

## The Relationship Between Suicide Attempts and Ideation with Depression, Insight, and Internalized Stigmatization in Schizophrenia

### ABSTRACT

**Background:** Suicidal behavior is quite common in schizophrenia and various risk factors for suicide have been reported. The aim of this study was to examine the relationship between suicide attempts and ideation with depression, insight, and internalized stigmatization in patients with schizophrenia.

**Method:** Thirty-six patients with a history of suicide attempts and 52 patients without suicide attempts who were diagnosed as schizophrenia according to DSM-5 diagnostic criteria were included in this study. According to the score which they obtained from the eighth item of the Calgary Depression Scale for Schizophrenia, patients were divided into two groups: not suicidal ideations (zero points) and suicidal ideations (one, two, or three points). Sociodemographic information form, Positive and Negative Syndrome Scale, Calgary Schizophrenia Depression Scale, Schedule for Assessing the Three-Component of Insight, The Internalized Stigma of Mental Illness Scale, and The Suicide Ideation Scale were applied to all of the patients who participated in the study.

**Results:** Patients with suicide attempts were more likely to be single and had higher the Internalized Stigma of Mental Illness Scale scores compared to patients without suicide attempts. Patients with suicidal ideation had higher Positive and Negative Syndrome Scale total scores, higher Calgary Schizophrenia Depression Scale scores, and higher the Internalized Stigma of Mental Illness Scale scores than those without suicidal ideation. There was a strong, positive correlation between the Suicide Ideation Scale and Calgary Schizophrenia Depression Scale, as well as there was a moderate, positive correlation between Positive and Negative Syndrome Scale, the Internalized Stigma of Mental Illness Scale, and the Suicide Ideation Scale in the suicidal ideation group. In regression analysis, depression was found to be a predictor of suicidal ideation.

**Conclusion:** Depression and internalized stigma were risk factors for suicide in schizophrenia. Risk factors need to be carefully assessed to prevent suicide in schizophrenia.

**Keywords:** Depression, schizophrenia, suicide

### Introduction

Suicide is a leading cause of death among schizophrenia patients.<sup>1</sup> Reportedly, the overall risk of suicide among schizophrenia patients is 5%. Overall, 20-50% of schizophrenia patients attempt suicide, 40-50% show suicidal ideations, and 4-13% die due to suicide.<sup>2,3</sup> Some suicide risk factors include being male, experiencing early onset schizophrenia, having high intelligence and high educational status, being Caucasian, being unmarried, living alone, having insufficient social support, being unemployed, experiencing alcohol-substance disorder, undergoing frequent hospitalizations, experiencing hopelessness, and having a history of attempted suicide.<sup>4,5</sup> A history of mental illness or suicide attempts in the family is also a suicide risk factor among these patients.<sup>6</sup> Furthermore, positive symptoms, especially delusions and hallucinations, correlated with an increased risk of suicide.<sup>7</sup>



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Depressive symptoms are common in schizophrenia, and their prevalence varies from 25% to 81%. This wide range may be due to differences in definitions of depressive symptoms or syndromes.<sup>8</sup> Over half of schizophrenia patients will experience a major depressive episode at least once in their lifetime.<sup>9</sup> Schizophrenia patients with depressive symptoms have a poor prognosis, more frequent early psychotic exacerbations, more hospitalizations, and a poor quality of life.<sup>10</sup> Furthermore, when schizophrenia is accompanied by depression, the risk of suicide greatly increases.<sup>2</sup> In fact, most schizophrenia patients who attempted suicide also have a history of depression.<sup>6</sup> Bertelsen et al<sup>11</sup> conducted an observational study with patients who had experienced the first episode of schizophrenia and demonstrated that depression was the most significant risk factor for suicide.

