

ORIGINAL RESEARCH

To study the prevalence of suicide ideations in patients with schizophrenia at tertiary care hospital

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ABSTRACT

Background: Suicide happens in about 10% cases of schizophrenia, however, it remains poorly understood. Both positive and negative symptoms along with comorbidities like depression play an important role in suicide in schizophrenia. Hence it is prudent to study prevalence of suicidal ideation in patients with schizophrenia with a view to reduce the mortality. Aim of the study o study the prevalence of suicidal ideations among patients with Schizophrenia and to study association with socio-demographic profile and clinical correlates if any.

Material and methods: This study included 60 consecutive patients diagnosed as schizophrenia as per ICD-10. Socio-demographic data was collected ,Positive and Negative Scale for Schizophrenia (PANSS), Modified Suicide Intent Scale and Calgary Depression Scale were applied on study population. The data was statistically analysed, chi-square and t-tests were applied. A significance level of $p < 0.05$ was accepted for all analyses. **RESULTS:** The prevalence of suicide ideations was 41.67% in schizophrenia. The mean age of onset, 31.23 years. There was a significant association with unemployment and illiteracy. The mean Duration of illness of patients with suicidal ideation was 2.62 years and mean duration of untreated illness was 1.76 years. There was significant association of suicide ideations with both positive and negative symptoms and depression.

Conclusion: An early path to care and treatment with early recognition of relevant signs and symptoms by clinicians and overall improvement in socio-demographic statistics like literacy levels and employment harmonized with better community-level awareness could help us significantly decrease mortality due to suicide in schizophrenia.

Keywords: Schizophrenia, suicide ideations, deliberate self-harm, Positive and negative symptoms, depression

INTRODUCTION

Mental illness is an important risk factor for suicide The high incidence of suicidal behavior in schizophrenia is well documented. Suicidal ideations (SI) is a broad term used to describe contemplations, wishes and preoccupations with death and suicide and is a potential early warning.⁽¹⁾ Around 1 lakh suicides are prevalent in India. 46% of people who die by suicide had a known mental health condition, risk is highest for those diagnosed with psychotic

disorders.⁽²⁾ Further, 40% to 54% of individuals with schizophrenia either make an attempt or think about ending their lives^(3,4,5). There is substantial evidence demonstrating a relationship between these different suicidal expressions. The suicide risk is elevated throughout the life course, but the risk is highest during the early phases of schizophrenia.⁽⁶⁾ Patients with untreated psychosis appear to have a higher risk for violent suicide attempts compared to treated patients.⁽⁷⁾ Some studies find that longer duration of untreated psychosis is associated with increased risk for suicidal behaviour.⁽⁸⁾ The disorder usually occurs mainly in young adulthood with a reduced life expectancy approximately 20 years lower than general population suicide being the chief cause of premature death.

The presence of suicidal ideation is a potential early warning for more severe suicide behaviour. In a methodical review of more than 100 epidemiological surveys in 32 countries, the median incidence rate was 15.2 per 1,00000 persons every year.⁽¹⁾ It is important to know that suicidal ideation and planning are significant steps in course of suicide: ideation precedes planning, that may result in an attempt which perhaps primes to death.⁽⁹⁾ Findings concerning the suicide risk associated with hallucinations and delusions have, however varied.⁽¹⁰⁾ This may be explained by evidence that individuals positive symptom relate differently to suicidal behaviour, for example, paranoid delusions have shown to be associated with an increased risk of suicide⁽¹¹⁾. Depression, hopelessness, and few reasons for living have been reliably identified as risk factors⁽¹²⁾. It is grim to study and comprehend suicidal ideation beyond what is articulated. Reliable risks for hopelessness, depression, and having few reasons to live and other affect related events, such self-esteem and schematic belief, need to be taken into account.

There are many studies on suicide attempts however, suicidal ideation is a less studied entity in India and worldwide and is a potential global public health problem. Mortality and morbidity can be reduced if steps are taken at ideation stage itself. We aimed to study suicidal ideations among patients with schizophrenia and to find association between socio-demographic characteristics and clinical correlates with suicidal ideations, if any.

MATERIAL AND METHODS

PARTICIPANT

It was a cross-sectional study. Included 60 consecutive patients coming to psychiatry OPD and IPD RMCH recruited between November 2020- October 2021. Inclusion criteria were age between 18-65 years. After interview, diagnosis was confirmed by consultant psychiatrist as per ICD-10 DCR. Diagnosis of any other major psychiatric illness, intellectual disability or any organic disease were excluded. All patients/ caregivers signed written and informed consent. The study was approved by Institutional Ethics Committee, RMCH Bareilly, U.P. (IEC/39/2020/OCT).

