome were analyzed. In addition, length of stay, involuntary status, and against medical advice discharge status were determined as they related to these variables.
Methods: Structured clinical admissions and discharge ratings were gathered from 10 667 consecutive, single-case individual records, from an urban acute care county psychiatric hospital.
Results: Data indicate that of the most severely suicidal group, 56% had substance abuse or dependence, 40% were rated as having half or more of their admission syndrome substance induced, and most had nonpsychotic diagnoses. There was an inverse relationship between degree of substance problem and length of stay. Although these patients more commonly left against medical advice, and were readmitted more frequently, they were less likely to be involuntarily committed.
Conclusions: A large, potentially lethal, and highly expensive subgroup of patients has been characterized, which might be called the "New Revolving Door acute psychiatric inpatient." This group, which uses the most expensive level of care in the mental health system but is substantially addiction related, poses special challenges for inpatient psychiatric units, addiction treatment providers, and health care planners.
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1. Introduction

Research shows that more than half of acute psychiatric admissions for suicidal issues involve alcohol or drugs [1,2]. Acutely suicidal patients have traditionally been admitted to psychiatric units, whatever the suicidal etiology with the assumption that suicidal conditions are primarily "mental health," not "addictions," territory. However, is the assumption that suicide is mental health, not addictions, territory a correct one? Examination of published research might lead to other conclusions. For example, in one large meta-analysis of studies of completed suicide, Inskip found that the lifetime risk of completed suicide from schizophrenia was 4%, from affective disorders 6%, and from addictions disorders 7%. Furthermore, addiction was by far the most prevalent of the 3 diagnoses [3]. Beck et al [4] found that the strongest predictor of actual suicide in the 5 to 10 years after discharge from an acute psychiatric unit was alcoholism vs psychiatric diagnosis or demographic characteristics, as was also found by Cullberg et al [5]. Preuss and colleagues [6] prospectively studied a cohort of more than a thousand young alcoholics who were age, sex, and demographically matched to nonalcoholics. The alcoholics showed a 560% increase in the rate of suicide attempts over 5 years, compared to the nonalcoholic matched controls, with substance factors, not psychiatric diagnoses, being the strongest risk factors. Elliott et al [7] studied patients with near lethal suicide attempts and found that substance-induced mood disorder was a strong predictor. Pages et al [1] found that higher severity of substance disorder was also associated with higher levels of suicidal ideation and suicidal lethality. Wines et al [8] studied suicidal ideation (SI) and suicide attempts in patients admitted to alcohol detoxification, finding that 28.5 % had lifetime SI and 21.9 % had made an attempt. In the 2 years after detoxification, 47% of those with SI continued to have SI, and 24% made an attempt.

Epidemiologic studies from the United States and European countries have found suicide rates increased by 500% to 1000% in persons with alcohol dependence [5] and a significant link between national per capita consumption of alcohol and national suicide rates [9-13]. This association was stronger in northern European countries where there is an intoxication/binge drinking pattern but less in food/drinking-oriented southern European countries. During the 1980s Perestroika, the Soviet Union instituted a national health campaign against heavy drinking. As per capita

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alcohol intake markedly decreased, a similar marked decrease took place in suicide rates [11]. These decreases vanished, and high rates of both returned when this campaign ended under Yeltsin. Analysis showed that only alcohol-related suicides changed during this multiyear period and that the base rate of non–alcohol-related suicide did not change throughout.

Given this background, our goal was to examine how suicide and addiction issues relate in acute and emergent psychiatric patients, with the following specific research questions:

1. How does severity of substance disorder relate to severity of suicidal intent?
2. How does the degree of substance-induced syndrome (SIS) relate to severity of suicidal intent?
3. How do substance disorder severity issues relate to length of stay (LOS) and rates of involuntary commitment, and discharges against medical advice (AMA) in severely suicidal admissions?
4. What are the treatment services implications of the above findings?

