STUDY OF SUICIDE ATTEMPTS IN SCHIZOPHRENIA

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ABSTRACT

BACKGROUND

Schizophrenia is a major mental illness whose sufferers have been found to have lesser longevity than general population. The most common cause for premature death in schizophrenia is suicide. There are very few Indian studies on suicide in persons suffering from schizophrenia.

OBJECTIVES

The objectives were to study the frequency of suicide attempt in schizophrenia to compare and study the clinical and socio-demographic profile of suicide attempters and non-attempters in schizophrenia and to analyse and study the various risk factors of suicide attempts in persons suffering from schizophrenia.

METHODS

A sample of 100 consecutive patients attending review OPD of a government tertiary care hospital in Chennai were selected. Those who had a diagnosis of schizophrenia were screened for past suicide attempts. They were divided into two groups as suicide attempters and non-attempters and analysed using the SAPS (Scale for Assessment of Positive Symptoms), SANS (Scale for Assessment of Negative Symptoms), Calgary depression scale, and Beck's suicide intent scale.

RESULTS

People suffering from schizophrenia are at a high risk for making suicidal attempts (27%) especially when the illness is acute and severe in early stages when accompanied by depressive symptoms. Demographic profile such as age, sex, education, occupation, socio-economic status, marital status, and family type were not significantly related to suicide attempts. Family history of suicide was a significant factor in patients with suicide attempts. Majority of the attempts were of medium-to-high intent, hanging being the commonest method, and were attributed to most commonly delusions and depressive symptoms.

KEYWORDS

Schizophrenia, Suicide attempt, Risk factors.

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INTRODUCTION: Edwin Shneidman defined suicide as "the conscious act of self-induced annihilation best understood as a multidimensional malaise in needful individual who defines a particular issue for which the act is perceived as the best solution." Almost, 90% of people who commit/attempt suicide have a diagnosable mental disorder according to DSM IV-TR. The rate is highest in affective disorder and somewhat lower, but still excessive among people with schizophrenia (Sadock BJ et al 2009).[(1)] At some time during the course of illness as many as half of patients with schizophrenia have reported to experience suicidal ideation and/or to have made suicidal attempt (Asnis GM et al 1992).[(2)]

Schizophrenia reduces the life expectancy of those afflicted by approximately 10 years and suicide accounts for the majority of premature deaths (Sadock BJ et al 2009).[(1)] Suicide is the most devastating possible outcome of a schizophrenic illness. In addition to the finality for the patients, suicide has an intense and long-lasting impact on families, other patients, and professional staff.

The risk of suicide in schizophrenia exceeds that of all psychiatric disorders other than major depression. The rate of suicide in schizophrenia has been reported to be 10 times greater than in general population (Allebeck P 1989).[(3)] It is reported that 25% of patients suffering from schizophrenia make suicide attempt (Asnis GM et al 1992).[(2)] Approximately, 20% to 40% of patients suffering from schizophrenia attempt suicide and 1-2% among them go onto to complete it within a year thereafter (Vanessa R 2001).[(4)]

Suicide attempts in schizophrenia are serious, typically requiring medical attention. Intent is strong and the majority of those who attempt make multiple attempts having a higher rate of more lethal methods (Radomsky et al 1999 and JM Harkavy-Friedman et al 1999).[(5,6)]

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The recognition of risk factors for suicide is one element of prediction and prevention. The design of effective suicide prevention strategies hinges on the identification of specific risk factors, the strength of the causal relationships between the risk factor, and the disease and the alterability of that causal risk factor.

As summarised by Caldwell and Gottesman on suicide risk factors:

Shared Risk Factors Include:

1. Male gender.
2. Ethnicity (White).
3. Social isolation.
4. Depression or depressed mood.
5. Hopelessness.
6. Past history of suicide attempts.
7. Family history of suicide.
8. Unmarried.
9. Unemployed.
10. Deteriorating health with good premorbid functioning.
11. Recent loss or rejection.
12. Childhood parental loss.
13. Limited external support.
14. Family stress.

Risk factors Unique to Schizophrenia Include:

1. Age and gender profile (young and male).
2. Chronic illness with numerous exacerbation.
3. High psychopathology and impairment at discharge.
4. Realistic awareness of illness.
5. Fear of further deterioration.
6. Excessive treatment dependence or loss of faith in treatment.