Among schizophrenia patients, 50-80% lack insight.<sup>12</sup> A partial or total lack of insight is linked to impaired treatment compliance and a poorer disease prognosis.<sup>12,13</sup> In contrast, a high insight is associated with hopelessness, demoralization, and depression.<sup>14</sup> Investigations of the association between insight and suicide reveal inconsistent findings. For instance, certain studies reported that an increased level of insight is a suicide risk factor.<sup>15</sup> Five out of the 15 studies examined in a review demonstrated a significant association between insight and suicide.<sup>16</sup> Insight describes a vague term that encompasses many dimensions. Out of these dimensions, an awareness of the negative outcomes of the disease increases suicide risk.

Internalized stigma refers to a person's self-acceptance of society's negative stereotypes, leading to this person distancing him or herself from society due to negative feelings, such as shame and worthlessness.<sup>17</sup> High levels of internalized stigma in schizophrenia patients increase hopelessness and decrease self-respect, contributing to depressive symptoms and social distancing.<sup>18</sup> In addition, high levels of internalized stigma negatively affect people's work, disrupt treatment compliance, and impair the quality of life.<sup>19</sup> Recent studies on the association between internalized stigma and suicide in schizophrenia have gained importance.<sup>20,21</sup>

This study investigated suicide attempts and suicidal ideation related to depression, insight, and internalized stigma to better understand the predictors of suicide risk in schizophrenia.

## Methods

### Sampling

This cross-sectional study included 88 schizophrenia patients (36 of the schizophrenia patients had at least one previous suicide attempt and 52 had no suicide attempt) admitted to the Ondokuz Mayıs University Department of Psychiatry outpatient clinic between June

2016 and December 2016. A clinical interview by a senior psychiatrist confirmed the schizophrenia diagnosis of the patients. Ondokuz Mayıs University Clinical Research Ethics Committee approved the study (OMÜ KAEK 2016/268). All the patients who came to the outpatient clinic for examination were recruited consecutively throughout the study, considering the inclusion and exclusion criteria.

The inclusion criteria specified that the participants had to be 18-65 years old; have a diagnosis of schizophrenia according to the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) criteria; have consent to participate in the study after signing informed consent; be willing and competent to use the scales, evaluations, and clinical interviews applied in the study; and be literate. Patients with chronic comorbid illnesses (such as cancer); those who were unable to provide accurate information (due to delirium, dementia, or mental retardation), cooperate, or complete psychometric inventories due to their symptoms; and patients with a psychotic mood disorder, a high PANSS (Positive and Negative Syndrome Scale) score, and schizoaffective disorder were excluded from the study. In addition, 24 patients who were unwilling to be included in the study were excluded.

The patients who fulfilled the criteria were informed about the study, and those who were willing to participate in the study read and signed written consent. The patients' sociodemographic information was recorded. Clinical interviews were conducted, and the interviewer administered the PANSS, the Schedule for the Assessing the Three-Components of Insight (SAI), and the Calgary Depression Scale for Schizophrenia (CDSS). In addition, the self-reported Internalized Stigma of Mental Illness (ISMI) and the Suicidal Ideation Scale (SIS) were given to the participants to complete.

### Data Collection Tools

**Sociodemographic Data Form:** The researcher prepared this form to record the patients' sociodemographic and clinical characteristics.

**PANSS:** This scale was developed by Kay et al<sup>22</sup> to evaluate the general psychopathology and positive and negative symptoms experienced by people with schizophrenia and other psychotic disorders. The scale comprised 30 items (7 items related to the positive symptoms, 7 related to the negative symptoms, and 16 items related to the general psychopathology) measured on a scale from 1 to 7. The positive and negative syndrome subscale scores can range from 7 to 49, and the general psychopathology subscale scores can range from 16 to 112. Anıl Kostakoğlu et al<sup>23</sup> previously established the validity and reliability of the Turkish scale.

**CDSS:** Addington et al<sup>24</sup> developed the CDSS to evaluate depression in schizophrenia patients. The interviewer administered the nine-item scale measured on a four-point Likert-type scale ranging from 0 to 3. The sum of these scores was used to obtain the total score. The cut-off score of the scale was 11. Aydemir et al<sup>25</sup> previously established the validity and reliability of the Turkish scale.

