



Suicide attempts in schizophrenia patients: a retrospective study

Abstract

Objectives: Schizophrenia is a major and disabling chronic mental illness with variable course. The presence of suicide death and suicide attempts causing more severity of the psychopathology of these populations with schizophrenia. Both sexes are affected and the presence of substance abuse increases the vulnerability to suicide in these populations. So, aim of the study is to estimate the prevalence of suicide attempts and its related clinical variables in patients diagnosed with schizophrenia. **Methodology:** This is a retrospective study. Data was collected between January 2018 and December 2018 from the patients' case history sheet. The clinical data proforma was prepared for data collection. ICD-10 diagnostic criteria had been used to diagnose patients with schizophrenia. Both male and female patients between 18 to 60 years had been enrolled in the study after fulfilling the selection criteria. Descriptive statistics had been applied in this study. **Results:** A total of 234 patients' data were collected and 54.3% were male followed by 45.7% were female. The prevalence of suicide attempts was estimated at 4.34%. The mean age of suicide attempter was 27.3 years. Out of 234 patients, a family history of suicide was 6.9%, a family history of schizophrenia was 17.8% followed by a family history of substance abuse in 46.5% was recorded. **Conclusion:** The percentage of suicide attempter in diagnosed cases of schizophrenia has been found to be lower (4.34%) in this region of the globe in comparison to other parts of the world. The risk factors for suicide attempters in this study are male gender, young adult, and presence of substance abuse.

Keywords: Brain disorder, Psychosis, Drug naïve.

Ish Garg¹, Bobby Hmar²,
Priyam Sharma³, Shyamanta Das⁴

¹Ish Mind Care, Bathinda, Punjab, India,

²Department of Psychiatry, Nalbari Medical College Hospital, Nalbari, Assam, India,

³Sukoon Health, Delhi, India, ⁴Department of Psychiatry, Dhubri Medical College Hospital, Dhubri, Asam, India

Correspondence:

Dr. Ish Garg, MD, Psychiatry, Ish Mind Care, Bathinda, Punjab, India, PIN-151001. ishmindcare@gmail.com

Received: 24 July 2024

Revised: 23 August 2024

Accepted: 23 August 2024

Epub: 30 June 2025

INTRODUCTION

Schizophrenia is a disabling brain disorder. Its severe and persistent psychotic manifestations are accompanied by variable cognitive dysfunction and profound psychosocial impairment. The lifetime prevalence of schizophrenia appears to be approximately 0.3-0.7% and the suicide rate is approximately five to six per cent and about 20% attempt suicide on one or more occasions as per the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).[1] In India, the crude prevalence of schizophrenia is 0.3% (0.2-0.3) according to the Global Burden of Disease Study. The study found a modest correlation between the prevalence of suicide death rate and schizophrenia in both sexes.[2] According to a few studies conducted in the past, it was seen that schizophrenia patients usually have a higher death rate than the general population. Compared to the general population, suicide and suicide attempts are greater in schizophrenia. Suicide attempts in schizophrenia have been reported to be 20-40% in some studies.[3-5]. According to previous research work, it was seen that attempts of suicide in patients of schizophrenia in India are less (23.3%) as compared to western countries (the United States of America [USA]-48.3%), and one reason for the lesser rate is

that it is believed that Indian society is not very tolerant of suicide, views acts of suicide as lack of courage, timid, and violation of a person's moral standard.[6] Miles[7] reviewed 34 studies that observed people with schizophrenia and estimated a ten per cent lifetime risk of suicide. According to the follow-up studies by Caldwell and Gottesman,[8] there is an estimation that ten per cent to 13% of individuals with schizophrenia die by suicide. In a study conducted on two independent cross-national samples from India and USA, it was concluded that the impact of known risk factors for suicide attempts among patients with schizophrenia differs across ethnic groups.[9] Different risk factors have been identified and reported in different studies. Younger age of onset, male gender, unmarried, unemployed, comorbid substance use, history of depression, treatment history, and compliance if the poor socioeconomic status of the patient, poor family support, and positive family history are some of the risk factors that make a schizophrenia patient vulnerable to suicide has been reported by Pompili.[10] Therefore, this study has been conducted as very little work related to this topic is done in this part of the country that studies the prevalence and clinical variables or risk factors related to suicide attempts in patients with schizophrenia.

