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RESEARCH

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Risk factors associated with suicide attempts in patients with schizophrenia: an observational study from South India

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Abstract

Background As a suicide attempt is an important predictor of suicide in patients with schizophrenia, it is essential to assess risk factors to prevent suicides. This study aimed to assess the clinical factors and reasons associated with suicide attempts in patients with schizophrenia. A chart review of the patients diagnosed with schizophrenia from January 2014 to December 2019 was conducted at a tertiary hospital in South India. Socio-demographic and clinical details were extracted using a pro-forma. Details of suicide attempts were collected for all the patients.

Results Out of 300 patients, 54 patients (18%) had at least one suicide attempt. Comorbid depression ($p < 0.001$,$\varphi = 0.32$) and substance abuse ($p = 0.043$,$\varphi = 0.1$) were significantly more in patients with suicide attempts. The group with suicide attempts had a significantly higher record of poor treatment compliance ($p = 0.001$, $\varphi = 0.19$). The most common methods of suicide attempts were drug overdose and consumption of poison (20.3% each). The most common reasons were the presence of depressive symptoms (24.1%) and delusions (24.1%). Hallucinations contributed to 22.2% of the suicide attempts.

Conclusions Suicide attempts were common among schizophrenia patients in up to 18%. Evaluation and early treatment of depressive symptoms and substance abuse and improvement of treatment adherence may help prevent suicide in patients with schizophrenia.

Keywords Deliberate self-harm, Intentional self-harm, Schizophrenia, Suicide attempt, Suicide

Background

Suicide is frequent in schizophrenia [1, 2]. Up to 10% of the patients with schizophrenia die by suicide, which is 20 times higher than the rate of suicide in the general population [3]. A much higher proportion (40%) of patients with schizophrenia attempt suicide at least once in their life during their illness [4, 5]. As a history of a suicide attempt is one of the most important predictors of suicide in patients with schizophrenia, it is essential to assess it among other risk factors to prevent completed suicides [6, 7].

A systematic review on risk factors of suicide in schizophrenia listed the presence of affective symptoms, history of a suicide attempt, and the number of psychiatric hospitalizations as important ones [8]. The presence of depressive symptoms is considered the strongest predictor of suicide attempts in schizophrenia [9, 10]. Other risk factors include younger age, closeness to the onset of illness, older age at illness onset, male gender, comorbid substance abuse, and the period during or immediately following psychiatric discharge [8]. Other probable risk factors include being unmarried, staying alone, good insight into illness, having poor work functioning, and access to lethal means [7]. Substance abuse, a common comorbid

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condition with schizophrenia, is reported as a risk factor for suicide [11, 12]. It was hypothesized that substance abuse, while not directly influencing suicide risk, did impact many other factors that increased the risk for suicidal behavior in schizophrenia, such as poor compliance to treatment, loss of self-control, violence, and economic difficulties [13]. Comorbid medical or neurological disorders may increase suicide risk, too [14].

Systematic reviews have not found any impact of being employed on the risk of suicide. Specifically, unemployment is not associated with a heightened risk for suicide in schizophrenia [15]. However, there have been contrasting reports concerning socio-demographic variables concerning gender, marital status, socioeconomic status, and background. No socio-demographic and clinical variables at baseline were predictive of suicidal status at the end of the 10-year follow-up in patients with schizophrenia [16].

The only significant and reliable protective factor for suicide in schizophrenia patients is the availability of and compliance with comprehensive treatment [7]. Suicide risk is significantly higher in patients with poor adherence to treatment [17].

In the Indian population, there is limited literature on suicide attempts in patients with schizophrenia in a large sample. A study looked into suicide attempts in schizophrenia spectrum disorders and affective disorders. They found the following factors as significant: age < 30 years, female sex, being married, urban background, past suicide attempts, presence of psychotic symptoms, stressors, and perceived stress due to mental illnesses. This study also emphasized the increased suicidal risk in patients with auditory hallucinations, specifically command hallucinations [18]. Another study reported the association of positive symptoms with suicide attempts, irrespective of the time of attempt [19]. However, the relationship between delusions, hallucinations, and suicide is inconsistent [6, 10, 14, 17]. A study found that poisoning with organophosphate compounds and medications is a common form of deliberate self-harm in the developing world [20].

