

Psychiatric Features of Seriously Life-Threatening Suicide-Attempters: A Clinical Study from a General Hospital in Japan.

(Running Head: Suicide-Attempters in Japan)

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Abstract

Objective: Although attempted suicide is one of the strongest predictors of completed suicide, few Japanese studies have described psychiatric differences between those who attempt suicide by overdose (OD) and those who use more violent methods (MV).

Methods: A total of 22 consecutively admitted MVs were compared to 78 ODs. All patients were referred for psychiatric evaluation during the same 3-year period.

Results: The MV group was predominantly male (68%), whereas the OD group was predominantly female (72%). Using DSM-IV criteria, depressive disorders were most common in both groups, followed by psychotic disorders. The OD group had significantly more borderline patients. Contrary to previous reports, prior psychiatric contact was low in the MV group. MVs were more likely to complain of financial problems and to retain a definite wish to die the attempt. **Conclusions:** This study identified meaningful differences between the two groups of patients who attempted suicide.

Keywords: Attempted suicide; Borderline personality disorder; Depression; General Hospital; Japan

Introduction

Partly due to recent economic difficulties and social changes, the number of people

who commit suicide in Japan has been reported to be rapidly increasing, reaching over 30 thousand in 1998 [1]. This number is 1.5 times higher than that prior to 1997. Suicide has become a serious social problem.

Attempted suicide is one of the strongest predictors of completed suicide [2-4]. However, there have been few studies of patients who seriously attempted suicide, requiring admission to general hospital [5-7]. Deliberate self-poisoning is a common form of attempted suicide [8], and various toxicology centers have conducted studies on patients who attempted suicide by overdose [9,10]. Gupta and Trzepacz [5] focused on the characteristics of serious suicide attempters who overdosed and were admitted to a general hospital, comparing them with those who used non-overdose methods and with medically ill patients who had suicide ideation. They reported that prior psychiatric contact was high in all groups; depression, adjustment disorders, and substance abuse were common in each group; and the overdose group contained significantly more borderline and female patients. They concluded that both those who overdosed and those using more violent methods, were more similar to each other than they were to suicide ideators.

According to the studies of completed suicide, those who succeeded are more likely to be males using violent non-overdose methods [11]. Caracciolo et al. [12] investigated

the circadian rhythms of parasuicides in relation to the violence of the method and concomitant mental disorders, concluding that violent suicidal behavior involving more closely resembled failed suicide than it did parasuicide. Contrary to the study of Gupta and Trazepacz [5], there is some evidence that patients using violent, non-overdose methods resemble those who complete suicide.

Japanese studies of attempted suicide have been very limited, dealing only with patients with schizophrenia [13], or with mildly suicide patients, other attempters and completed suicides on the same basis [14], by retrospective chart review [15]. None of the studies has examined the psychiatric features of those patients at high risk of completing suicide following an attempt.

The present study deals with seriously life-threatening suicide attempters who required admission to a general hospital in Japan. By comparing those who attempted by overdose with those using more violent methods, we aimed to uncover similarities and differences between these groups.

Method

This study was conducted at Chukyo Hospital in Nagoya, an industrial city in Japan with about 2.17 million people. Chukyo Hospital serves the southern part of

Nagoya for local emergency referrals. All attempted-suicide emergency referrals are evaluated physically by specialized emergency doctors. Only those evaluated as serious are admitted to an intensive care ward. Information on the method used for the suicide attempt, and whether alcohol had been consumed at the time of the suicidal behavior, is obtained from the patients, their family or the emergency rescue staff who had first contact with the attempters. Demographic data (sex, age, and marital status and past medical history) are collected by emergency nursing staff from patients or their relatives. All those who require admission are psychiatrically interviewed by consultation-liaison attending psychiatrists.

The subjects of this study formed a consecutive series of 108 individuals who made medically serious suicide attempts and were admitted to an intensive care ward for longer than 24 h between January 1998 and December 2000. Each subject was interviewed and evaluated by one of two psychiatric consultants with regard to Axes I and II diagnosis on DSM-IV [16], past psychiatric history including the number of previous self-harm episodes and residual intent to harm the self. At least one of the relatives of each suicide attempter was also interviewed by one of two psychiatrists for corroboration of the psychiatric diagnosis because psychiatric interview was based on disclosed symptoms [16]. Questions about stressful events preceding the suicidal

attempt or presenting problems were asked under the following headings: relationship with partner or family; financial problems including debts; mental health; physical health; work; lack of close friends; death of someone close. Intent to harm self was examined during the course of the interview, in accordance with two questions: "Did you really wish to take your life when you made an attempt?" and "Do you still think that you would like to take your life?" An individual who answered both questions in the affirmative was rated as "definite wish to die both before and after the attempt".