There has been a paucity of Indian studies on this subject.

AIM: To compare the groups of suicide attempters and non-attempters suffering from schizophrenia in search for a possible recognition of risk factors, analyse the suicidal behaviour in relation to the schizophrenic illness, depressive symptoms, and intent.

METHODS: The study was carried out in a government tertiary care hospital in Chennai. 100 consecutive patients suffering from schizophrenia as per ICD-10 criteria attending the review OPD were selected. Those diagnosed and started on medications within a year of onset of symptoms and on regular medications were included. The study was conducted in April 2006. Patients who had substance use except nicotine, those having an organic condition, those below the age of 16 years, and those whose current mental state prevented them from giving relevant details were excluded. The individuals were approached with no knowledge of suicide attempt history. Informed consent was obtained from each individual and closest family member before they participated in the study.

MEASURES: Semi-structured Proforma: The individuals were administered the semi-structured proforma, which included the socio-demographic data, economic status, educational status, and details of schizophrenic illness and suicide attempt.

SANS and SAPS (Scale for the Assessment of Negative Symptoms and Scale for the Assessment of Positive Symptoms) were used. These scales were developed by Andreasen NC, University of Iowa Press, 1983 and 1984.[7,8] They are used for assessment of positive and negative symptoms principally those occurring in schizophrenia. Both the instruments are used in a way complimentary to each other having been widely used in many studies and well tested for reliability and validity. The SAPS contains 35 items divided into 5 domains i.e. Hallucinations, Delusions, Bizarre behaviour, Positive formal thought disorder, and Inappropriate affect. The SANS contains 24 items divided into 5 domains i.e. Affective flattening, Alogia, Avolition-apathy, Anhedonia-Asociality, and Inattention. Items in both the scales are score between 0 (none) and 5 (Severe).

CDSS (The Calgary Depression Rating Scale for Schizophrenia) was used. The CDSS had been specifically developed by D. and J. Addington in 1990,[9] at the University of Calgary for assessing the level of depression in schizophrenia separate from positive symptoms, negative symptoms, and extrapyramidal symptoms. It has been extensively evaluated in both relapsed and remitted patients. In comparison to the Hamilton Depression Scale, it has fewer factors and less overlap with symptoms. It is an observer scale, semi-structured, administered by goal directed interview. It has 9 items rated from 0 to 3. The CDSS depression score is obtained by adding each item scores. A score above 6 has 82% specificity and 85% sensitivity for predicting the presence of depression. The scale has good construct validity both internal and inter-rater reliability.

Beck's suicide intent scale was used to assess the intent of the suicide attempt. It was developed by Beck et al, 1979[10]. It assesses the objective circumstances related to suicide as well as self-report. There are 8 items in the objective questionnaire and 7 items in the self-report questionnaire. Each item is scored between 0 and 2 with a total score ranging from 0 to 30.

RESULTS:

Suicide Attempt	Frequency	Percent
Yes	27	27
No	73	73
Total	**100**	**100**

Table 1: Frequency of Suicide Attempt

Suicide attempt frequency-27%	95% CI = 19-37%

In the study population, 27% had attempted suicide while 73% did not.