Aims and objectives of this study

1. To estimate the prevalence of suicide attempts in schizophrenic patients
2. To study the clinical variables related to schizophrenia
3. To study and evaluate various sociodemographic variables in schizophrenia patients
4. To assess the reason for suicide attempts in schizophrenia

MATERIALS AND METHODS

Place of study

Gauhati Medical College Hospital (GMCH), Guwahati, Assam, India is a tertiary care institute that receives patients from the entire North East of India.

Sample size

Two hundred and thirty patients visiting the outpatient department (OPD) of psychiatry of GMCH in one year.

Study design

This is a retrospective study.

The study was conducted in the Department of Psychiatry, GMCH. Data for one year, from January 2018 to December 2018, was collected from the case history sheet of the psychiatry OPD. A sociodemographic proforma was used for obtaining the sociodemographic and clinical variables of schizophrenia patients as per selection criteria. In the proforma, various clinical variables regarding suicidal attempts, family history of suicide, family history of schizophrenia, substance abuse, method of suicidal attempt, and treatment history were recorded, including demographic variables. Medico-legal cases as a variable were not enrolled in the study. No correlation of data from the medical register for the type of suicide attempt was done and the information obtained from the psychiatry case history sheet of the Department of Psychiatry was analyzed in the study. Although all suicide attempts were managed on an inpatient basis, as it was not the objective of the study, the information regarding inpatient management was not recorded.

Inclusion criteria

1. All patients who visited the psychiatry OPD of GMCH in the year 2018 diagnosed with schizophrenia
2. Schizophrenia patients with or without substance use
3. All genders
4. Age between 18 and 60 years

Exclusion criteria

Patients diagnosed with an associated seizure disorder, intellectual disability, or major medical illness

Tools used

1. Schizophrenia is diagnosed as per the tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) criteria.[11]

2. A proforma was developed for patients diagnosed with schizophrenia, including their sociodemographic profile and clinical variables.

Ethical clearance

Ethical clearance was obtained from the Institutional Ethics Committee, GMCH.

Statistical analysis

The study findings were analysed by descriptive statistics in the forms of mean, frequency, and percentage.

RESULTS

Table 1 represents the sociodemographic and clinical variables of patients with schizophrenia. The total number of patients was 230. Male were 54.3% and 45.7% were female. Family history of suicide was in 6.9% of patients with first-degree relatives of schizophrenia, and family history of schizophrenia was in 17.8%. While exploring the treatment history, 19.1% were drug naïve, 26% discontinued medication, 23% were on irregular medication, and 19.5% were on regular medication. Regarding substance abuse, 46.5% of patients had a history of substance abuse. Out of 230, a suicide attempt was found in ten (4.34%) patients. No record was found in 12.2% of patients with schizophrenia regarding suicide attempts.

Table 2 shows that the mean age of the suicide attempter was 27.3 years. Ninety per cent were male, and ten per cent were female. Seventy per cent were married, 20% were single, and ten per cent patients were separated. Seventy per cent of suicide attempters were from rural areas, and 30% were from urban backgrounds. The majority of patients (40%) were on irregular medication; 30% each were on regular medication and were drug naïve. A history of substance abuse was found in seven (70%) cases of suicide attempters. And family history of schizophrenia was in 50% of cases of suicide attempters.

Figure 1 shows the different methods of suicidal attempts by patients with schizophrenia. The different methods adopted were self-burn (10%), cut-throat (10%), hanging (10%), and poisoning (20%), and in 50% of cases, the suicide method was not documented.