**SAI:** Since insight cannot be evaluated as present or absent, David et al<sup>26</sup> developed the clinician-administered SAI based on three dimensions, illness awareness, the ability to recategorize psychotic experiences as abnormal, and treatment compliance. The maximum score for the first seven items is 14, and the clinician decides whether

### MAIN POINTS

- *Patients with suicide attempts were more likely to be single and had higher internalized stigmatization scores.*
- *Patients with suicidal ideation had higher depressive symptom severity, and higher internalised stigmatization scores than those without suicidal ideation.*
- *Depression and internalized stigma were risk factors for the suicide of schizophrenia.*

to administer the eighth item. The maximum score is 18, including the eighth item. A higher score indicates a higher level of insight. Aslan et al<sup>27</sup> evaluated the validity and reliability of the Turkish scale.

**ISMI:** Ritsher et al<sup>28</sup> developed this 29-item self-report scale to evaluate the individual's subjective stigmatization experiences with five subscales measuring isolation, stereotype validation, perceived discrimination, withdrawing socially, and stigma resistance on a four-point Likert scale. The subscale stigma resistance is scored inversely. There is no cut-off point for the scale. The total score is the sum of the scores of the five subscales. A person with a more severe internalized stigma will have a higher score. Ersoy et al<sup>29</sup> previously established the validity and reliability of the Turkish scale.

**SIS:** Levine et al<sup>30</sup> developed this self-report scale. The scale consists of 17 items measured on a dichotomous yes/no scale. The score ranges from 0 to 17. A high score indicates severe suicidal ideation. Dilbaz et al<sup>31</sup> previously established the validity and reliability of the Turkish scale.

### Statistical Analysis

The data obtained from the study participants were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM SPSS Corp.; Armonk, NY, USA). Descriptive data are expressed as mean (standard deviation), median (minimum-maximum), and percentage. The normality of the measured data was evaluated using the Kolmogorov-Smirnov test. An independent *t*-test and Mann-Whitney *U*-tests were used to compare parametric and non-parametric data from paired groups, respectively. Pearson's chi-square test and Fischer's exact test were used to comparing the grouped data. The Spearman correlation coefficient was used to assess the relationships between variables. A logistic regression analysis (the Enter method) was adopted to determine the effect of the demographic data and scale scores on suicide attempts and ideation. The eighth item of the CDSS evaluates the presence of suicidal ideation. In addition, the SIS assessed the level of suicidal ideation. The data were considered statistically significant at  $P < .05$ .

## Results

Of the 88 patients included in the study, 51 (57.95%) were male, and 37 (42.05%) were female. Twenty-two (25.00%) were married, and 27 (30.68%) were employed. The patient's mean age was 35.07 (SD=9.55) years, and the mean age of disease onset was 23.66 (SD=5.72) years. The mean length of education was 11.17 (SD=3.91) years. A total of 36 (40.90%) patients had attempted suicide at least once, and among those, 20 (55.56%) were drug-related, and 16 (44.44%) were non-drug-related.

The with and without suicide attempts groups did not differ significantly in age, gender, and employment status ( $P = .813$ ,  $P = .704$ , and  $P = .152$ , respectively). However, those without suicide attempts were more likely to be married, unlike those who had attempted suicide, and this group difference was statistically significant ( $P = .012$ ). In contrast, the two groups did not differ significantly in age at disease onset, disease duration, family history of mental illness, smoking, and alcohol and substance use disorder ( $P = .518$ ,  $P = .462$ ,  $P = .988$ ,  $P = 1.000$ ,  $P = .517$ , and  $P = .565$ , respectively). However, the median

number of hospitalizations was 3.0 (range, 1-15) in the group with suicide attempts and 2.0 (1-10) in the group without suicide attempts, which was a statistically significant difference ( $P = .016$ ).