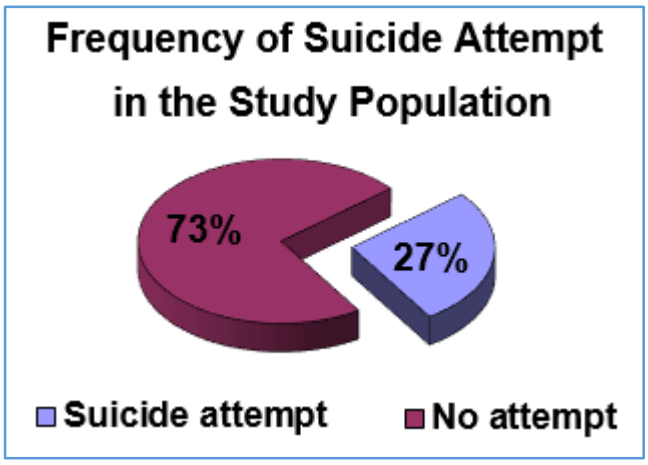

Fig. 1: The Pie-Chart Depicts the Frequency of Suicide Attempt in Schizophrenia

	Suicide Attempt		p value
	Yes	No	
	n(%)	n(%)	
Age in Years			0.54
<21	0(0)	3(4.1)	
21-30	13(48.2)	34(46.6)	
31-40	11(40.7)	22(30.1)	
41-50	3(11.1)	11(15.1)	
51-60	0(0)	3(4.1)	
Gender			
Male	21(77.8)	51(69.9)	0.43
Female	6(22.2)	22(30.1)	
Education			
Illiterate	3(11.1)	8(11)	0.80
Primary	7(25.9)	13(17.8)	
Secondary	6(22.2)	21(28.8)	
High School	2(7.4)	11(15.1)	
Higher Sec	6(22.2)	15(20.5)	
Graduate	3(11.1)	5(6.8)	
Occupation			
Housewife	4(14.8)	12(16.4)	0.17
Skilled	3(11.1)	1(1.4)	
Unskilled	12(44.4)	33(45.2)	
Unemployed	8(29.6)	27(37)	
Socioeconomic Status			
Low	20(74.1)	60(82.2)	0.59
Middle	6(22.2)	12(16.4)	
High	1(3.7)	1(1.4)	
Marital Status			
Married	11(40.7)	26(35.6)	0.13
Unmarried	12(44.4)	41(56.2)	
Separated	1(3.7)	5(6.8)	
Divorced	3(11.1)	1(1.4)	
Family Type			
Joint	20(74.1)	53(72.6)	0.88
Nuclear	7(25.9)	20(27.4)	

Table 2: Sociodemographic Details

The p value for various parameters of socio-demographic data like age groups, gender, educational status, occupational status, socio-economic status, marital status, and family type were not significant.

Family History	Suicide attempt		p value
	Yes	No	
	n(%)	n(%)	
None	7(25.9)	41(56.2)	0.006*
Mental illness	8(29.6)	21(28.8)	
Suicide	7(25.9)	4(5.5)	
Both	5(18.8)	7(9.6)	
Total	**27(100)**	**73(100)**	

Table 3: Comparison of Suicide Attempters and Non-Attempters by Family History of Mental Illness and Suicide

Family history of suicide was significantly more prevalent in those who attempted suicide compared with non-attempters (p value 0.006)*.

Schizophrenia Subtype	Suicide attempt		p value
	Yes	No	
	n(%)	n(%)	
Undifferentiated	19(70.4)	41(56.2)	0.62
Paranoid	5(18.5)	22(30.1)	
Hebephrenic	2(7.4)	6(8.2)	
Catatonic	1(3.7)	4(5.5)	
Total	**27(100)**	**73(100)**	

Table 4: Comparison of Suicide Attempters and Non-Attempters by Sub-Types of Schizophrenia

There was no statistically significant difference among various sub-types of schizophrenia

SCALE	Suicide Attempts				P value
	Yes (n - 27)		No (n - 73)		
	Mean	S.D.	Mean	S.D.	
SAPS SCORE	21.93	9.20	17.33	7.68	0.01*

Table 5: Comparison of suicide Attempters and Non-Attempters by SAPS (Scale for the Assessment of Positive Symptoms)

The mean score on SAPS (positive symptoms scale) was 17.33 (SD 7.68) for non-attempters compared to 21.93 (SD 9.20) for suicide attempters. The difference was statistically significant (p 0.01) in t test.

SCALE	Suicide Attempts				P value
	Yes (n - 27)		No (n - 73)		
	Mean	S.D.	Mean	S.D.	
SANS SCORE	15.52	6.77	15.23	7.61	0.86

Table 6: Comparison of Suicide Attempters and Non-Attempters by SANS (Scale for the Assessment of Negative Symptoms)

The mean SANS score was 15.23 (SD 7.61) for non-attempters compared to 15.52 (SD 6.77) for attempters. This difference was not statistically significant (p 0.86) in t test.

SCALE	Suicide Attempts				p value
	Yes (n - 27)		No (n - 73)		
	Mean	S.D.	Mean	S.D.	
CDSS SCORE	4.667	2.602	3.320	2.266	0.01*

Table 7: Comparison of Suicide Attempters and Non-Attempters by CDSS (Calgary Depression Scale for Schizophrenia)

The mean score on CDSS was 3.320 (SD 2.266) for non-attempters while it was 4.667 (SD 2.602) for attempters. This difference was statistically significant (p 0.01) in t test.