2. Methods

2.1. Sample

Data were collected on all patients (N = 17 646) who were acutely admitted to an urban, university-staffed county hospital inpatient psychiatry service (locked and voluntary) between January 1, 1996, and June 30, 2005. To obtain a set of independent observations from this data, for any given individual patient, we used only their most current admission that included at least two thirds of the required study data. This resulted in a data set containing 10 667 unique individuals. Because this study is based on routinely collected medical records data, no individual informed consent was obtained; however, our institutional review board approved the study methodology.

2.2. Assessment

All patients received standardized diagnostic and symptom assessments—the Psychiatric Assessment Form (PAF), which was administered by faculty attending psychiatrists within 24 hours of admission and again on discharge. The PAF included an expanded 23-item version of the Psychiatric Symptom Assessment Scale [14,15] and has been used in published psychiatric health services research [16-18]. Each PAF item is rated on a 0 = none, 1 to 2 = mild, 3 to 4 = moderate, 5 to 6 = severe point scale, with each level of severity containing detailed, behaviorally anchored descriptive benchmarks. There were 2 substance-related items in the PAF battery used in this study, which were patterned after the ratings for psychiatric symptoms: *alcohol and drug problems* (AODP), which rated the degree of problems associated with substance use as categorized by *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, and the *substance-induced syndrome* (SIS), which asked the degree to which the overall acute presenting psychiatric syndrome might be substance induced using methodology previously validated [18].

Four groups were formed from the SIS category: no substance-induced group (rating = 0); mild substance effect group (≤25% of syndrome likely to be caused by substances, rating = 1-2); moderate substance effect (≈50% of the syndrome caused by substance effect, rating = 3-4); severe substance effect (≥75%) admission syndrome caused by substances, rating = 5-6).

Four groups were also formed based on the AODP category: 0 = none; 1 to 2 = minor or infrequent problems such as arguments or moodiness; 3 to 4 = substance abuse leading to major problems but not dependence; and 5 to 6 = dependence with compulsive use, consequences, and loss of control.

Patients were rated as to degree of suicide risk on a scale of 0 to 6: 0 = none; 1 to 2 = mild (thinks about killing self or dying); 3 to 4 = moderate (has urges or plan); and 5 to 6 = severe (hopeless, wants to kill self ASAP, recent attempt or behavior). The rating used to determine the degree of suicidality was done within 24 hours of admission.

2.3. Psychiatric diagnosis

Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, psychiatric diagnoses were determined by attendings at discharge using structured checklists of criteria.

2.4. Statistical analyses and sample

We compared the 10 667 admissions that were used in this study to the 6979 admissions that were not used on demographic, hospital stay, and clinical variables. Given the very large sample sizes, most analyses were statistically significant. Therefore, we adopted a heuristic significance standard; that is, if the 2 groups had a P value of less than .001 *and* were more than 10% different on a given variable, we would consider that a clinically meaningful difference. The analyses comparing the 10 667 admissions to the 6979 admissions not used in analyses were all statistically significant with the exception of suicidal intent severity and SIS severity. Using our clinical significance standard, those used in the study were less likely to be female (40.8% of the current sample vs 46.6% of the unused sample), more likely to have an involuntary admission (35.6% of the current sample vs 30.7% of the unused sample), and more likely to have been discharged AMA (13.7% compared to 11.8%). The samples were very similar in racial ethnicity (70% white in the database compared to 69.9% in the sample not used), age (mean of 38.9 compared to 39.2), LOS (10.8 days compared to 11.4 in the nonused sample), AODP (2.9 compared to 2.7 in the nonused sample), Global Assessment of Functioning (GAF) or Axis V (21.5 compared to 23.5 in the nonused sample), medical illness rating (1.5 compared to 1.4), homelessness (27.5% compared to 27.9%), and unemployment (82% vs. 88%).