METHODS

All the patients had a sufficient ability to speak and express themselves and were able to carry on a conversation while the scales were being applied. The scales were applied to the patients by researchers in the psychologists rooms in the hospital through face to-face interviews.

INSTRUMENTS USED

Socio-demographic data collection form, this is a self-made questioner. The patients were asked to fill out a form including questions on their age, education, gender, marital status, economic status, occupation, background, duration of the illness, occurrence of other medical disorders, family history of psychiatric disorders, and history of suicide attempts and suicidal ideation. Diagnosis was made according to ICD-10 DCR⁽¹³⁾ of schizophrenia.

Firstly, *Modified scale for Suicide ideation (MSSI)* by Ivan Miller et al. ⁽¹⁴⁾ was applied. The purpose of this scale is to assess the presence or absence of suicide ideation and the degree of severity of suicidal ideas. The time frame is from the point of interview and the previous 48 hours. It is an 18-item scale, quadripartite likert type ranging from 0-3. The scale contains the following items: Wish to die, Wish to live, Desire – active attempt, Desire – passive attempt, Duration of thoughts, Frequency, Intensity, Deterrent ,Reasons , Method – specificity, Method – availability, Courage , Competence ,Expectancy of attempt , Talk of death, Writing of death ,Suicide attempt and Actual preparation . If Item 1 and 2 are scored less than "2" and Items 3 and 4 are scored 0, then STOP otherwise continue. Severity Categories based on MSSI Total Score ,0-8 = Low, 9-20= Mild-Moderate, ≥ 21 = Severe Suicidal Ideation. Max score-54, Min score-0. On the basis of this two groups were formed. Ones with suicidal ideations another without suicidal ideations. Further assessment was done on these two groups. This took around 5-10 minutes for administration. *The Positive and Negative Syndrome Scale:(PANSS)* developed by Kay et al. ⁽¹⁵⁾ is a semi-structured interview scale with 7 point severity and 30 items. 7 of the 30 psychiatric parameters assessed by PANSS comprise the Positive Syndrome Inventory, 7 are the Negative Syndrome Inventory and the remaining 16 items are the General Psychopathology Subscale. Composite scores will be calculated by subtracting the negative score from positive score. This will yield a bipolar index ranging from -42 to + 42. By this the degree of predominance of one syndrome over the other will be known. This will take 15-20 minutes for administration. Lastly, *Calgary Depression Scale for Schizophrenia(CDSS)*¹⁶ to assess depression is applied. It is a 9 item scale which is a quadripartite likert type ranging from 0-3. It took around 5-10 minutes. Scores more than or equal to 6 are considered significant for depressive features. Maximum score 27, minimum score 0.

STATISTICAL ANALYSIS

Scores were compiled for data collection on MS Excel spreadsheet and then imported into Statistical Packaging for Social Sciences (SSPS) version 23.0. Data was analysed by applying frequency, percentage, mean, standard deviation. Depending upon the distribution and type of data expressed in means, will be analysed by t-test and proportions through chi square tests. The data obtained by counting are shown as percentages and data obtained by measurement are shown as mean \pm standard deviation. The significance level was $p \leq 0.05$.

RESULTS AND DISCUSSION

The prevalence rate in our study was 41.67% (table 1) Wayne S. Fenton et al. ⁽¹⁷⁾ found 40% prevalence of suicide ideations in 70 study subjects which is close to our study. While authors such as *Cicek Hoceoglu et al.* ⁽¹⁸⁾ had a larger sample size of 120 patients, found lower prevalence of suicide ideations 31.6% .⁽¹⁹⁾ ICD-10 considers a diagnosis of post psychotic depression, hence possibility of these ideations should never be missed in the background of violence and excitement or previous history of suicide attempt. What needs to be understood is that suicidal ideation is a construct that is sensitive to a wide range of influences, including the subject's capacity and desire to express themselves verbally, the examiner's and the patient's communication style, their level of mutual trust, personality traits and other contextual circumstances.

In our study majority of the patients were unemployed, uneducated males from lower socioeconomic status. They were married and belonging to nuclear families from urban areas. They did not have a family history of any psychiatric illness. In the current study, the mean age of population was 31.23 \pm 11.39 years with the majority falling in the 21-30 years age group, other studies such as by *Cicek Hoceoglu et al.* also have a mean age group similar to ours, 36.7 \pm 10.5 years with a majority being young adults.⁽¹⁸⁾ In many studies it is emphasized

that suicide can occur at any age in schizophrenia. However, there are findings indicating that being young increases the risk. When gender was accounted, 60% were males 40% were females belonging to lower SES (65%). The majority of patients were found to be living in an urban background (55.0%), married (46.7%) hailing from nuclear families (66.7%). When education and level of employment were accounted (51.7%) were uneducated and (41.7%) were unemployed. *Chong et al.*⁽²⁰⁾ had a similar study population where majority was unemployed, had lower educational level (50%) and were single males.