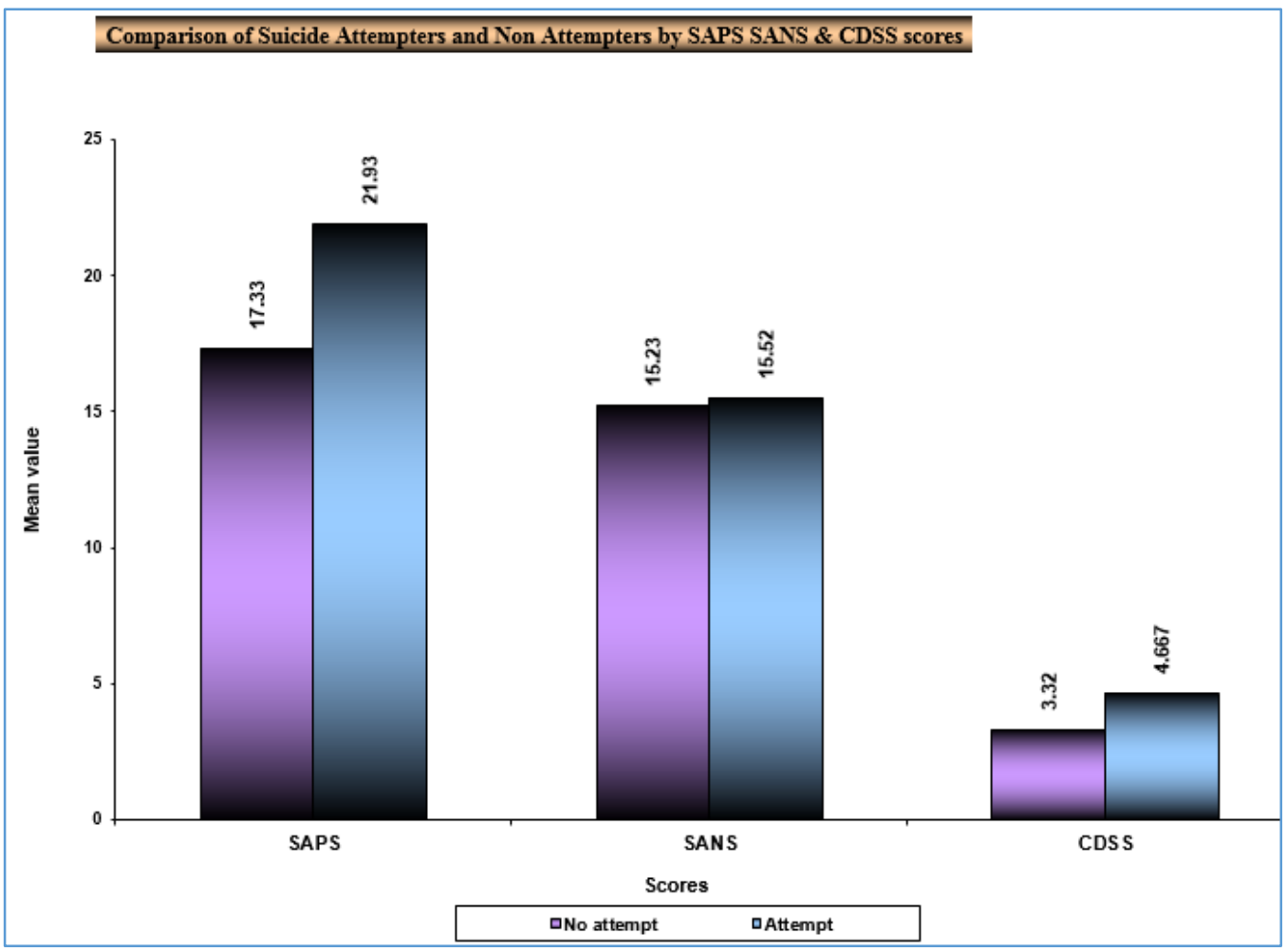

Fig. 2: Comparison of Suicide Attempters and Non-Attempters by SAPS, SANS, and CDSS Scores

Period of illness	Frequency	Percentage
1st year	14	51.85
2nd year	4	14.82
3rd year	1	3.7
4th year	3	11.11
5th year	1	3.7
>5 years	4	14.82
Total	**27**	**100**

Table 8: Timing of Suicide Attempt from Illness Onset

Among those who attempted suicide, majority attempted suicide during 1st year (51.85%) and 2nd year (14.82%) of illness with another small rise after 5 years duration (14.82%).