To determine what characterizes patients with more severe suicidality, we used χ^2 analyses to examine demographic, hospital stay, and clinical variable differences between the 4 suicide severity groups. Once again, because of the large sample sizes, all but one analysis was statistically significant. Therefore, we computed pairwise comparisons to determine the source of the statistical significance. Clinical significance was determined to exist if 2 groups differed: if a given group had a rate, percentage, or mean that was more than 10% different and the *P* value was less than .001.

Using logistic regression analyses, we determined the adjusted odds ratios (ORs) and their 95% confidence intervals (CIs) for the relationships between severity of substance disorder (AODP) and degree of SIS to the severity of suicidal intent. The dependent variable in both analyses was dichotomized suicidal intent: "severe" suicidal intent coded as 1 in comparison to the other "nonsevere" groups combined and coded as 0. Covariates were all of the demographic and clinical variables. The independent variables of interest were the 4 levels of AODP or the 4 levels of SIS, both dummy-coded with the "none" category as the reference group.

To examine the relationships between AODP severity and SIS, and rates of involuntary commitment, and discharges AMA, only in patients who were severely suicidal at admission, χ^2 analyses were used. To calculate adjusted ORs and their 95% CIs, 4 logistic regression analyses were performed. The dependent variables were involuntary

Table 1
Demographic, clinical, and hospital stay variables for the suicide severity groups (n = 10 667)

Variables	Total sample	Severity of suicidal ratings			
n (%)	10 667 (100%)	None	Mild	Moderate	Severe
		3082 (28.9%)	1311 (12.3%)	2733 (25.6%)	3541 (33.2%)
Demographics					
Female sex	4353 (40.8%)	1347 (43.7%)	556 (42.4%)	1009 (36.9%)	1441 (40.7%)
Age in years	39.2 ± 13.3	42.0 ± 16.5	38.9 ± 13.2	37.9 ± 10.8	38.0 ± 11.6
Racial ethnicity					
White	7454 (69.9%)	2149 (69.7%)	923 (70.4%)	1851 (67.8%)	2531 (71.6%)
African American	1936 (18.1%)	515 (16.7%)	232 (17.7%)	593 (21.7%)	596 (16.8%)
Asian-Pacific Islander	615 (5.8%)	255 (8.3%)	66 (5.0%)	106 (3.9%)	188 (5.3%)
Hispanic	454 (4.3%)	121 (3.9%)	65 (5.0%)	126 (4.6%)	142 (4.0%)
Native American	182 (1.7%)	30 (1.0%)	21 (1.6%)	52 (1.9%)	79 (2.2%)
Other	26 (0.2%)	12 (0.4%)	4 (0.3%)	5 (0.1%)	5 (0.1%)
Homeless	2875 (27.0%)	538 (17.5%)	338 (25.8%)	985 (36.0%)	1014 (28.6%)
Unemployed	8397 (78.7%)	2365 (76.7%)	1067 (81.4%)	2246 (82.2%)	2719 (76.8%)
Moderate to severe medical comorbidity	2358 (22.1%)	764 (24.8%)	269 (20.5%)	495 (18.1%)	830 (23.4%)
Hospital stay characteristics					
Involuntary hospitalizations	3800 (35.6%)	2121 (68.8%)	362 (27.6%)	413 (15.1%)	904 (25.5%)
Discharge AMA and court releases[a]	1461 (13.7%)	410 (13.3%)	193 (14.7%)	370 (13.5%)	488 (13.8%)
LOS	11.4 ± 10.3	15.4 ± 13.6	10.2 ± 8.8	9.3 ± 7.8	9.9 ± 8.0
Clinical characteristics					
GAF Axis V	21.6 ± 9.5	20.6 ± 9.2	24.4 ± 10.2	23.5 ± 8.9	19.9 ± 8.8
Primary diagnosis					
Bipolar depression	1111 (10.4%)	114 (3.7%)	144 (11.0%)	389 (14.2%)	464 (13.1%)
Unipolar depression	3741 (35.1%)	224 (7.3%)	454 (34.6%)	1208 (44.2%)	1855 (52.4%)
Schizophrenia or schizoaffective	2519 (23.6%)	1179 (38.2%)	334 (25.5%)	484 (17.7%)	522 (14.7%)
Mania	949 (8.9%)	682 (22.1%)	90 (6.9%)	92 (3.4%)	85 (2.4%)
Other	2347 (22.0%)	883 (28.7%)	289 (22.0%)	560 (20.5%)	615 (17.4%)
AODP					
None	4159 (39.0%)	1732 (56.2%)	484 (36.9%)	790 (28.9%)	1153 (32.5%)
Mild	1413 (13.2%)	560 (18.2%)	157 (12.0%)	304 (11.1%)	392 (11.1%)
Moderate	1737 (16.3%)	351 (11.4%)	263 (20.1%)	543 (19.9%)	580 (16.4%)
Severe	3358 (31.5%)	439 (14.2%)	407 (31.0%)	1096 (40.1%)	1416 (40.0%)
SIS					
None	5224 (49.0%)	2144 (69.6%)	593 (45.2%)	1029 (37.7%)	1458 (41.2%)
≤25%	1982 (18.6%)	454 (14.7%)	288 (22.0%)	561 (20.5%)	679 (19.2%)
≈50%	2619 (24.5%)	329 (10.7%)	307 (23.4%)	866 (31.7%)	1117 (31.5%)
≥75%	842 (7.9%)	155 (5.0%)	123 (9.4%)	277 (10.1%)	287 (8.1%)