The clinical scale scores of patients who had attempted suicide in the past and those who did not were not significantly different in terms of the PANSS positive, PANSS negative, PANSS general psychopathology, PANSS total, CDSS, SAI, or SIS scores ( $P = .680$ ,  $P = .230$ ,  $P = .351$ ,  $P = .510$ ,  $P = .154$ ,  $P = .243$ , and  $P = .178$ , respectively). The group with suicide attempts had significantly higher scores on ISMI total as well as on alienation, stereotype endorsement, perceived discrimination, and social withdrawal compared to the group without suicide attempts ( $P = .001$ ,  $P = .001$ ,  $P = .024$ ,  $P = .003$ , and  $P = .032$ , respectively) (Table 1). The logistic regression analysis revealed that ISMI and being married were indicators of suicide attempts ( $P = .006$  and  $P = .015$ , respectively) (Table 2).

Suicidal ideation was assessed using the eighth item of the CDSS. As such, 67 (76.14%) patients did not have suicidal ideation, and 21 (23.86%) patients scored  $\geq 1$ , meaning they had suicidal ideation. The sociodemographic data of the patients with and without suicidal ideation were not statistically different (age, gender, marital status, employment status;  $P = .188$ ,  $P = .674$ ,  $P = .470$ , and  $P = .810$ , respectively). Similarly, the two groups were not statistically different in age at disease onset, number of hospitalizations, family history of mental illness, smoking, alcohol, and substance use disorder ( $P = .834$ ,  $P = .177$ ,  $P = .119$ ,  $P = .453$ ,  $P = .697$ , and  $P = .563$ , respectively).

An assessment of the clinical scale scores of the patients with and without suicidal ideation revealed that the two groups did not differ in PANSS positive, PANSS negative, and SAI scores ( $P = .081$ ,  $P = .152$ , and  $P = .203$ , respectively). However, the group with suicidal ideation had significantly higher PANSS general psychopathology, PANSS total, CDSS, SIS, ISMI total scores and alienation, social withdrawal, and stigma resistance subscale scores compared to the group without suicide ideation ( $P = .004$ ,  $P = .021$ ,  $P < .001$ ,  $P < .001$ ,  $P < .001$ ,  $P < .001$ ,  $P = .004$ , and  $P = .001$ , respectively) (Table 3). SIS and CDSS showed a strong positive correlation ( $r = 0.669$  and  $P < .001$ ), and PANSS total and ISMI total were moderately and positively correlated with SIS ( $r = 0.511$ ,  $P < .001$ ;  $r = 0.406$ ,  $P < .001$ , respectively) (Table 4).

The regression analysis according to the presence of suicidal ideation showed that CDSS was an indicator of suicidal ideation ( $P = .008$ ) (Table 5).

## Discussion

In this study, we investigated whether attempts of suicide and suicidal ideation were related to sociodemographic characteristics, depression, insight, and internalized stigma. We observed that patients who attempted suicide had higher ISMI scores than those without a history of suicide attempts. In addition, we found that patients with suicidal ideation had higher ISMI, PANSS general psychopathology, and CDSS scores compared to those without suicidal ideation.

Suicide attempts were more prevalent among male schizophrenia patients.<sup>32</sup> However, some studies have reported that gender and suicide risk are not related.<sup>33</sup> In the current study, although the rate of

**Table 1. Comparison of Sociodemographic and Clinical Characteristics of Schizophrenia Patients with and without History of Attempted Suicide**