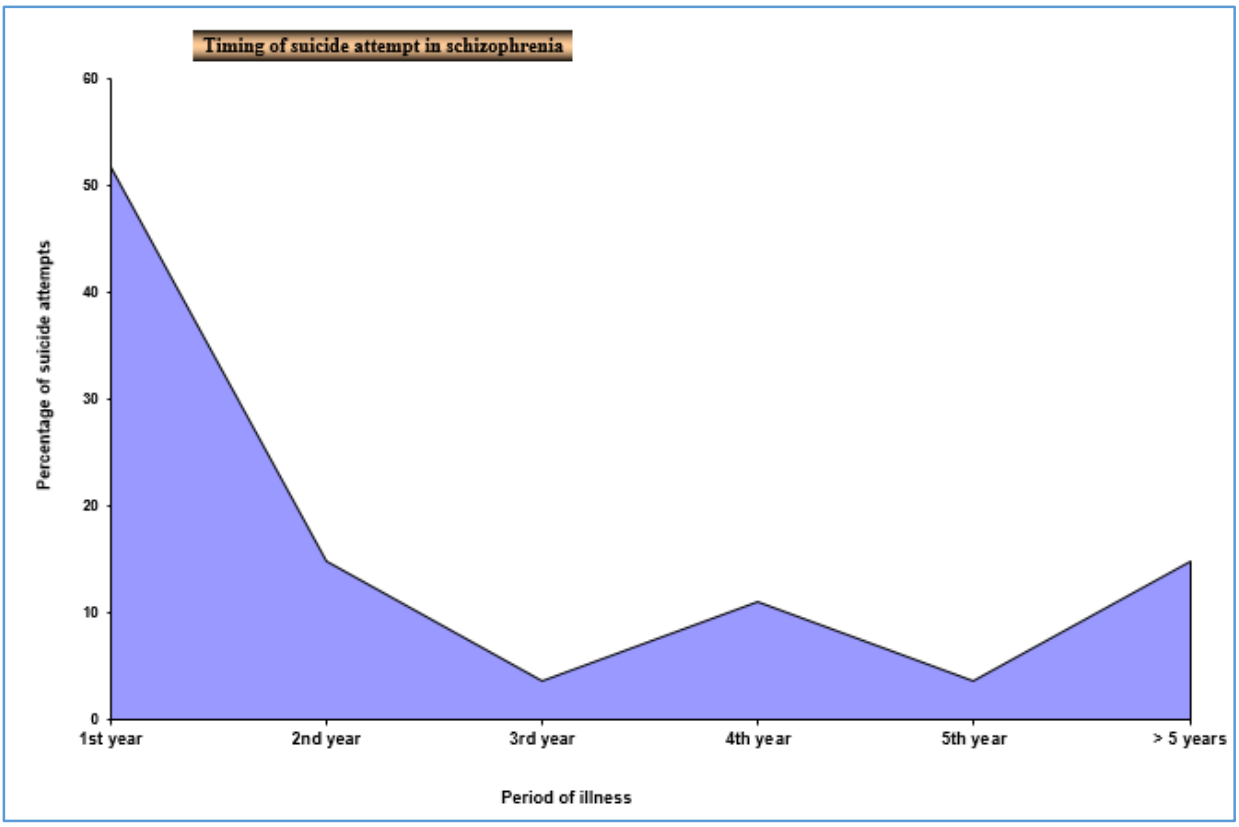

Fig. 3: Timing of Suicide Attempt in Schizophrenia

Reason	Frequency	Percentage
Delusions	11	40.74
Depressive features	8	29.63
Impulsive	4	14.81
Hallucinations	2	7.41
Insight	2	7.41
Total	**27**	**100**