The diagnosis and other aspects of each case were discussed in conferences until consensus was reached between the two psychiatrists. Reliable evaluation was not possible in eight cases (7.4%). The eight individuals who were admitted more than twice during the study period were evaluated only at their first episode. A satisfactory level of reliability for diagnosis was reached in 100 subjects.

Subjects were divided into two groups according to the method used for suicidal acts: (1) nonviolent self-poisoning by ingestion of drugs (OD), and (2) violent method (MV) such as ingestion of pesticides or caustics, inhalation of toxic gases, hanging, drowning, gunshot, self-burning, self-laceration or jumping from a high place.

Data analysis was performed using the Windows 11.0 version of the Statistical Package for Social Sciences (SPSS). Intragroup data were described in terms of means

and standard deviations. Intergroup comparisons were performed using the Mann-Whitney U test for continuous data and the chi-square test and Fisher's exact test for categorical data. The cutoff for statistical significance was a p value of $<.05$.

Results

Characteristics of the two groups

A comparison of demographic characteristics for each group is shown in Table 1. There were no significant differences between the groups with regards to age, marital status or employment. However, significant differences were found with regard to the following: sex ($\chi^2=11.8$, $d.f.=1$, $P=.001$); whether the subject was receiving psychiatric treatment at the time of self-harm ($\chi^2=4.74$, $d.f.=1$, $P=.030$); and past history of self-harm ($\chi^2=5.59$, $d.f.=1$, $P=.018$). The MV group was less likely to have had prior psychiatric treatment and more likely to be first-time attempters.

Suicide methods

Among 100 subjects, 78 used the overdose method (OD) and 22 used a more violent method (MV). In the OD group, ingestion of prescribed psychotropic drugs ($n = 67$, 86%) was the most common technique, followed by both analgesics and prescribed

psychotropic drugs ($n = 7, 9\%$), analgesics alone ($n = 2, 3\%$), and traditional Chinese herbal medicine ($n = 2, 3\%$). In the MV group, self-burning ($n = 7, 31.8\%$) and ingestion of pesticides or caustics ($n = 7, 31.8\%$) were the most frequent methods, followed by stabbing ($n = 3, 13.6\%$), hanging ($n = 2, 9\%$), inhalation of toxic gases ($n = 1, 4.5\%$), drowning ($n = 1, 4.5\%$), and jumping from a high place ($n = 1, 4.5\%$). Two subjects ingested psychotropic drugs as well as using a more violent method. Gunshot, one of the most common methods in Western countries, did not appear at all in this population.

Psychiatric diagnoses

DSM-IV Axis I diagnoses are shown in Table 2. Depressive disorders followed by psychotic disorders were the most common diagnoses in both groups, and there was no statistically significant difference in the prevalence of each disorder between the two groups. Two (2.0 %) cases in the OD group were regarded as having no psychiatric diagnosis.

DSM-IV Axis II diagnoses are shown in Table 3. Significant between-groups difference was found with regard to borderline personality disorder ($\chi^2=8.19, d.f.=1, p=.004$).

Stressful events or presenting problems

The frequencies of stressful events or presenting problems are shown in Table 4. Significant between-groups difference was found with regard to financial problems ($\chi^2=4.39$, d.f.=1, $P=.036$).

Suicidal intent

Definite wish to die both before and after the attempt was more likely to be associated with the MV group ($n = 15$, 68.1%) than the OD group ($n = 16$, 20.5%). There was a statistically significant difference between the two groups ($\chi^2=18.23$, d.f.=1, $P=.0001$).

Length of stay in the intensive care ward

The mean length of stay of the OD group was 3.4 days (S.D. = 2.5, range 1-14), whereas that of the MV group was 11.2 days (S.D. = 9.9, range 1-30). There was a statistically significant difference between the two groups (Mann-Whitney U 385.5, $p=.0001$).