DISCUSSION

The present study found that the prevalence of suicide attempts in patients with schizophrenia was 4.34%. The history of suicidal behaviour in 12.2% of the population could not be commented on due to missing data. This prevalence is lower than the findings of a cross-national sample study, and the study found that 107 Indians (23.3%) and 205 US patients (48.3%) reported having attempted suicide.[6] A retrospective observational study from South India reported that out of 300 patients with schizophrenia, 18% had at least one suicide attempt.[12] In our study, the clinical variables of suicide attempters were the presence of substance abuse, irregular medication, and drug naïve patients. As per DSM-5, suicide risk remains high for younger males with comorbid substance use, and other risk factors include having depressive symptoms and unemployment. The younger age of schizophrenia patients

Table 1: Sociodemographic and clinical variables of patients with schizophrenia

	Number (N)	Percentage (%)
Sociodemographic variables		
Gender		
Male	125	54.3
Female	105	45.7
Religion		
Hinduism	174	75.7
Islam	52	22.6
Christianity	3	1.3
NA	1	0.4
Marital status		
Married	98	42.6
Single	84	36.5
Separated	26	11.3
Widower	5	2.2
NA	17	7.4
Educational qualification		
College	34	14.7
Higher secondary	77	33.5
High school	23	10.0
Primary	52	22.6
Illiterate	22	9.6
NA	22	9.6
Clinical variables		
FHO suicide		
Present	16	6.9
Absent	150	65.2
NA	64	27.8
FHO schizophrenia		
Present	41	17.8
Absent	139	60.4
NA	50	21.7
Treatment history		
Drug naïve	44	19.1
Off medication	60	26.1
On irregular medication	53	23.0
On regular medication	45	19.5
NA	28	12.2
History of substance abuse		
Present	107	46.5
None	100	43.5
NA	23	10.0
Count of suicidal attempt		
Present	10	4.3
Absent	192	83.5
NA	28	12.2

NA: Not available, FHO: Family history of

Table 2: Sociodemographic and clinical variables of schizophrenia patients those who attempted suicide (N=10)

Mean age	27.3 years	
	Number (n)	Percentage (%)
Gender		
Male	9	90
Female	1	10
Religion		
Hinduism	8	80
Islam	2	20
Education		
Higher secondary	4	40
High school	2	20
Primary	4	40
Marital status		
Married	7	70
Single	2	20
Separated	1	10
Locality		
Urban	3	30
Rural	7	70
Occupation		
DWE	3	30
Government employee	2	20
Homemaker	1	10
Self-employed	2	20
Unemployed	2	20
Treatment history		
Drug naïve	3	30
On irregular medication	4	40
On regular medication	3	30
History of substance abuse		
Absent	3	30
Present	7	70
FHO schizophrenia		
Absent	5	50
Present	2	20
NA	3	30

DWE: Daily wage earner, FHO: Family history of, NA: Not available

in their twenties have significantly higher rates of committing suicide than those without schizophrenia,[13] which is similar to our study findings, where the mean age of total of ten (4.34%) suicide attempters was 27.3 years. The other risk factors for suicide attempts in this study were drug naïve and irregular medication. The suicide attempt was the reason for the first psychiatric hospitalisation and consultation in three (30%) cases of drug naïve patients out of ten patients. Prior to psychiatric consultation, they were on the traditional method of treatment by faith healers in their locality. Another risk factor for suicide attempts in our study was symptom exacerbation due to