Most data included in the systematic reviews and meta-analysis are from Western countries [21, 22]. It is well-known that suicide differs in different cultures, and specific assessment is needed in different ethnic backgrounds [23]. As there are not many studies in the Indian context, specifically looking into the socio-demographic factors, clinical variables, and description of the reasons and types of suicidal attempts in schizophrenia, we aimed to assess the above-mentioned factors.

Methods

Subjects

This retrospective observational study based on a chart review was carried out in the Department of Psychiatry at a tertiary care center in coastal south India, from February to June 2020. At our center, all inpatients and most patients seen in the outpatient setting in the department of psychiatry are evaluated using a detailed case record pro-forma by a trainee psychiatrist or allied mental health, under the direct supervision of a qualified psychiatrist. The case record files also contains detailed mental status examination findings, assessments on structured rating scales, clinical progress notes and follow up notes during subsequent visits. The Department Scientific committee and the Institutional Ethics committee (IEC 30–2020) approved the study. We accessed all the psychiatry case record files registered from 2014 to 2019.

We included patients diagnosed with schizophrenia as per ICD 10 criteria, in the 18–60 years age range. Those diagnosed with comorbid bipolar disorder and neurological disorders as per ICD 10 classification were excluded.

Tools

A semi-structured proforma was used to collect the socio-demographic and clinical details at presentation, details of suicide attempts, clinical factors related to suicide attempts, and reasons for the attempts.

All the data on attempts of self-harm documented in the files were collected. We subdivided all self-harm into a) suicide attempt, defined as 'self-harm with the intent to die,' thus not including suicidal ideation, rumination, or plans; and b) NSSI, defined as 'self-harm without suicide intent' (Nice guidelines,2004) [24]. When the information was not adequate to consider it as a suicide attempt or NSSI, we did not include it in the analysis.

Socio-demographic data included details of age, gender, marital status, socioeconomic status, years of education, occupational status, type of family, rural/urban background. Clinical factors that were assessed included the age at onset of schizophrenia, the duration of illness, the duration of untreated psychosis (DUP), course of illness, the presence/absence of major depressive episodes (MDE) in a lifetime, type of onset, substance use, poor compliance to treatment, number of hospitalizations, and insight into illness. Other factors assessed were social functioning, occupational functioning, family history of illness, and family history of suicide/suicide attempt.

Details of self-harm included the type, number of attempts, age at the first attempt, and prominent symptoms at the time of the attempt. Treatment details included medication dosage (as chlorpromazine equivalents in mg/day), duration, response, adverse effects, and electroconvulsive therapy (ECT). Compliance with

treatment, the number of hospitalizations at our center, drop out from treatment, and co-treatment with ECT during their treatment course were documented. These above-mentioned factors were all assessed based on their evaluation at our center; their prior consultations at other centers were not taken into account. However, their prior self-harm was considered if they were documented in our records as a part of history taking.

Procedure

The first author retrieved and collected the data from all the psychiatry case record files from 2014 to 2019. There were 2740 adult psychiatry case record files registered in that period which included all the various psychiatric disorders seen in our clinical practice (excluding those of mood disorders, substance use disorders, and child/adolescent patients) of which 300 were of patients diagnosed with schizophrenia. Socio-demographic and clinical details were extracted using the pro-forma. Details of suicide attempts and NSSI were collected for all the patients. The patients were divided into two groups – one with suicide attempts ($n=54$) and the other without history of suicide attempts ($n=246$) for analysis of data. NSSI was included in the group with suicide attempts during analysis of data as it was only a small portion and there was overlap of NSSI and suicide attempts in some patients.

Statistical analysis

Data obtained were analyzed using Statistical Package for the Social Sciences (SPSS) for Windows, version 16.0 (SPSS Inc., Chicago). The proportions between the two groups were compared using Pearson's chi-square test, and the means were compared using the independent t-test. The effect sizes were reported as the phi coefficient (ϕ) and Cohen's *d*. The *p*-value < 0.05 (2-tailed) was considered significant. Binomial logistic regression analysis was carried out with factors with $p<0.1$ in univariate analysis (age, age of onset, course of illness, number of episodes.substance use, nicotine use, comorbid depression, antipsychotic dose, history of ECT, and compliance) and suicide attempt as outcome. Variance explained was calculated as Nagelkerke R^2.