The distribution of Suicidal ideation was significantly more among subjects with Rural Backgrounds (60%) from lower SES (53.84%) and who were uneducated (68%) and unemployed (56%) (table 2). Studies on several variables, including age, gender related with suicide in schizophrenia have shown inconsistent results but several researchers came to the conclusion that young people and women commit suicide at higher rates. However complete suicide was more among males.⁽²¹⁾ *Bai et al.*⁽²²⁾ found that male gender is a risk factor for suicide in both persons with schizophrenia and the general population. Men with schizophrenia typically face more stigma, have higher rates of unemployment and higher levels of impulsivity and violence⁽²³⁾ all of which are linked to a higher risk of suicide.⁽²⁴⁾ Gender difference in the prevalence of suicide attempts in individuals with schizophrenia has been controversial. In terms of completed suicide, number of males is higher than females, but this gender difference is less in patients with schizophrenia than in the general population.⁽²⁵⁾ No significant association was found with age, gender, marital status, type of family and family history of suicide ideation in our study

Higher education has been proven to be intimately associated with suicide behaviour which is contrary to our study. In our study, no significant association has been drawn between marital status and ideations. This finding was also made in an earlier research by *C. Hoecoglu et al.*⁽¹⁸⁾ but was contradicted in another where it was discovered that being married had a protective effect.⁽²⁶⁾ The current study indicated that patients with suicidal thoughts were more likely to reside in rural areas, but the family structure and place of residence of our patients were not shown to be substantially connected with suicidal ideation. The research design, the population included and the impact of additional factors like the availability of social support and the economy may all be used to explain why certain socio-demographic indicators have a contradictory association with suicidality in the existing literature.⁽²⁷⁾

In our study population, majority had insidious onset of illness (table 3). The mean DOI was 2.62 years and mean DOUI in patients having suicidal ideation was 1.76 years (table 4). Our findings were in congruence with the findings by *C Hoecoglu et al.*⁽¹⁸⁾ and *Barret EA et al.*⁽²⁸⁾ They also stated that more than half of the suicide attempts were during the period of untreated psychosis with insidious onset. Prolonged DOUI was associated with increased risk for ideations during this particular period, these findings were in concordance with our study.⁽²⁸⁾ Poor premorbid functioning and at-risk behaviour (e.g. substance use) are more likely to have delayed treatment start and hence long duration of untreated psychosis. The mean for positive PANSS scale scores was 24 and mean for negative PANSS scale score was 32.28 in patients with suicide ideations which supports the fact that higher the positive and negative symptom score, higher the suicidal ideations. While no significant association was found with the general psychopathology scale scores in our population (table 5). Composite scores were calculated. Groups with positive and negative polarity were assessed for depression (via CDSS) and suicide ideation independent of depression score (via MSSSI), the mean total score of MSSSI was significantly more among subjects with Positive PANSS Polarity of composite scale (7.23). While mean scores of CDSS were not significantly different in both groups (subjects with positive polarity and negative polarity). This signifies that Positive symptoms are a significant factor in the causation of Suicidal ideation. (table 6). Our results were parallel to study by *Hor k. Et. Al.*⁽³⁰⁾ and *Kontaxakis Et. Al.*⁽²⁹⁾ who stated that auditory hallucinations,

persecutory delusions and depressive symptoms are a risk for suicide. However, in *Fenton et al.*⁽¹⁷⁾ literature positive and negative both symptoms have been given equal ponderance. According to *C. Hoecoglu et al.*⁽¹⁸⁾ the psychosis-motivated group tends to attempt suicide during a more acute period of the illness with psychotic characteristics and anxiety and lack of self-confidence related to this. All these findings are in concordance with our study.

Modified scale for suicidal ideations was applied. Of the ones who had suicide ideation, 12(20%) had mild- moderate severity, 8 (13.33%) had low and 5(8.33%) had severe suicidal ideation. The Calgary depression scale for schizophrenia was applied to assess for depression. The mean for depression was 10.76 with suicide ideation and 3.14 in patients without suicide ideations. The difference was statistically significant with p-value of 0.001. Hence eliciting clinically or through scales, suicidal thoughts, ideas and gestures is important in schizophrenia. It can easily be undermined by positive and negative symptoms, drug side effects and depression⁽²⁸⁾. Depression can occur during any period of schizophrenia and due to different causes. While depression in the acute period is a basic feature of schizophrenia and a subjective reaction to psychotic disintegration. Experiencing psychotic symptoms is traumatic and distressing and a majority of patients develop depression concurrent with acute psychosis.⁽³¹⁾ They experience loss of hope and aspirations and social isolation as a consequence of first episode psychosis.⁽³²⁾ It has been determined in many studies that depression is one of the most important factors in suicide as proved in our study.