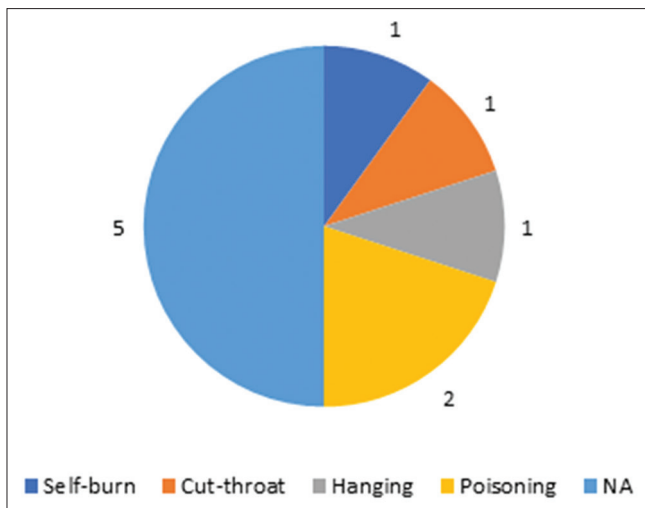


Figure 1: Methods of suicide attempt in schizophrenia patient. NA: Not available

irregular medication in four (40%) patients with schizophrenia. Pinikahana *et al.*[14] reported that the risk of suicide in the lifetime of schizophrenia patients is nine to 13%, which is approximately 20-50 times higher when compared to the general population. A ten-year follow-up study was conducted at a non-government psychiatric hospital in Mumbai. Out of 61 participants, 15 patients (24%) reported attempted suicide at baseline and 48.3% at the end of the study, which was quite high as compared to our study which has only 4.34% of attempted suicide cases in this part of our country. Males have higher rates (60%) as compared to females which was similar to our study findings. The mean age in their study was 32.5 years, while the duration of illness was 13.9 months. Risk factors for suicide, according to their analysis, were being young, male, and with a high level of education, which corresponded with the findings of our study.[15] In the present study, out of ten patients who attempted suicide, nine were males (90%), more than 50% were in the tenth passed, and 30% (n = three) were daily wage earners.

Pompili *et al.*[16] reported that the only consistent protective factor for suicide was the delivery of and adherence to effective treatment, a negative family history of suicide, family support, and programmes for aftercare at discharge, and programmes for the prevention of substance abuse. In our study, 70 percent (n=seven) of suicide attempters have a history of comorbid substance use. The most common substance abuse was smoking and alcohol use, and 30% of them were treatment naïve and 40% on irregular medication due to poor adherence to treatment which were also similar to the findings in most of the studies. A similar study was conducted in an outpatient department of Tunisia Psychiatry Hospital.[17] Out of the 134 patients with schizophrenia, 45 (32%) had attempted suicide, which was very high in comparison to our study. The most common method of attempting suicide in their study was medication overdose (n = 18, 23.4%), followed by organophosphate poisoning (n = 11, 14.3%), auto defenestration (n = nine, 11.7%), and hanging or using sharp objects (n = seven, 9.1% for each of them). In our study, 20% of the patients had a history of ingestion of poison (n = two, 20%), followed by self-burns (ten per cent), hanging attempts

(ten per cent), and slit throats (ten per cent) using a sharp object as the method of suicidal attempts, which were highly lethal. Although in 50 percent (n = five) of suicide attempters, the method of suicide was not mentioned in the records, Hor and Taylor[18] conducted a systematic review of 51 original studies on suicide and schizophrenia, and in their review, the lifetime risk of suicide was reported to be five per cent. The risk factors that had strong associations with suicide in schizophrenia were being young, male, and having a high level of education. The family history of suicide and substance misuse was also reported to have a positive association with suicide later. The risk factors for suicide in schizophrenia, like young males, high-level education, and substance misuse, are in accordance with our study.

A retrospective study conducted by Aydin *et al.*[19] in a hospital in Turkey on a total of 223 schizophrenia patients aged 18-65 years, found that the rates of suicide attempts in schizophrenia patients were 40.8% which were quite high as compared to our study (4.34%). The study population consisted of approximately equal numbers of males (49.8%, n = 111) and females (50.2%, n = 112). The mean age of the sample was 41.0 ± 10.6 years. Nearly half of the patients (51.6%, n = 115) were single. More than half of the patients (59.6%, n = 113) were primary school graduates. Almost half of the patients (47.1%, n = 105) had a family history of psychotic disorder. Most of the patients (83.4%, n = 186) were unemployed. More than half of the patients (52%, n = 116) smoked cigarettes. Most of the findings from the above study were similar to the findings of our study with 230 (100%) total patients, out of which males (54%, n = 125) and females (46%, n = 105). Ninety-eight patients (42%) were married, and 84 patients were single (36%). Fifty-two patients were primary school graduates (22.5%) and 22 were illiterate (9.5%). According to an observation by twin and adoption studies, the risk of suicide behaviour is positively correlated with a family history of suicide attempts.[20] The study done by Turecki *et al.*[21] reported that there is a complex interaction between demographic, social, and inheritable variables. In our study, out of 230 patients family history of schizophrenia was present in 41 cases (17.8%) and 6.9% had a family history of suicide. Forty-six per cent of the patients (n=107) used one or more than one substance during their course of illness. Tobacco and alcohol were the most commonly used substances.