Results

Socio-demographic and clinical variables

Out of 300 patients, 54 (18%) patients had documented suicide attempt. There was no difference in terms of age, gender, socioeconomic status, years of education, occupational status, marital status, and background between those with or without self-harm. However, there was a significant difference between the two groups in their course of illness. Continuous course of illness was found in 40 (81.6%) and 209 (92.5%) among those with and without self-harm.

The two groups did not differ significantly concerning the duration of illness at presentation to our hospital, age at onset of illness, and the type of illness onset. However, there was a significant difference between the groups for the number of illness episodes and the number of hospitalizations at our hospital (Table 1).

Factors associated with suicide attempt

Comorbid substance use (alcohol/tobacco/cannabis) was significantly more prevalent in the self-harm group ($p=0.043$); however, the effect size was small ($\phi=0.1$). Current comorbid depression was significantly more in the group with self-harm ($p<0.001$), with a medium effect size ($\phi=0.32$). There was a significantly higher usage of ECT as a treatment option in those with self-harm ($p=0.02$, $\phi=0.13$). Those with self-harm had a significantly higher record of poor treatment compliance than those without ($p<0.01$, $\phi=0.19$). The self-harm group received a significantly higher antipsychotic dose ($p=0.04$); the effect size for the difference was small (Cohen's $d=0.26$). There was no statistically significant difference between the two groups for family history of suicide/suicide attempt, comorbid physical illness, history of depression in the past, and type of antipsychotic used (FGA vs. SGA) as depicted in Table 2.

Binomial logistic regression analysis was carried out with factors with $p<0.1$ in univariate analysis (age, age of onset, course of illness, number of episodes. substance use, nicotine use, comorbid depression, antipsychotic dose, history of ECT, and compliance) and suicide attempt as outcome (Table 3). Among the factors, current depression (OR = 15.11, 95% CI 5.29- 43.16), poor compliance to treatment (OR = 5.76, 95% CI 2.07–16.01) and tobacco dependence(OR = 2.93, 95% CI 1.17–7.32) were associated with suicide attempts. All these factors explained 34.5% (Nagelkerke's $R^{2)}$ of the variance.

Characteristics of self-harm (Table 4)

The mean age at first ISH was 28.2 (SD 8.9) years, and the mean number of episodes of self harm was 2.2 (SD 2.0). Out of 50 patients with a history of self harm, 24 (48%) patients had a past history of self harm, whereas 26 (52%) patients did not have a past history of self harm. For stressors precipitating self harm, 21 patients had a history of a significant stressor before self harm. Insomnia in the week before self harm was documented in 19 (35.1%) of the patients; however, there were no details /inquiries into it in 31 (57.4%) patients out of 54 patients. A majority of self harm attempts had high lethality (78%) and high intentionality (88.5%). NSSI was noted in 14 (25.9%) patients.

Table 1 Comparison of socio-demographic and clinical variables between patients with and without suicide attempt(SI)