Finally, in order to confirm that the significant differences between the groups were not merely secondary to gender difference, we reanalyzed the data by dividing the

subjects into male and female groups. Results of two-sided Fisher's exact test showed significant between-groups difference only among males with regard to receiving psychiatric treatment at time of self-harm ($P = .020$) and past history of self-harm ($P = .008$). The male MV group was less likely to have had prior psychiatric treatment and more likely to be first-time attempters than the male OD group. On the other hand, significant between-group differences only among females were found with regard to the frequency of borderline personality disorder ($P = .038$) and a definite wish to die ($P = .002$). The female MV group was less likely to have borderline personality disorder patients and more definite wish to die than the female OD group. No statistically significant between-groups difference with regard to financial problems among both male and female group was found, which meant that the significant difference on financial problems at first analysis between the groups might have been attributed to gender difference between the groups.

Discussion

In a representative sample of seriously life-threatening suicide-attempters admitted to a general hospital in Japan, we found similarities and significant differences between patients attempting suicide by overdose and those who used more

violent methods. Previous studies revealed a high prevalence of psychiatric disorders among suicidal patients [17-19], and patients who seriously attempt suicide by overdose are likely to be females with borderline personality disorder [5]. The present study replicated earlier studies. In addition, the present study found that lower rates of prior psychiatric treatment, past history of self-harm, intent to die before and after the attempt and financial problems were more likely to be associated with patients using more violent methods than with those who ingested overdose.

As with other recent studies, the current study found a high rate of psychiatric disorder in patients who made serious suicide attempts [5,17-19]. In previous reports, depression and substance use disorder were the most common diagnosis [5, 17-19]. In the present study, depression followed by psychotic disorder was the most common diagnosis. Asukai [15], in a retrospective chart review of seriously suicidal patients, found that psychosis was the most common (35.3%), followed by depression (21.1%). If Asukai's findings are combined with those of the present study, the rate of psychosis appears to be relatively higher in Japan compared with that in other countries. However, unlike studies in other countries, since neither our study nor Asukai's used a clinical structured interview, direct comparisons should not be made. Future studies using the clinical structured interview are required to clarify this matter.

Substance abuse has been found to be one of the most prevalent mental disorders both in attempted suiciders and completed suiciders [17,20,21]. However, the rate of substance abuse among the attempters in this study (3%) was relatively lower compared to that found in other studies (8.7-41.0%) [5,17-19]. Furthermore, alcohol use around the time of self-harm was relatively low in both the OD group (16.7%) and the MV group (9.1%) in this study. This contrasts a previous study [22] finding a rate of alcohol use around the time of self-harm of 39.4-64.7%, depending on the time of self-harm. In other words, even without the influence of alcohol, the subjects in the present study resorted to suicidal behavior. This may reflect a serious psychopathology in suicide attempters in this study because we excluded mild cases that did not require admission to the hospital.

Although there was no statistically significant difference in Axis 1 diagnoses between the two groups, Axis 1 diagnoses in the OD group tended to be more diverse than in those the MV group, perhaps because the OD group was more likely to contain patients with borderline personality disorder who often present a variety of Axis 1 symptom profiles [16].

Recent studies have revealed a rate of personality disorder among suicide attempters was 40-50% [19,23]. The lower prevalence of personality disorders in the

present study might be due to the cross-sectional nature of the evaluation [24].

Previous studies have failed to examine either the factors that attempters considered stressful or the intensity of their wishes to die [5]. In this regard, we uncovered significant differences between the two groups. The MV group had a tendency to have financial problems. Recent studies have revealed that debts are a risk factor for depressed and hopeless mood, suicidal ideation, attempted suicide and completed suicide [25]. However, reanalyzing financial problem dividing the subjects into male group and female group revealed the possibility that the result might have been attributed to between-groups gender difference. This might be due to the small sample size of the present study, hence, increasing the number of subjects would be required to confirm this point.

In our study, compared with the OD group, MV patients were depressed and more likely to express stronger wishes to die after the attempt. In addition, contrary to previous reports, prior psychiatric contact was low in the MV group [8,24]. It may be that untreated serious psychopathology in the MV group led to violent suicidal behavior. Early recognition of depression and timely clinical intervention could limit suicidal risk [11,26].

Those who attempt suicide tend to repeat it and are more likely to die by suicide

[4]. The different psychiatric characteristic features of each group might indicate the desirability of different clinical approaches. Some suicide attempts may be preventable if the underdiagnosis and undertreatment of depression could be overcome by psycho-education for health professionals and the public [27]. The Swedish Committee for the Prevention and Treatment of Depression (PTD) implemented a training program for general practitioners and provided evidence that early recognition and adequate treatment of depression are preventative [11,28]. On the other hand, most of those in the OD group were in psychiatric treatment; in fact, it was their access to prescribed medication that made it possible for them to choose the overdose method. Furthermore, patients in the OD group might be more likely to lose self-control because they have personality disorder [16]. These observations suggest the need for continued treatment and greater caution in prescribing habits.