	Suicide Attempt, n (%)	Without Suicide Attempt, n (%)	P
Gender			
Male	20 (55.55)	31 (59.61)	.704 <sup>a</sup>
Female	16 (44.45)	21 (40.39)	
Marital status			
Single	32 (88.99)	34 (65.40)	.012 <sup>a</sup>
Married	4 (11.11)	18 (34.60)	
Employment status			
Employed	8 (22.23)	19 (36.54)	.152 <sup>a</sup>
Unemployed	28 (77.77)	33 (63.46)	
Age (years) mean (SD)	35.36 (9.64)	34.86 (9.54)	.813 <sup>b</sup>
Age at disease onset (years) mean (SD)	23.18 (5.79)	24.05 (5.86)	.518 <sup>b</sup>
Disease duration (years) (median-range)	12.0 (0-30)	10.0 (0-34)	.462 <sup>c</sup>
Length of education (years) (median-range)	11.50 (3-19)	11.0 (5-21)	.874 <sup>c</sup>
Number of previous hospitalizations (median-range)	3.0 (1-15)	2.0 (1-10)	.016 <sup>c</sup>
Family history of mental illness	17 (47.22)	24 (46.15)	.988 <sup>a</sup>
Current tobacco smoking	18 (50)	26 (50)	1.000 <sup>a</sup>
Current alcohol use disorder	3 (8.33)	7 (13.46)	.517 <sup>d</sup>
Current substance use disorder	2 (5.55)	1 (1.92)	.565 <sup>d</sup>
Current suicide ideation	12 (33.33)	9 (17.30)	.083 <sup>a</sup>
PANSS			
Positive symptoms mean (SD)	8.80 (3.21)	8.55 (2.39)	.680 <sup>b</sup>
Negative symptoms mean (SD)	12.16 (3.98)	11.17 (3.36)	.230 <sup>b</sup>
General psychopathology mean (SD)	21.30 (5.58)	20.15 (5.72)	.351 <sup>b</sup>
Total score mean (SD)	42.27 (10.70)	40.80 (9.91)	.510 <sup>b</sup>
CDSS (median-range)	3 (0-13)	2 (0-13)	.154 <sup>c</sup>
SAI (median-range)	8 (2-11)	8 (1-12)	.243 <sup>c</sup>
ISMI			
Alineation (median-range)	14.50 (6-20)	11 (6-19)	.001 <sup>c</sup>
Stereotype endorsement mean (SD)	12.00 (3.68)	9.84 (3.14)	.024 <sup>b</sup>
Perceived discrimination (median-range)	15 (7-22)	13 (7-20)	.003 <sup>c</sup>
Social withdrawal (median-range)	14 (6-21)	13 (6-18)	.032 <sup>c</sup>
Stigma resistance mean (SD)	11.50 (2.38)	10.59 (2.18)	.069 <sup>b</sup>
Total score mean (SD)	66.91 (13.72)	57.36 (12.77)	.001 <sup>b</sup>
SIS (median-range)	3 (0-12)	2 (0-12)	.178 <sup>c</sup>

PANSS, Positive and Negative Syndrome Scale; CDSS, Calgary Depression Scale for Schizophrenia; SAI, Schedule for the Assessing the Three Components of Insight; ISMI, Internalized Stigma of Mental Illness; SIS, Suicidal Ideation Scale. <sup>a</sup>Pearson chi-square test; <sup>b</sup>Independent t-test; <sup>c</sup>Mann-Whitney U-test; <sup>d</sup>Fischer's exact test.

attempted suicide was higher for male than females, this difference was not statistically significant. In addition, no gender differences emerged between patients with and without suicidal ideation.

While some studies have suggested that marital status and suicide risk are not associated,<sup>32</sup> other studies have demonstrated that being

unmarried is a suicide risk factor.<sup>4</sup> The number of married people in our study was significantly lower in the group with a history of suicide attempts, which was compatible with the literature. This finding suggests that marital support may protect against suicide. Nevertheless, the difference between the patients with and without suicidal ideation in marital status was non-significant.

**Table 2. Logistic Regression Analysis According to Suicide Attempts**

Independent Variables	B	SE	P	OR (95%CI)
Marital status	2.092	0.856	.015	8.100 (1.512-43.392)
ISMI	-0.065	0.024	.006	0.937 (0.894-0.982)
Number of hospitalization	-0.132	0.970	.172	0.876 (0.725-1.059)
Age	-0.013	0.310	.664	0.987 (0.929-1.048)
Gender	0.347	0.566	.540	1.415 (0.466-4.291)

R<sup>2</sup>, 0.265; ISMI, Internalized Stigma of Mental Illness.