		With SI n		Without SI n		χ^2/t	*p*	Effect size (φ/Cohen's *d*)
Age, mean (SD)		54	33.8 (8.7)	245	36.5 (10.4)	-1.7	0.05	0.28
Gender, *n*(%)	Male	54	33 (61.1)	246	141(57.3)	0.26		
	Female		21 (38.9)		105(42.7)		0.65	-
Occupation, *n*(%)	Employed	54	24 (44.4)	245	90 (36.7)	1.08		
	Homemaker		11 (20.4)		59(24.1)		0. 57	-
	Unemployed		19 (35.2)		96 (39.2)			
Education, *n*(%)	Not educated	54	3 (5.6)	244	11 (4.5)	1.75		
	School/PUC		28 (51.9)		149(61.1)		0.40	-
	Graduate/PG		23(42.6)		84(34.4)			
Socio-economic status, *n*(%)	APL	54	38 (70.4)	238	164(68.9)	0.04		
	BPL		16 (29.6)		74 (31.1)		0.48	-
Residence, *n*(%)	Urban	54	30 (55.6)	242	134(55.4)			
	Rural		24 (44.4)		108(44.6)	0.001	> 0.99	-
Marital status, *n*(%)	Single	54	30 (55.6)	245	129(52.4)	1.84		
	Married		18 (33.3)		100(40.7)		0.39	-
	Divorced/widowed		6(11.1)		17(6.9)			
Type of Onset, *n*(%)	Acute	54	29(53.7)	245	105(42.9)	2.1		
	Insidious		25(46.3)		140(57.1)		0.17	-
Course, *n*(%)	Continuous	49	40 (81.6)	226	209 (92.5)	6.8		
	Episodic		9(18.4)		14(6.2)		0.02	0.17
	Fluctuating		0(0)		3 (1.3)			
Age at onset, mean (SD)		54	24.2 (7.8)	244	26.3 (8.6)	-1.67	0.09	0.26
Duration of illness (months), mean (SD)		54	118.1 (99.25)	244	125.8 (136.9)	-0.39	0.69	-
Number of episodes, mean (SD)		54	1.46 (1.4)	245	1.08 (0.4)	3.36	0.001*	0.35
Number of hospitalizations, mean (SD)		54	1.37(1.2)	246	1.03(1.0)	2.01	0.045*	0.29

* $p < 0.05$ (2 tailed), *APL* Above poverty line, *BPL* Below poverty line

Methods of suicide attempt

The different modes/methods of suicide attempt have been summarized in Fig. 1. The most common suicide attempt methods were drug overdose and poison consumption, with 11 attempts in each group (i.e., 20.3% each). The next method of suicide attempt was by hanging, which contributed to 10 (18.5%) of the attempts. Suicide attempt, by jumping into the well/ drowning, contributed to 16.6% of the attempts. Other attempts (9.2%) included attempts at immolation, spraying pesticide spray on private parts, swallowing zip from clothing, lying on a railway track, and deliberate attempt to get bitten by a snake. The slashing of the wrist accounted for 5.5% of all the attempts. The method of suicide attempt was not documented for 5.5% of the patients.

Reasons for suicide attempt

The reasons for suicide attempt have been highlighted in Fig. 2. The most common reasons were the presence of depressive symptoms (24.1%) and delusions (24.1%). Hallucinations contributed to 22.2% of the suicide attempt, most being of command type or with derogatory content. Impulsive suicide attempt was documented in 16.7% of the patients, whereas prominent anxiety contributing to suicide attempt was reported in 5.5% of the patients. Obsessive–compulsive symptoms contributed to 1.9% of suicide attempts. Reasons were unclear/ not documented in 7.4% of the patients with suicide attempts.

Discussion

Out of 300 patients diagnosed with schizophrenia, 54 patients (18%) had documentation of suicide attempt. This is similar to the rates of 23.3% and 22% [10, 25], but higher than 10% reported by [19]. NSSI was noted in 14 (25.9%) patients. The reason for different prevalence rates could be because only outpatients were assessed in one study [19], and schizoaffective disorder was included in the other two studies [25], whereas, our study assessed both outpatients and inpatients of patients with

Table 2 Factors associated with suicide attempt

		With SI n *n*(%)		Without SI *n*		χ^2/t	*p*	Effect size (φ/Cohen's *d*)
Comorbid substance use, *n*(%)	Yes	54	21 (38.8)	246	61 (24.8)	4.42	0.043*	0.12
	No		33 (61.1)		185 (75.2)			
Comorbid tobacco use, *n*(%)	Yes	54	21 (38.8)	246	58(23.5)	5.35	0.026*	0.13
	No		33 (61.1)		188(76.4)			
Family history of suicide/attempt, *n*(%)	Yes	54	10 (18.5)	246	35 (14.2)	0.63	0.52	-
	No		44 (81.5)		211 (85.8)			
Comorbid physical illness, *n*(%)	Yes	54	14(26)	246	69(28)	0.1	0.86	-
	No		40(74)		177(72)			
ECTs received, *n*(%)	Yes	54	17 (31.5)	246	42 (17.1)	5.8	0.02*	0.13
	No		37 (68.5)		204 (82.9)			
Current comorbid depression, *n*(%)	Yes	54	20 (37)	244	20 (8.2)	31.6	< 0.001*	0.32
	No		34 (63		224(91.8)			
Lifetime depressive episode, *n*(%)	Yes	54	26 (48.1)	243	32(13.2)	34.4	0.38	0.34
	No		28 (51.9)		211 (86.8)			
Type of antipsychotic, *n*(%)	FGA	54	1(1.9)	246	14(5.7)	1.27	0.5	-
	SGA		40(74.1)		181(73.6)			
	Both		13(24.1)		51(20.7)			
Compliance to treatment, *n*(%)	Poor	54	44 (81.5)	245	139 (56.7)	11.4	0.001*	0.19
	Good		10 (18.5)		106 (43.3)			
Total antipsychotic dose (CPZ equivalent, mg/day), mean (SD)		53	452.2 (361.9)	243	373.9 (223.3)	2.03	0.04*	0.26