The present study did not find any cases of completed suicide. But a retrospective study by Fenton and McGlashan,[22] which examined the association between suicide and diagnostic subtype among patients with schizophrenia spectrum disorder, reported 10.2% patients committed suicide. Of the 112 patients with the paranoid subtype, 12% had completed suicides. Our study clearly reflected that suicide attempts in this region of India (4.34%) were less as compared to previous Indian and western studies and it may be due to the following factors: Regular follow-up in the psychiatry OPD of the tertiary care hospital and adequate time spent on taking detailed history and interviewing of each patient by postgraduate students of psychiatry and senior psychiatrists. Psycho-educating the patient regarding the continuation of medication and his or her caregiver about the course and nature of the illness and due to good therapeutic alliance. Destigmatisation of mental

illness and programmes on the prevention of suicide is done through the District Mental Health Programme (DMHP) under the National Mental Health Programme. Medical officers posted in the district hospitals are trained every year by psychiatrists of the tertiary care hospital under DMHP and they deliver mental healthcare within the community. Thus, DMHP provides accessibility to psychiatric services within the community as well as acceptability by reducing stigma and superstitions. Utilising the services of clinical psychologists and psychiatric social workers at frequent intervals. Sociodemographic and economic factors like the cost of travel for each visit to the psychiatric OPD, and locally available affordable psychotropic drugs to reduce caregiver burden before starting treatment were kept in mind to ensure drug compliance.

Strengths of the study

It is the first study to be conducted with a large sample size in this part of the country.

Limitations of the study

The socioeconomic status of the patient could not be known due to a lack of adequate data. The third objective of the study, which was to find the reasons for suicide attempts like hopelessness and commanding auditory hallucinations, could not be explored due to inadequate information. Emergency cases shifted from the emergency department to different departments like Ear, Nose, and Throat (ENT), and surgery could have been missed. Data lost in follow-ups was not analyzed in this retrospective study, which could be considered a limitation.

Conclusion

The present study found a low percentage (4.34%) of suicide attempts in persons with schizophrenia in comparison to the global scenario. The risk factors found with suicide attempters were similar to those found in other Indian and western studies. Despite various studies conducted and mental health programmes that have been delivering services to decrease suicide in persons with schizophrenia and other mental illnesses, it still remains a considerable mental health problem. Various simultaneous studies in different environmental settings would help us to understand the risk factors and protective factors of suicide in schizophrenia patients in a better way. Studies conducted in various parts of the world have high suicidal attempt rates as compared to Indian settings, especially in the northeastern part of the country, with not much difference in social and clinical variables of schizophrenia patients. Regarding understanding the various reasons for suicide attempts in schizophrenia, a follow-up study in the future will help us to compare with studies in other parts of the world. The documentation procedure needs rectification, regarding the methods of suicide attempts for better research work in the future.