Table 9: Distribution by Reason for Suicide Attempt

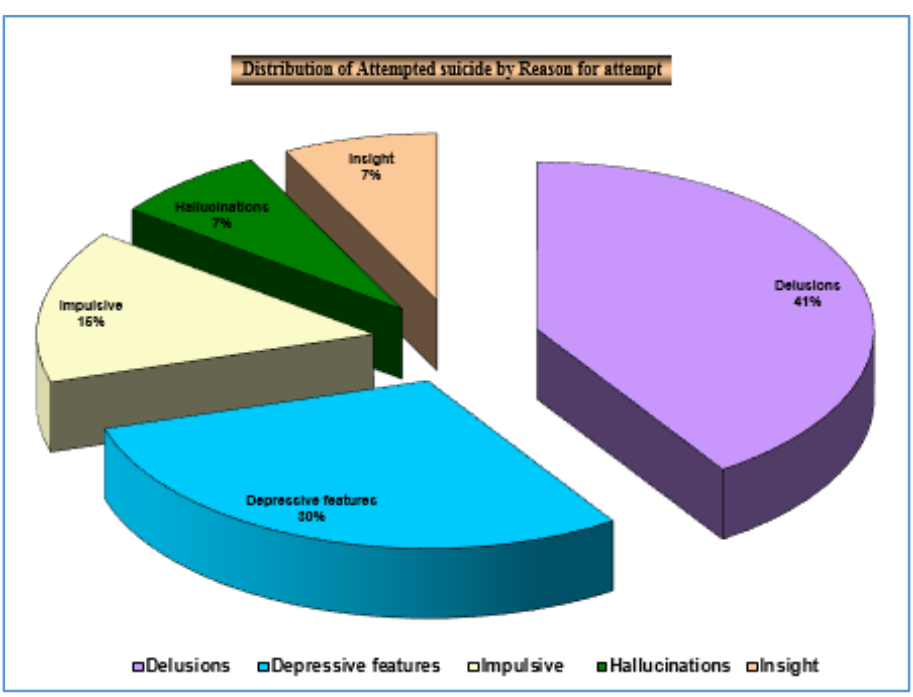

Fig. 4: Distribution of Suicide Attempt by Reason for Attempt

Out of the suicide attempters, majority attempted due to the delusions followed by depressive features, impulsive behaviour, hallucinations, and regaining insight in that order.

Mode of Attempt	Frequency	Percentage
Hanging	12	44.4
Drug overdose	7	25.9
Drowning	3	11.1
Self-immolation	2	7.4
OPC Poisoning	2	7.4
Others	1	3.7
Total	**27**	**100**

Table 10: Distribution by Mode of Suicide Attempt

In this study, hanging was the commonest method adopted. Drug overdose was the second common method followed by drowning, self-immolation, and OPC poisoning while 1 person attempted suicide by trying to catch a live electrical wire.

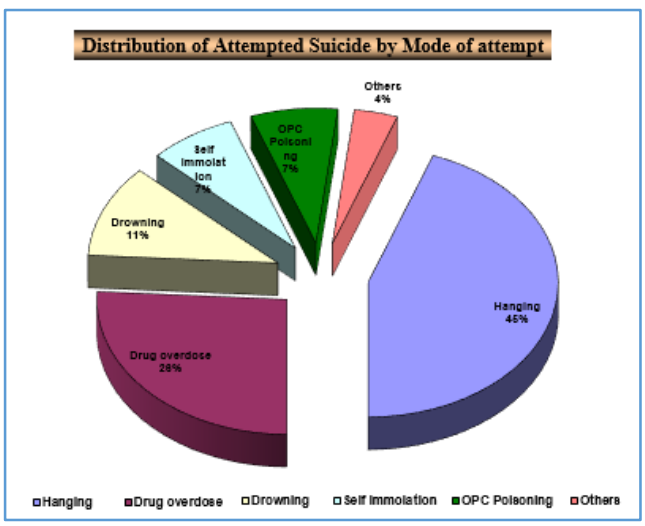

Fig. 5: Distribution by Mode of Suicide Attempt

Hospitalisation	Frequency	Percentage
No	5	18.5
Yes	22	81.5
Total	**27**	**100**

Table 11: Distribution of Those who Attempted Suicide by Need for Hospitalisation for the Attempt

Significant majority of those who attempted suicide required hospitalisation for the attempt.

Communication	Frequency	Percentage
Yes	10	37
No	17	63
Total	**27**	**100**

Table 12: Distribution of Those who Attempted Suicide by Communication of the Attempt

Among the people who attempted suicide more than one third had communicated their intent before the act.

