

DIFFERENCES IN THE DISEASE SEVERITY AND BACKGROUND CHARACTERISTICS OF PATIENTS WITH SUICIDE ATTEMPTS DUE TO OVERDOSE ACCORDING TO THE TIME OF DAY

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Dear editor,

More than 15% of patients in the emergency room have psychiatric disorders (Villari et al. 2007). Suicidal attempts via psychotic drug overdose are a common reason for emergency consults (Okumura et al. 2012). The monthly and seasonal trends of suicidal attempts have been investigated to some extent (Galvão et al. 2018); however, few studies have determined the differences in patient background, disease severity, and length of hospitalization. The timing of depression symptoms varies, and they are typically worse in the morning than in the evening. We hypothesised that the mental states and background of patients who attempted suicide, differed, based on the time of day. This study aimed to investigate the relationship between the visiting time and the severity of the suicide attempt via psychotic drug overdose. Patients, who attempted suicide via psychotic drug overdose from January 2015 to April 2018, were enrolled in the study. The study was approved by the Ethics Committee of the University of Occupational and Environmental Health Kitakyushu, Japan (approval number: H30-093). Out of 143 suicide cases, 101 patients, who overdosed on psychotic drugs,

were included in the study. Patients, who attempted suicide through other means, such as wrist cutting, hanging, and jumping, were excluded. Each patient was evaluated using the SAD PERSONS scale (Patterson et al. 1983). The differences in the total SAD PERSONS score, subcategory, and hospitalization rates were calculated. The overdose patients were classified into the following three groups according to their visiting time: (A) daytime (8:00–17:00), (B) evening time (17:00–00:00), and (C) night (00:00–8:00). The Fisher's exact test and one-way ANOVA were used to conduct the statistical analyses. Data are expressed as means (standard deviation: SD). $P < 0.05$ indicated statistical significance.

There was no significant difference in the total SAD PERSONS score of the three groups. Moreover, the scores for each item of the SAD PERSONS scale were not statistically different. The rate of hospitalization in the psychiatric ward was not statistically significant among the three groups (Table 1).

A previous study identified seasonal patterns based on the day of the week, month, season, and age-period-cohort effects. However, few studies revealed trends according to the time of day, or day of the month in 17 European countries (Galvão et al. 2018). The seasonal study reported that the number of suicide cases constantly increased from the start of the year until June; it then declined constantly until the end of the year (Galvão et al. 2018). The seasonal variance in the number of suicide cases likely depended on an underlying seasonal biological variance, which influenced impulse control and the serotonergic circuit (Bando et al. 2009). This was attributed to the interaction between sunlight and the neurotransmitter serotonin, which regulates mood. Exposure to sunlight alters serotonin levels, affecting impulsiveness and aggressiveness (Vyssoki et al. 2014). Based on this, the scores of the patients with major depression, who visited the emergency department during the day, were expected to be higher than those from the other groups because their mood was likely worse in the morning. The results of the present study did not support this speculation.

Table 1. SAD PERSONS total score and the hospitalization rates

	A group (n=38) (8:00–17:00)	B group (n=40) (17:00–00:00)	C group (n=23) (00:00–8:00)	P value
General admission rate (%)	21 (55.3%)	18 (45.0%)	13 (56.5%)	0.57
General admission period, day	1.16±1.6	1.32±2.1	1.57±2.2	0.74
Psychiatric admission rate (%)	13 (34.2%)	10 (25.0%)	7 (30.4%)	0.67
SAD PERSONS total score, points	3.8±1.4	3.6±1.8	3.4±1.4	0.63
SAD PERSONS subcategory				
Sex, male (%)	6 (5.9%)	6 (5.9%)	2 (2.0%)	0.81
Age, <20yr or 45yr< (%)	17 (44.7%)	2 (50.0%)	15 (65.2%)	0.29
Depression (%)	27 (71.1%)	28 (70.0%)	10 (43.5%)	0.060
Previous attempt (%)	27 (71.1%)	27 (65.5%)	18 (78.3%)	0.66
Ethanol abuse (%)	8 (21.1%)	9 (22.5%)	5 (21.7%)	0.99
Rational thinking loss (%)	5 (13.2%)	5 (12.5%)	1 (4.3%)	0.51
Social support deficit (%)	24 (63.2%)	18 (45.0%)	9 (39.1%)	0.13
Organized plan (%)	2 (5.3%)	5 (12.5%)	1 (4.3%)	0.38
No spouse (%)	23 (60.5%)	21 (52.5%)	13 (56.5%)	0.78
Sickness (%)	4 (10.5%)	5 (12.5%)	4 (17.4%)	0.74

The limitations of this study include its small sample size, uncertain diagnosis of psychiatric diseases, and lack of differentiation between a suicidal attempt and malingering patient.

In conclusion, there was no difference in the individual and overall SAD PERSONS scores, as well as the rate of psychiatric ward hospitalization indicating that the risk for suicidal attempts via psychotropic drug overdose was similar across all time zones.

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