According to research by *Chong et al.*,⁽²⁰⁾ individuals who scored clinically poor on the CDSS scale were 9.7 times more likely than non-clinically depressed patients to have suicide thoughts. This finding is not unexpected because there is strong evidence in the literature linking depression to an increased risk of suicide, with reports indicating a four to seven-fold increase. It has been noted that people with schizophrenia, whether or not concurrent depression is present, are at an increased risk of suicide.

STUDY LIMITATIONS

The most important restriction of this study is that the patient sample was small and the patients were selected from a defined centre. This causes difficulties in making generalizations. It was a cross-sectional study which has its own limitations. Despite all these restrictions, we think that our study will serve as a guide for other studies to be done in this field.

CONCLUSION

Prevalence of suicidal ideations is quite high in schizophrenics and clinicians should actively exclude or confirm suicidal ideations in their patients to reduce mortality. These ideations may be present anytime during active phase, recovery and follow-up and can be easily overlooked. Hence, probing of suicidal ideations in schizophrenia should be a focus of clinical attention and a part of routine work-up. Positive, negative symptoms, agitation, excitement, violence and depression are significant risk factors that mostly mask SI. Identification of SI should be done as early as possible because prevention at this stage is better than losing a life to suicide. Duration of untreated psychosis should be curtailed as short as possible because longer the untreated illness and longer it takes to align to path to care, more is the severity and prevalence of SI.

CONFLICT OF INTEREST

The author has none to declare.

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RESULTS**Table 1: Prevalence of suicidal ideations in patients with schizophrenia**

Suicide Ideation	Frequency(n)	Percent(%)
Present	25	41.67%
Absent	35	58.33%
Total	N=60	100.00%

Table 2: Association of socio-demographic characteristics with suicidal ideations(SI)

	Patients having SI n=25	Patients not having SI n=35	P-Value	Test
	Number(%)	Number(%)		
GENDER				
Female	11(44)	14(37.1)	0.593	chi square
Male	14(56)	22(62.9)		
BACKGROUND				
Rural	15(60)	12(34.29)	0.048*	chi square
Urban	10(40)	23(65.71)		
MARRITAL STATUS				
Married	8(32)	20(57.14)	0.152	chi square
Separated	4(16)	3(8.57)		
Unmarried	13(52)	12(34.28)		
SES				
Higher	4(19)	17(81)	0.009*	chi square
Lower	21(53.84)	18(46.15)		
EDUCATION				
Uneducated	17(68)	14(40)	0.007*	chi square
Intermediate	2(8)	2(5.7)		
Primary	6(24)	3(8.6)		
Secondary	0(0)	6(17.1)		
Graduate	0(0)	8(22.9)		
Postgraduate	0(0)	2(5.7)		
OCCUPATION				
Skilled	2(8)	16(45.7)	0.014*	chi square
Unemployed	14(56)	11(31.4)		
Unskilled	9(36)	8(22.9)		

Table 3: Association of clinical correlates with SI

	Patients having SI	Patients not having SI	P-Value $\leq 0.05^*$	Test
	n=25	n=35		
	Number(%)	Number(%)		
F/H/O Suicide				
No	24(96)	35(100)	0.233	chi square
Yes	1(4)	0(0)		
Mode of onset				
Acute	1(4)	9(25.7)	0.026*	chi square
Insidious	24(96)	26(74.3)		

Table 4: Association of duration of illness and duration of untreated illness with suicidal ideations

	Suicidal ideation	Mean	Std. Deviation	p-value $\leq 0.05^*$
Duration of illness (DOI)(years)	No	1.37	0.94	0.001*
	Yes	2.60	1.22	
Duration of untreated illness (DOUI)(years)	No	1.29	0.75	0.028*
	Yes	1.76	0.88	

Table 5: Association of suicide ideation with PANSS and CDSS

	Suicidal ideation	Mean	Std. Deviation	p-value $\leq 0.05^*$
Total score CDSS	No	3.14	1.54	0.001*
	Yes	10.76	5.04	
PANSS Positive	No	24.28	7.08	<0.001
	Yes	24.31	7.07	
PANSS Negative	No	21.00	7.23	<0.001
	Yes	32.28	7.82	
General psychopathology	No	49.08	29.08	0.363
	Yes	42.28	27.30	

Table 6: Association of composite scale with CDSS and MSSSI

	Composite scale	Mean	Std. Deviation	p-value
CDSS	Negative	4.53	4.36	0.08
	Positive	7.02	5.24	
MSSI	Negative	1.65	7.08	0.03*
	Positive	7.23	7.07	

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