Studies suggest that unemployment is associated with a suicide attempt risk in schizophrenia patients.<sup>34</sup> Montross et al<sup>3</sup> reported that unemployment could lead to decreased social functionality preceding disease; therefore, unemployment may be a risk factor for a suicide attempt. Conversely, Pompili et al<sup>35</sup> revealed no significant difference between patients with and without suicide attempts in unemployment. In the present study, the two groups did not significantly differ in unemployment. Impaired functionality preceding the disease is a risk factor for suicide in schizophrenia.<sup>4</sup> This finding may be due to the fact that employment status is evaluated at the time of

**Table 3. Comparison of Sociodemographic and Clinical Characteristics of Schizophrenia Patients with and without Suicidal Ideation**

	Suicide Ideation, n (%)	without Suicide Ideation, n (%)	P
Gender			
Male	13 (61.90)	38 (56.72)	.674 <sup>a</sup>
Female	8 (38.10)	29 (43.28)	
Marital status			
Single	17 (80.95)	49 (73.13)	.470 <sup>a</sup>
Married	4 (19.05)	18 (26.87)	
Employment status			
Employed	6 (28.57)	21 (31.34)	.810 <sup>a</sup>
Unemployed	15 (71.43)	46 (68.66)	
Age (years) mean (SD)	33.19 (6.23)	35.65 (10.15)	.188 <sup>b</sup>
Age at disease onset (years) mean (SD)	23.42 (5.63)	23.73 (5.91)	.834 <sup>b</sup>
Disease duration (years) (median-range)	10.0 (2-27)	10.0 (0-34)	.292 <sup>c</sup>
Length of education (years) (median-range)	13 (5-19)	11 (3-21)	.078 <sup>c</sup>
Number of previous hospitalizations (years)(median-range)	3 (1-11)	2 (1-15)	.177 <sup>c</sup>
Family history of mental illness	13 (61.90)	28 (41.80)	.119 <sup>a</sup>
Current tobacco smoking	12 (57.14)	32 (47.76)	.453 <sup>a</sup>
Current alcohol use disorder	3 (14.28)	7 (10.45)	.697 <sup>d</sup>
Current substance use disorder	1 (4.76)	2 (2.98)	.563 <sup>d</sup>
History of suicide attempt	12 (57.14)	24 (35.82)	.083 <sup>a</sup>
PANSS			
Positive symptoms mean (SD)	9.57 (3.04)	8.37 (2.60)	.081 <sup>b</sup>
Negative symptoms mean (SD)	12.61 (3.20)	11.25 (3.93)	.152 <sup>b</sup>
General psychopathology mean (SD)	23.66 (4.63)	19.67 (5.65)	.004 <sup>b</sup>
Total score mean (SD)	45.85 (8.31)	40.01 (10.40)	.021 <sup>b</sup>
CDSS (median-range)	9.0 (4-13)	2.0 (0-7)	<.001 <sup>c</sup>
CDSS without eighth item (median-range)	1.0 (1-2)	0 (0-0)	<.001 <sup>c</sup>
SAI (median-range)	9.0 (4-11)	8.0 (1-12)	.203 <sup>c</sup>
ISMI			
Alineation (median-range)	15.0 (7-20)	12.0 (6-19)	<.001 <sup>c</sup>
Stereotype endorsement mean (SD)	12.04 (3.13)	10.31 (3.55)	.073 <sup>b</sup>
Perceived discrimination (median-range)	15.0 (10-22)	14.0 (7-22)	.057 <sup>c</sup>
Social withdrawal (median-range)	15.0 (9-21)	13.0 (6-19)	.004 <sup>c</sup>
Stigma resistance mean (SD)	12.42 (2.29)	10.50 (2.11)	.001 <sup>b</sup>
Total score mean (SD)	70.33 (13.26)	58.43 (12.95)	<.001 <sup>b</sup>
SIS (median-range)	8 (2-12)	2 (0-12)	<.001 <sup>c</sup>

PANSS, Positive and Negative Syndrome Scale; CDSS, Calgary Depression Scale for Schizophrenia; SAI, Schedule for the Assessing the Three Components of Insight; ISMI, Internalized Stigma of Mental Illness; SIS, Suicidal Ideation Scale. <sup>a</sup>Pearson chi-square test; <sup>b</sup>Independent t-test; <sup>c</sup>Mann-Whitney U-test; <sup>d</sup>Fischer's exact test.

admission rather than being compared before and after the onset of schizophrenia.