[a] Not significantly different ($\chi^2 = 1.64$).

commitment and discharges AMA and the independent variables of interest were either the 4 AODP or SIS groups dummy-coded with "none" as the reference group. Covariates were all the demographic and clinical variables. Two analyses of covariance were used to determine the relationship of LOS to AODP and SIS. The independent variables were either the 4 AODP or SIS groups. Covariates were all the demographic and clinical variables.

3. Results

Table 1 presents the demographic, clinical, and hospital stay variables for the total sample and the 4 suicide severity groups. All differences between the 4 groups were statistically significant with the exception of discharges AMA, which were very similar at about 14% across the groups. Using our clinical significance level of a 10% difference, age and unemployment status did not differ between the groups; the patients averaged about 40 years old and about 80% of the patients were currently unemployed. Racial ethnicity differed only between the "none" and "moderate" groups, due primarily to the finding that the none group had significantly less Asian-Pacific Islander patients than the moderate group. The moderate suicide severity group had the least number of females, and this was significantly less than the none and mild groups. With respect to medical comorbidity, the none group had more severely ill patients than the mild or moderate groups, and the moderate group had fewer severely ill patients than the severe group.

Although the groups did not differ in discharges AMA, the none group had on average a significantly longer LOS than did the other 3 groups, which did not differ. Involuntary hospitalization rates were significantly higher in the none group in comparison to the other 3 groups. Only the mild vs severe comparison did not reach our criteria for clinical significance.

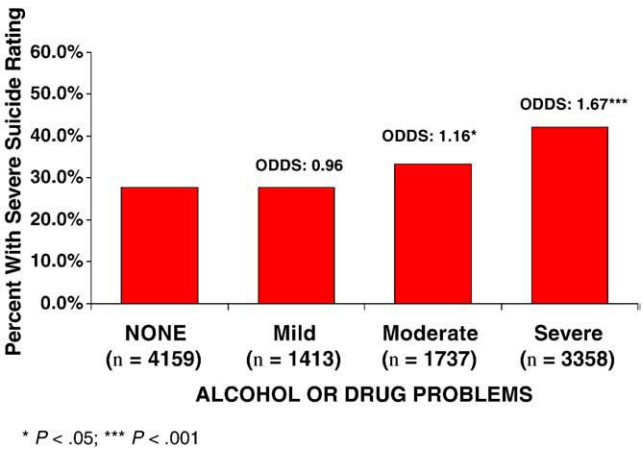

Fig. 1. Relationship of severe suicidality group to alcohol and drug problems (n = 10 667) using adjusted ORs.