One limitation of the present study is that the findings are based on a relatively small sample in one regional hospital, raising the question of whether the results can be generalized. Furthermore, we did not use the clinical structured interview, or standardized instruments to measure suicidal intent and precipitating factors. Despite these limitations, the present study provides evidence helpful in understanding the characteristics of serious suicide attempters in Japan and has implications for

prevention.

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Table 1. Characteristics of the two groups

	OD (N=78)		MV (N=22)	
	<i>n</i>	%	<i>n</i>	%
<i>Age (years)</i>	38.2 ± 16.2		43.0 ± 16.8	
<i>Gender^a</i>				
Male	22	28.2	15	68.2
Female	56	71.8	7	31.8
<i>Marital Status</i>				
Single	33	42.3	9	41.0
Married	31	39.8	9	41.0
Divorced	8	10.2	3	13.5
Widowed	5	6.4	1	4.5
Separated	1	1.3	0	0
<i>Employment Status</i>				
Employed	23	29.3	10	45.5
-Full time	(5)		(5)	
-Part time	(18)		(5)	
Unemployed	24	31.0	8	36.4
Housewife	22	28.1	3	13.6
Student	8	10.3	1	4.5
Unknown	1	1.3	0	0
<i>Receiving psychiatric treatment at time of self-harm^b</i>				
Yes	56	71.8	10	45.5
No	22	28.2	12	54.5
<i>Past history of self-harm^c</i>				
Yes	36	46.2	4	18.2
No	42	53.8	18	81.8
<i>Alcohol used around time of self-harm</i>	13	16.7	2	9.1

OD: attempted suiciders with overdose method, MV: attempted suiciders with more violent method, *n*: number, ^a $\chi^2=11.8$, $df=1$, $P=.001$, ^b $\chi^2=4.74$, $df=1$, $P=.030$,

$\chi^2=5.59, df=1, P=.018$

Table 2. DSM-IV Axis I diagnostic categories

DSM-IV Disorder	OD (N=78)	MV (N=22)
Mood disorder		
Depressive disorders	53	15
Bipolar disorders	2	0
Psychotic disorders		
Schizophrenia	14	3
Schizoaffective disorder	1	1
Brief psychotic disorder	2	4
Substance-related disorders		
Alcohol dependence/abuse	2	0
Amphetamine dependence/abuse	1	0
Anxiety disorders		
Obsessive-compulsive disorder	2	0
Panic disorder without agoraphobia	1	0
Somatoform disorder		
Conversion disorder	1	0
Somatoform disorder not otherwise specified	2	0
Eating disorders		
Anorexia Nervosa	1	0
Bulimia Nervosa	4	0
Adjustment disorders	2	0
Sex-related gender identity disorder		
Gender identity disorder	0	1

OD: attempted suiciders with overdose method, MV: attempted suiciders with more violent method, N: number

The numbers add up to more than the number of subjects because many of them fell into more than one diagnostic category.

Table 3. DSM-IV Axis II diagnostic categories

	OD (N=78)	MV (N=22)
<hr/>		
DSM-IV Personality Disorder		
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Cluster A		
Schizoid personality disorder	1	0
Cluster B		
Borderline personality disorder ^a	28	1
Antisocial personality disorder	1	1
Cluster C		
Dependent personality disorder	0	1
Avoidant personality disorder	1	0
Obsessive-compulsive personality disorder	1	0
Personality disorder not otherwise specified	1	0
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OD: attempted suiciders with overdose method, MV: attempted suiciders with more violent method. ^a $\chi^2=8.19$, $df=1$, $P=.004$.

Table 4. Frequency of stressful events or problems identified

	OD (N=78)		MV (N=22)	
	<i>n</i>	%	<i>n</i>	%
Relationship with partner or family	47	60.3	10	45.5
Lack of close friends	11	14.1	3	13.6
Money ^a	10	12.8	7	31.8
Mental health	35	44.9	9	41.0
Physical health	8	10.3	3	13.6
Work	24	31.0	8	36.4
Death of someone close	7	9.0	1	4.5

OD: attempted suiciders with overdose method, MV: attempted suiciders with more violent method, *n*: number, ^a $\chi^2=4.39$, $df=1$, $P=.036$.