* $p < 0.05$ (2 tailed), *ECT* Electroconvulsive therapy, *CPZ* Chlorpromazine

Table 3 Binomial logistic regression analysis showing variables associated with suicide attempt

	Unstandardised coefficients		*p* value	Exp(B)	95% CI	
	B	S.E			Upper	Lower
Comorbid tobacco use(present vs absent)	1.07	0.46	**0.02**	2.93	1.17	7.32
Comorbid depression (present vs absent)	2.71	0.53	**< 0.001**	15.11	5.29	43.16
Compliance to treatment(poor vs good)	1.75	0.52	**0.001**	5.76	2.07	16.01

$p < 0.05$; Nagelkerke $R^2 = 0.34$; Model chi-square: 63.53

schizophrenia. Other countries reported different prevalence rates of suicide attempts in schizophrenia, varying from 14.6% in China [21] to 39.2% in Canada [26]. The wide differences in rates across studies could be due to the differences in demographic, socioeconomic, and cultural variables, sampling techniques, and criteria for defining suicide-related behaviors. For example, compared with Western countries, under-reporting suicide-related behaviors is more common in India due to fear of stigmatization. Furthermore, there is also fear of legal punishment, as suicide attempt was a punishable offense under the Indian Penal Code (Sect. 309) until 2018 [27].

There was no difference in age, gender, socioeconomic status, years of education, occupational status, marital status, and background between those with and without a suicide attempt. No association with demographic variables has been noted in an earlier Indian study, too [16].

In terms of clinical variables associated with suicide attempts in schizophrenia, the main factor that had a highly significant association was the presence of comorbid depressive symptoms. This finding supports what has been found in previous studies [8–10, 12]. It also highlights the critical role of depressive symptoms in increasing the suicide risk in patients with schizophrenia, which often gets missed in the follow-up visits—the need for a careful assessment of depressive symptoms as a significant potential prevention strategy for suicide attempts.

Table 4 Characteristics of self harm ($N=54$)

	n	Mean (SD)/ *n*(%)	Median (IQR)
Episodes	54	2.2 (2)	1 (2)
Age at first attempt	54	28.2 (8.9)	27 (12.5)
Past history of self harm	50		
Present		24 (48)	
Absent		26 (52)	
Insomnia before self harm	54		
Yes		19 (35.1)	
No		4 (7.4)	
No details available		31 (57.4)	
Stressors before self harm	49		
Yes		21 (42.9)	
No		28 (57.1)	
Lethality	50		
Low		6 (12)	
Moderate		5 (10)	
High		39 (78)	
Intentionality	52		
Low		6 (11.5)	
High		46 (88.5)	
NSSI	54		
Present		14 (25.9)	
Absent		40 (74.0)	

We found higher substance use rates, specifically alcohol and nicotine dependence, in patients with suicide attempts. It has previously been hypothesized that nicotine dependence's co-occurrence characterizes a more severe clinical illness and, possibly, a biological subtype of schizophrenia, associated with poorer outcomes and increased suicide risk [2, 12]. Alcohol use is also associated with an increase in suicidal thoughts, has been identified as a potent proximal risk factor, and has a consistent dose–response relationship [28].