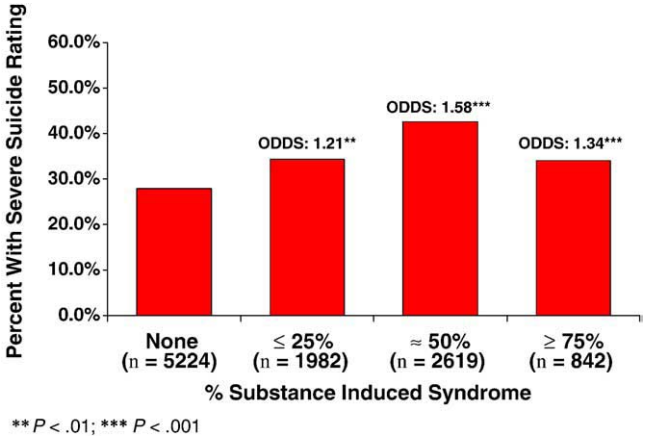

Fig. 2. Relationship of severe suicidality group to SIS rating using adjusted ORs (n = 10 667).

All the groups had fairly similar GAF scores; however, the mild and moderate suicidal groups had higher ratings (better functioning) on average than the none group. In addition, because of the suicide attempts in the severe group, its GAF rating was significantly lower than the mild and moderate groups. Primary psychiatric diagnoses differed significantly among all the pairs of suicide severity groups: the severe group had the highest rate of unipolar depression and the lowest rates of both schizophrenia-schizoaffective disorder and mania. The none group in contrast had the lowest rate of either unipolar or bipolar depression and the highest rates of mania and schizophrenia-schizoaffective disorders.

3.1. Severe suicidality and degree of substance dependency

The result of the logistic regression examining the relationship between the severe suicidality group and the 4 AODP groups is presented in Fig. 1. After controlling for demographic and clinical variables, the relationship between AODP groups and percentage of patients in the severe suicidality group was statistically significant (Wald test = 106.27, $df = 3$, $P < .001$). Although patients in the mild AODP group did not differ from the none group (OR, 0.96; 95% CI, 0.83-1.12), the moderate (OR, 1.16; 95% CI, 1.01-1.32) and severe AODP groups (OR, 1.67; 95% CI, 1.50-1.86) had significantly elevated odds of severe suicidality upon presentation.

3.2. Severe suicidality and degree of SIS

The result of the logistic regression examining the relationship between the severe suicidality group and SIS groups is presented in Fig. 2. After controlling for demographic and clinical variables, the relationship between SIS and percentage of patients in the severe suicidality group was statistically significant (Wald test = 68.50, $df = 3$, $P < .001$). Patients in the NO SIS group had lower rates of severe suicidality than the other 3 groups, which had increased odds of having severe suicidality upon admission: the

Table 2
Relationship of *alcohol or drug problems* to AMA, involuntary hospitalization, and LOS in severely suicidal patients (n = 3541)

	Total sample	None	Mild	Moderate	Severe
n (%)	3541 (100%)	1153 (32.5%)	392 (11.1%)	580 (16.4%)	1416 (40.0%)
Discharged AMA (n [%])	488 (13.8)	91 (7.9)	53 (13.5)	87 (15.0)	257 (18.1)
OR[a] (95% CI)	–	–	1.64 (1.14-2.36)	1.93 (1.40-2.66)	2.42 (1.86-3.16)
Involuntary hospitalization (n [%])	904 (25.5)	370 (32.1)	135 (34.4)	128 (22.1)	271 (19.1)
OR[a] (95% CI)	–	–	1.17 (0.90-1.51)	0.65 (0.51-0.84)	0.55 (0.45-0.67)
LOS Mean (SD)	9.9 (8.0)	11.9 (9.6)	10.7 (8.5)	9.2 (6.7)	8.3 (6.4)

[a] Odds adjusted for sex, age, unemployment, race, medical comorbidity, homelessness, GAF, primary diagnosis; if 1.0 is not included in 95% CI, then odds are statistically significant at $P < .05$.