The number of hospitalizations is a suicide attempt risk factor for schizophrenia patients.<sup>4</sup> In our study, consistent with the literature, patients with previous suicide attempts had significantly more hospitalizations compared to patients without attempts of suicide. Frequent hospitalizations are generally associated with the discontinuation of treatment, reflecting the severity of the existing psychopathology. The fact that schizophrenia patients with a history of attempted suicide had more hospitalizations may be attributed to either treatment non-compliance or severity of illness.

Studies that have examined the connection between suicide and positive and negative symptoms have yielded contrasting results. For example, Wong et al<sup>36</sup> revealed that active suicidal ideation in patients with the psychotic disorder was significantly associated

with imperative auditory hallucinations. However, some studies have reported no significant difference between patients with and without imperative auditory hallucinations in suicide attempts.<sup>37</sup> In addition, Kocatürk et al<sup>38</sup> found no correlation of suicide attempts with PANSS positive and PANSS negative scores, whereas the PANSS general psychopathology scores were associated with suicide attempts. In line with this, we also found no significant relationship between patients with and without suicide attempts in the PANSS positive, PANSS negative, and PANSS general psychopathology scores. This may be due to the generally low mean scores of positive and negative symptoms in our patients. However, the suicidal ideation patients' general psychopathology scores were significantly higher compared to those without suicidal ideation. These findings indicate that schizophrenia patients with more severe symptoms have more suicidal ideation.

Many studies have confirmed that schizophrenia with comorbid depression is a significant suicide risk factor.<sup>39</sup> Mauri et al<sup>6</sup> described



**Table 4. Correlation Between Suicidal Ideation Scale and Other Scale Scores**

	SIS
PANSS	
Positive syndrome	$r=0.421$ $P < .001$
Negative syndrome	$r=0.462$ $P < .001$
General psychopathology	$r=0.418$ $P < .001$
Total score	$r=0.511$ $P < .001$
CDSS	$r=0.669$ $P < .001$
SAI	$r=0.032$ $P = .769$
ISMI	
Alineation	$r=0.393$ $P < .001$
Stereotype endorsement	$r=0.213$ $P = .047$
Perceived stigma	$r=0.227$ $P = .034$
Social withdrawal	$r=0.380$ $P < .001$
Stigma resistance	$r=0.355$ $P = .001$
Total score	$r=0.406$ $P < .001$

PANSS, Positive and Negative Syndrome Scale; CDSS, Calgary Depression Scale for Schizophrenia; SAI, Schedule for the Assessing the Three Components of Insight; ISMI, Internalized Stigma of Mental Illness; SIS, Suicidal Ideation Scale.

that 30% of patients had depressive symptoms immediately before a suicide attempt. However, according to Pompili et al<sup>35</sup>, patients with and without suicide attempts did not differ in depressive disorder. In our study, patients who had previously attempted suicide scored higher on CDSS compared to those without suicide attempts, although this difference was not statistically significant. This may be because we did not measure the depressive symptom severity during suicide attempts linked to more severe depressive symptoms. In this regard, McGirr et al<sup>40</sup> also indicated that existing depression was linked to suicide risk but not lifetime depression. In our study, the patients with suicidal ideation had significantly higher CDSS scores compared to the patients without suicidal ideation. After excluding the eighth item of the CDSS, which we used

**Table 5. Logistic Regression Analysis According to Suicide Ideation**

Independent Variables	B	SE	P	OR (95%CI)
CDSS	1.824	0.689	.008	6.199 (1.605-23.936)
ISMI	0.004	0.055	.949	1.004 (0.901-1.118)
PANSS (total)	0.090	0.088	.307	1.094 (0.920-1.301)
Age	-0.322	0.183	.078	0.725 (0.507-1.037)
Gender	2.470	1.917	.198	11.822 (0.276-506.536)

R<sup>2</sup>, 0.879; CDSS, Calgary Depression Scale for Schizophrenia; ISMI, Internalized Stigma of Mental Illness; PANSS, Positive and Negative Syndrome Scale.

to determine the presence of suicidal ideation, the suicidal ideation group had significantly higher depression scores compared to the group without suicidal ideation. This highlights the critical role of depression symptoms in suicide risk among schizophrenia patients and the need to carefully evaluate depressive symptoms in this patient group.