REFERENCES

1. American Psychiatric Association. The diagnostic and statistical manual of mental disorders. 5th ed. Arlington, VA: American Psychiatric Association; 2013.
2. India State-Level Disease Burden Initiative Mental Disorders Collaborators. The burden of mental disorders across the states of India: the Global Burden of Disease Study 1990-2017. *Lancet Psychiatry*. 2020;7:148-61.
3. Landmark J, Cernovsky ZZ, Merskey H. Correlates of suicide attempts and ideation in schizophrenia. *Br J Psychiatry*. 1987;151:18-20.
4. Planansky K, Johnston R. The occurrence and characteristics of suicidal preoccupation and acts in schizophrenia. *Acta Psychiatr Scand*. 1971;47:473-83.
5. Drake RE. Suicide attempts and completed suicides among schizophrenia patients. In: Tatarelli R, Pompili M, Girardi P, editors. *Suicide in schizophrenia*. New York: Nova Science Publishers; 2006.
6. Tousignant M, Seshadri S, Raj A. Gender and suicide in India: a multiperspective approach. *Suicide Life Threat Behav*. 1998;28:50-61.
7. Miles CP. Conditions predisposing to suicide: a review. *J Nerv Ment Dis*. 1977;164:231-46.
8. Caldwell CB, Gottesman II. Schizophrenia--a high-risk factor for suicide: clues to risk reduction. *Suicide Life Threat Behav*. 1992;22:479-93.
9. Bhatia T, Thomas P, Semwal P, Thelma BK, Nimgaonkar VL, Deshpande SN. Differing correlates for suicide attempts among patients with schizophrenia or schizoaffective disorder in India and USA. *Schizophr Res*. 2006;86:208-14.
10. Pompili M. Suicide risk in schizophrenia. In: Tatarelli R, Pompili M, Girardi P, editors. *Suicide in schizophrenia*. New York: Nova Science Publishers; 2006.
11. World Health Organization. The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. Geneva: World Health Organization; 1992.
12. Shenoy S, Praharaj SK. Risk factors associated with suicide attempts in patients with schizophrenia: an observational study from South India. *Middle East Curr Psychiatry*. 2023;30:48.
13. Babidge NC, Buhrich N, Butler T. Mortality among homeless people with schizophrenia in Sydney, Australia: a 10-year follow-up. *Acta Psychiatr Scand*. 2001;103:105-10.
14. Pinikahana J, Happell B, Keks NA. Suicide and schizophrenia: a review of literature for the decade (1990-1999) and implications for mental health nursing. *Issues Ment Health Nurs*. 2003;24:27-43.
15. Shrivastava A, Johnston ME, Shah N, Innamorati M, Stitt L, Thakar M, *et al*. Persistent suicide risk in clinically improved schizophrenia patients: challenge of the suicidal dimension. *Neuropsychiatr Dis Treat*. 2010;6:633-8.
16. Pompili M, Girardi P, Ruberto A, Tatarelli R. Toward a new prevention of suicide in schizophrenia. *World J Biol Psychiatry*. 2004;5:201-10.
17. Bouheli S, M'solly M, Benhawala S, Jones Y, El-Hechmi Z. Les facteurs liés aux tentatives de suicide dans une population tunisienne de patients atteints de schizophrénie [Factors related to suicide attempts in a Tunisian sample of patients with schizophrenia]. *Encephale*. 2013;39:6-12. French.
18. Hor K, Taylor M. Suicide and schizophrenia: a systematic review of rates and risk factors. *J Psychopharmacol*. 2010;24(4 Suppl):81-90.
19. Aydın M, İlhan BC, Tekdemir R, Çökünlü Y, Erbasan V, Altınbaş K. Suicide attempts and related factors in schizophrenia patients. *Saudi Med J*. 2019;40:475-82.
20. Roy A. Serotonin, suicide and schizophrenia. *Can J Psychiatry*. 1993;38:369.
21. Turecki G, Zhu Z, Tzenova J, Lesage A, Séguin M, Tousignant M, *et al*. TPH and suicidal behavior: a study in suicide completers. *Mol Psychiatry*. 2001;6:98-102.
22. Fenton WS, McGlashan TH. Natural history of schizophrenia subtypes. II. Positive and negative symptoms and long-term course. *Arch Gen Psychiatry*. 1991;48:978-86.

Garg I, Hmar B, Sharma P, Das S. Suicide attempts in schizophrenia patients: a retrospective study. *Open J Psychiatry Allied Sci*. 2025 Jun 30. Epub ahead of print.

Source of support: Nil. **Declaration of interest:** None.