≤25% SIS group had 1.21 odds of being in the severe suicidality group (95% CI, 1.07-1.37) in comparison with the no-SIS group. The ≈50% SIS group had the highest OR of 1.56 (95% CI, 1.41-1.76), and the ≥75% group had an OR of 1.34 (95% CI, 1.13-1.58).

3.3. Hospital stay variables

Table 2 shows that in patients with severe suicidality, AODP was significantly associated with rates of discharges AMA ($\chi^2_3 = 57.14$, $P < .001$), involuntary hospitalizations ($\chi^2_3 = 76.54$, $P < .001$), and LOS ($F_{3,3503} = 25.51$, $P < .001$). The rate of discharges AMA significantly increases with the severity of AODP. Mild, moderate, and severe AODP groups all had elevated adjusted ORs compared to the none group, ranging from 1.64 for mild to 2.42 for severe. In contrast, the rate of involuntary hospitalization decreases with increasing AODP severity; the adjusted ORs for the moderate and severe groups also show that there are significantly lower odds of having an involuntary commitment with increasing AODP severity (OR of 0.65 and 0.55, respectively). Length of stay also decreased linearly and significantly with increasing AODP severity.

Table 3 presents the results relating SIS to rates of discharges AMA ($\chi^2_3 = 85.05$, $P < .001$) and involuntary hospitalization ($\chi^2_3 = 57.47$, $P < .001$), and LOS ($F_{3,3503} = 46.47$, $P < .001$) in patients with severe suicidality upon presentation. The rates of discharges AMA increased with increasing severity of SIS. The adjusted ORs show that the ≈50% group and the ≥75% group were between twice and 3 times more likely to leave AMA in comparison with those with ≤25% SIS. Patients with more severe SIS had significantly lower rates of involuntary hospitalization than those without SIS, and this relationship held statistically for the ≈50% and ≥75% groups. Lastly, LOS decreased significantly with increasing severity of SIS.

4. Discussion

4.1. Study limitations

Study data were gathered from standardized academic attending clinical admission and treatment forms. Such ratings are likely affected by different attendings' skills, attitudes, and backgrounds. Also, the key variables analyzed (degree of suicidality and degrees of substance problems [AODP] and substance-induced admission syndrome) are single-item severity scales rather than independent validated research scales, thus also victim to clinical interpretation. However, our goal in this article was to study how suicidal behavior and addiction are related as assessed by real clinicians, using typical clinical data, skills, and practices. As stated in the methodology, the clinical tool used (PAF) has standard, printed benchmarks for each severity rating, has shown construct validity, and has been used as the basis of numerous peer-reviewed articles [1,14-18].

4.2. Findings

Our data indicate that in a sample of 10 667 acute psychiatric admissions, degree of suicidality can be broken into about thirds with 41% showing little to none, 26% showing moderate (urges and plan), and 32% severe

Table 3
Relationship of *degree of substance-induced mood syndrome* to discharge AMA, involuntary hospitalization, and LOS in severely suicidal patients (n = 3541)

	Total sample	None	25% or less	about 50%	75% or greater
n (%)	3541 (100%)	1458 (41.2%)	679 (19.2%)	1117 (31.5%)	287 (8.1%)
Discharged AMA (n [%])	488 (13.8)	128 (8.8)	79 (11.6)	211 (18.9)	70 (24.4)
OR[a] (95% CI)	–	–	1.27 (0.94-1.71)	2.36 (1.84-3.01)	2.99 (2.12-4.21)
Involuntary hospitalization (n[%])	904 (25.5)	468 (32.1)	152 (22.4)	224 (20.1)	60 (20.9)
OR[a] (95% CI)	–	–	0.65 (0.52-0.81)	0.60 (0.49-0.73)	0.56 (0.40-0.77)
LOS Mean (SD)	9.9 (8.0)	11.8 (9.5)	9.9 (7.0)	8.2 (6.0)	6.9 (5.6)

[a] Odds adjusted for sex, age, unemployment, race, medical comorbidity, homelessness, GAF, primary diagnosis; if 1.0 is not included in 95% CI, then odds are statistically significant at $P < .05$.