Poor compliance with treatment was also associated with suicide attempts in schizophrenia. This suggests that treatment with antipsychotics has a protective effect in the prevention of suicide attempts, as highlighted in previous studies [12, 29–31]. However, unlike previous studies [32], there was no difference in suicide attempts among those who took FGA or SGA in our study. The reason could be that the FGAs at our center were mostly given as depot preparations for those who previously had poor compliance with treatment and hence, might have had a protective effect against suicide attempts due to continued treatment. It emphasizes that continuous and comprehensive treatment is the only reliable protective factor in suicide in schizophrenia [7].

The mean age of the patients at first suicide attempt was 28.2 years (SD 8.9 years), similar to findings from earlier studies [7], and suggests that the younger population is at a higher risk of self harm. Around 48% of patients with suicide attempt had a history of self harm, which highlights the risk of previous attempts in the patients' suicidality. More than 80% of all suicide attempts were of high lethality and intentionality (as assessed and documented in the case records), signifying the need for early detection and management, especially in the illness's early stages. The NSSI was noted in 25.9% of the attempters, which has not been studied extensively. The attempts ranged from spraying themselves with toxic sprays to cutting themselves to respond to their delusions and/or hallucinations. Major self-mutilation is known in patients

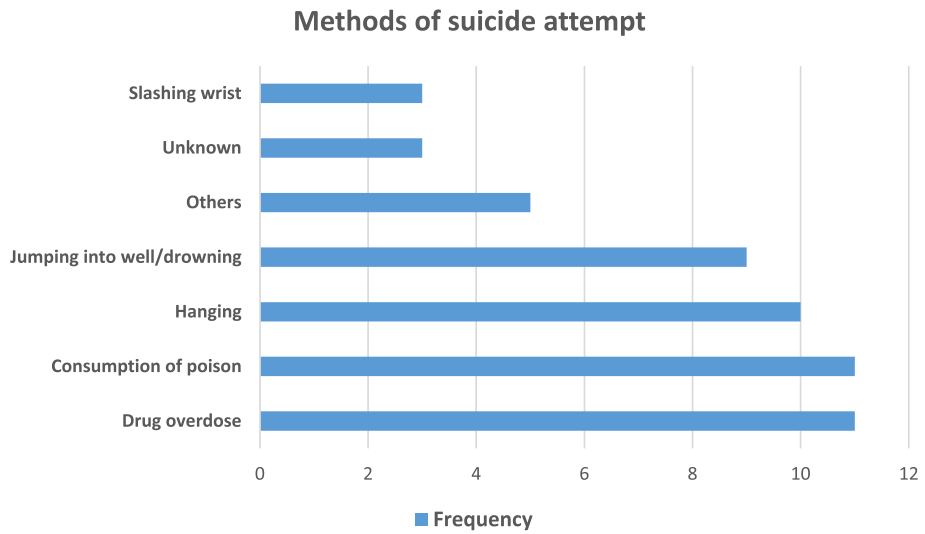

Fig. 1 Methods of suicide attempt

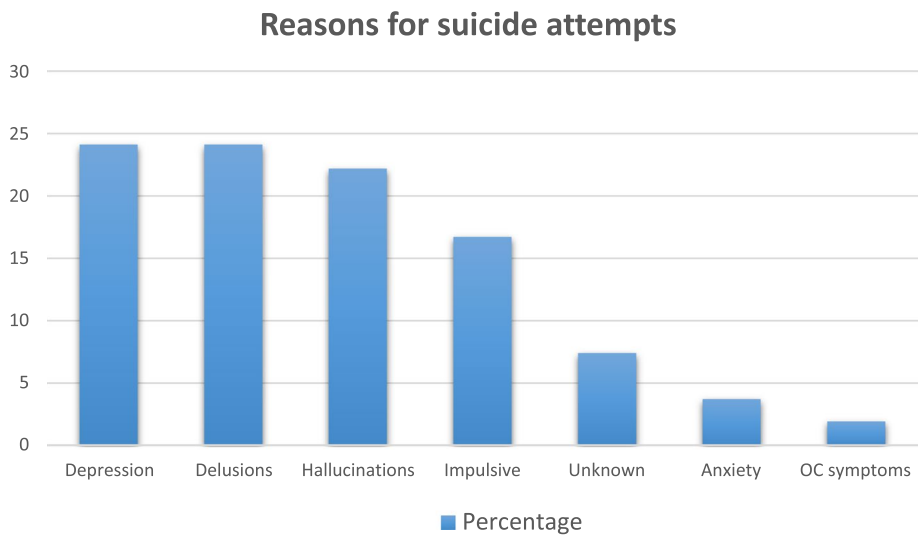

Fig. 2 Reasons for suicide attempts

with schizophrenia, specifically during acute exacerbations [33]. This area requires further study into its types and reasons for occurrence, as it is relatively less known in this population.