Studies on the connection between insight and suicide have generated conflicting results. For example, Restifo et al<sup>41</sup> indicated that increased insight increased the risk of suicide through hopelessness and depression or demoralization. In contrast, Barret et al<sup>42</sup> conducted a 1-year observational study on first-episode psychosis patients and reported that increased insight reduced the suicide risk. Similarly, Pompili et al<sup>35</sup> reported no significant difference in insight between patients with and without a history of suicide attempts and proposed that insight might be a protective element against suicide. We did not observe a significant difference in insight between the patients with and without suicide attempts. In addition, the difference in insight between the patients with and without suicidal ideation was non-significant. Massons et al<sup>43</sup> stated that the conflicting results regarding insight and suicide might be due to the differences in the evaluation of insight. They reported in their study, which evaluated insight as a multidimensional construct, that disease awareness and awareness of the disease's social consequences, both of which are dimensions of insight, were connected with suicide.

Studies on the internalized stigma of schizophrenia and its relationship to suicide have recently gained importance. For instance, Yoo et al<sup>20</sup> reported that the internalized stigma levels in schizophrenia patients who previously attempted suicide were higher compared to those who did not attempt suicide. In addition, Tourino et al<sup>21</sup> revealed that internalized stigma correlated with high levels of depression, hopelessness, and an increased risk of suicide. Furthermore, Vrbova et al<sup>44</sup> demonstrated that internalized stigma was associated with an increased risk of suicide. The patients in our study who previously attempted suicide scored significantly higher on internalized stigma compared to those who did not attempt suicide. In addition, the scores for the suicidal ideation group were also significantly higher compared to the group without suicidal ideation, supporting the association between the internalized stigma and suicide. The internalized stigma and suicide relationship may be explained in several ways. Internalized stigma can lead to social isolation, hopelessness, and depression.<sup>18</sup> Importantly, depression and hopelessness are significant suicide risk factors for schizophrenia patients.<sup>5</sup> In schizophrenia, internalized stigma may increase suicide risk indirectly through depression. Furthermore, internalized stigma can prevent individuals from seeking treatment and disrupts treatment compliance.<sup>19,45</sup> In sum, internalized stigma, related to insight, is a suicide risk factor.<sup>46</sup> In light of these findings, internalized stigma should be addressed when decreasing the suicide risk in schizophrenia.

Predicting suicide in schizophrenia is difficult because many factors may lead to suicide. The value of scales evaluating suicide is limited. In our study, patients who had previously attempted suicide had significantly higher internalized stigma scores compared to the patients without this history. In addition, patients with suicidal ideation scored significantly higher on PANSS general psychopathology, CDSS, and ISMI than patients without suicidal ideation. We did not

find any differences between the groups in SAI scores. Insight is a complex psychological construct that might not be a major determinant for suicide risk in schizophrenia. Considering that depression is an indicator of suicidal ideation in schizophrenia, factors that may cause depression should be carefully evaluated. Internalized stigma, as a cause of depression, could be a risk factor for suicide. Thus, social support and perceived stigma should be evaluated in clinical practice to screen the suicide risk in schizophrenia patients.

Our study had some limitations. The first limitation was the study's cross-sectional design, which prevented long-term follow-up and an evaluation of the patients who completed suicides. The second limitation was that patients' drugs and their effects on clinical scales were not evaluated in the study. The third drawback of the study was the limited sample size.

Since suicidal behavior is among the foremost reasons for early mortality in patients with schizophrenia, larger longitudinal prospective studies are needed to clarify the effects of suicidal behavior on clinical severity and course characteristics of patients with schizophrenia. Consequently, studies could design interventions to be taken in such cases.

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