(showing active behavior or attempt). Surprisingly, this breakdown data of suicidal intensity, possibly the most common reason for psychiatric admission in modern acute psychiatric inpatient populations, is rarely reported. As severity of substance disorder increased from none, to abuse, to dependence, the odds of the patient being in the most severe suicide group increase by 67% (Fig. 1); that is, they were more potentially lethal. Regarding the SIS rating, odds of being in the most suicidal group also increased significantly, but were highest for the ≈50% rating, meaning the patient had about 50% of their syndrome caused by substances and 50% by other psychiatric disorder, and this was associated with an OR of 1.58. These might be characterized as patients with true active co-occurring disorders. Of note is that 842 patients (8%, see Fig. 2) were rated on SIS as "most or all substance induced," and this is even after the availability of a 23-hour acute diversion unit in our psychiatric emergency service. These patients were next most likely to be in the most suicidal group (OR, 1.34), and this group has serious health services implications, as will be discussed below. Analysis of involuntary treatment, LOS, and discharges AMA shows a potentially dangerous and consistent pattern in which increasing degrees of substance dependence (AODP), as well as increasing SIS severity, is associated with (1) less likely to be civilly committed, (2) more likely to be discharged AMA, (3) shorter LOS, and (4) higher degrees of admission suicidal lethality.

4.3. Implications for health services planning

Table 1 data indicate that of the severely suicidal group, 56% had substance abuse or dependence, and 40% were rated 50% or more substance-induced, and most had nonpsychotic diagnoses. Although the bulk of published co-occurring disorder research has focused on outpatient severely mentally ill populations, this article clearly identifies another co-occurring disorder population (acute, mostly nonpsychotic psychiatric inpatients with co-occurring addiction and suicide; quadrant 2 in the co-occurring matrix [19]) that also needs specialized focus. We doubt that our patient sample is much different than that found in any large urban acute public hospital, and this implies that such units need active addiction intervention personnel and treatments integrated into the fabric of their inpatient psychiatric treatment programs. There is almost no literature describing how this might be done or its potential outcomes.

As reviewed in the Introduction and from this study's data, we conclude that suicide is very much "addictions territory," and our systems need to do a better job of dealing with this fact. There is surprisingly little known about what effect addictions treatment has on suicidality. One uncontrolled study (n = 4411) reported by Karageorge [20] found that in the year before addiction treatment, about a quarter of the patients had made an attempt, but in the year after, only 5% made an attempt. Specific antisuicide therapy such as dialectal behavioral therapy, adapted for substance abusers, has been shown successful [21]. It has also been shown that continued use of drugs/alcohol predicts repeated episodes of suicidal behavior in alcoholic patients with suicidal behavior [8,22], as well as for bipolar patients [16]. Programs that improve treatment success through more active referral for services [22,23], implementing greater levels of integration of chemical dependency and mental health services [24], provision of residential addiction treatment services [24,25], and participation in Alcoholics Anonymous [26] all suggest that suicidal patients with substance disorders can be treated effectively. Interestingly, in terms of societal suicide prevention strategies, although evaluation of "depression awareness" or use of antidepressants has shown little to no effect on suicide rates [27], societal alcohol restrictions have shown rather profound effects [28,29].

Further work is needed to better document the relationship of addictions to suicide in patients with or without major co-occurring psychiatric disorders and to document the relationship of substance disorders, as well as substance-induced states, on suicidal conditions. In addition, interventions designed for acutely hospitalized substance-affected suicidal patients that incorporate elements of therapies such as 12-step facilitation, motivational enhancement therapy, and addiction pharmacotherapy should be developed, described, and evaluated.

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