Interestingly, drug overdose and consumption of poison were the most common methods of suicide in this population. Earlier studies have found similar findings on the most common suicide attempt [20]. Hanging was the next common method, followed by jumping into the well. The slashing of the wrist was the least common method of a suicide attempt. As most patients overdosed on their own medication as it was easily accessible to them, it would be important for the caregivers to supervise medication intake, especially in patients in their early stages of illness and during their symptomatic phases.

As depressive symptoms were the most striking risk factor of suicide attempts in this study, it is not surprising that depressive symptoms were the most common reason for self harm. The reason could be many ranging from either post-psychotic depression or the distress due to symptoms, especially persistent and unremitting symptoms or reversible depressive symptoms due to side effects of drugs, etc. [34]. The possibility of using an anti-depressant for syndromal or sub-syndromal depression in schizophrenia has to be considered to reduce the suicidal risk [32, 34, 35]. However, delusions (especially delusion of persecution) and hallucinations (especially command hallucinations) were also significant reasons for suicide attempts in this population. The importance of positive psychotic symptoms and its unremitting and distressing nature increasing the risk of suicide attempts has been noted in previous studies too [6, 14, 36]. The symptoms could trigger self harm on their own and the distress/depression caused by the symptoms.. Routine use of HAM-D scale to assess depressive symptoms in schizophrenia may be useful in early diagnosis of depression and reduction of suicide risk in patients with schizophrenia.

This also highlights the importance of the need for compliance with treatment and usage of Clozapine in treatment-resistant patients to reduce the risk of suicide in schizophrenia. Usage of depot antipsychotics may also help in improving compliance to treatment and reduction of risk of suicide. A surprising finding was the presence of impulsive suicide attempt in patients with schizophrenia, which has not been reported or assessed in previous studies.

This study's limitations were the retrospective design, which relies a lot on documentation and hence, runs the risk of missing important details such as a family history of ISH/suicide attempts. Details about severity of symptoms, suicide risk and depression were not assessed using standardized scales. Stigma in reporting a history of self harm in patients and possible missing data due to the completion of suicide in patients with schizophrenia could be sources of bias. As the study included only hospital sample with severe illness, the findings may not be generalizable to community sample with less severe illness.

Conclusions

Almost one-fifth of patients with schizophrenia had documented suicide attempt in our sample. Comorbid substance dependence(especially tobacco dependence), depressive disorder and poor compliance to treatment were associated with suicide attempts. One-fourth of

the patients with self-harm had NSSI, which is relatively understudied. A prospective study design with a long-term follow-up from the first episode would also be a better way of assessing risk factors of suicide attempts in patients with schizophrenia.

Abbreviations

ISH	Intentional self harm
IEC	Institutional Ethics Committee
NSSI	Non-suicidal self injury
ICD	International Classification of Diseases
SPSS	Statistical Package for the Social Sciences
ECT	Electroconvulsive Therapy
DUP	Duration of Untreated Psychosis
MDE	Major Depressive Episode
FGA	First Generation Antipsychotic
SGA	Second Generation Antipsychotic
SI	Suicide attempt
CPZ	Chlorpromazine

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Authors' contributions
Both SS and SKP contributed to conceptualization of study, data analysis and interpretation and creation of the manuscript. Both the authors have approved the final version of the manuscript.

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Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The Department Scientific committee and the Institutional Ethics committee (IEC 30–2020) approved the study. As it was a chart review, consent to participate was not sought.

Consent for publication
As it was a chart review, consent for publication was not sought.

Competing interests
'The Author(s) declare(s) that there is no conflict of interest'.

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