Suicide Intent	Frequency	Percentage
Low	10	37.1
Medium	9	33.3
High	8	29.6
Total	**27**	**100**

Table 13: Suicide Intent Among Those who Attempted

On assessing the severity of suicide attempt (Beck's suicide intent scale) more than two third had medium-to-high intent while one third had low intent.

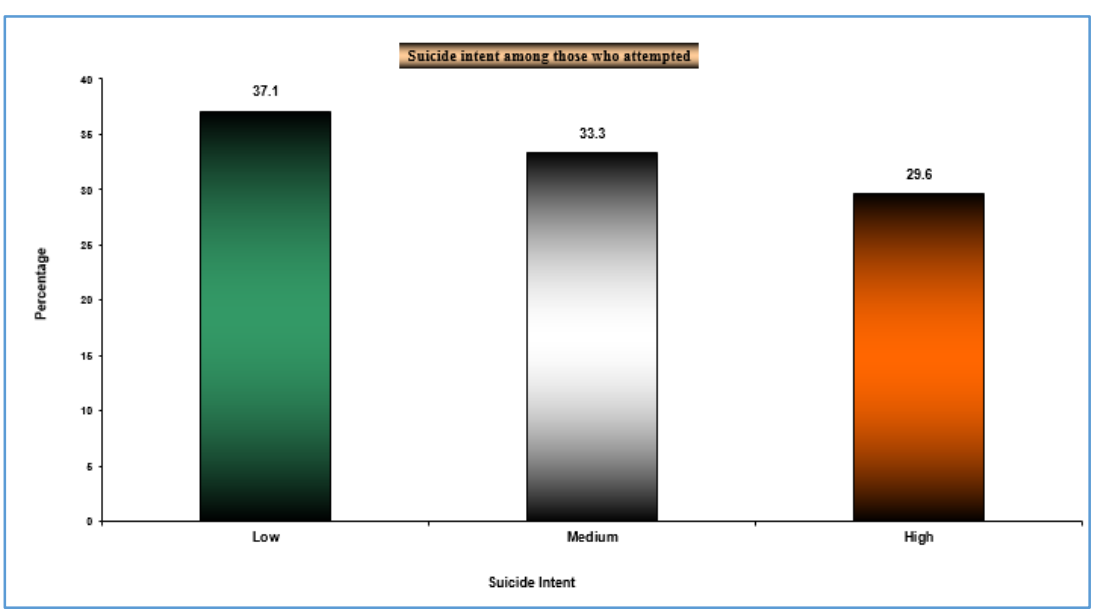

Fig. 6: Distribution of Suicide Attempt by Intent Severity

DISCUSSION: Studies state that the risk for suicidal behaviour is high throughout the lifespan in schizophrenia. The role of demographic variables in suicidal behaviour has given contrasting results across various studies. Vanessa R 2001[4] reported higher risk for young males while Ting-Pong Ho 2003 [11] gave higher suicide attempt rates for females. In our study, we could not establish the role of age and gender in schizophrenic suicide attempts.

It has been stated that high intelligence (premorbid I.Q.) is associated with greater risk of suicide in schizophrenia (Vanessa R 2001)[4]. We were not able to find any association between educational status and suicide attempts. Although, unemployment has been stated to be a risk factor for suicide attempt in schizophrenia (Sadock BJ et al 2009 and Vanessa R 2001)[1,4] we found the role of unemployment to be overplayed similar to studies by Harkavy-Friedman JM et al 1999[6]. Fall from higher social status is said to contribute towards suicide attempts. We were not able to find any significant relationship between social status and suicidal attempts.

According to literature majority of the schizophrenic suicides are committed by unmarried, separated, and socially isolated (Vanessa R 2001).[4] But, in our Indian population where nearly three-fourth of the patients were in joint family setting. No significant difference was found between suicide attempters and non-attempters in relation to type of family.

We did not find any significant difference in the demographic variables between individuals who exhibited suicidal behaviour and those who did not similar to the study by Harkavy-Friedman JM et al 1999.[6]

A common underlying genetic factor may explain the association of suicidal behaviour with aggression. In our study, significantly higher number of individuals who had a family history of suicide had more attempts, which was similar to previous studies implicating genetic and familial factors to suicide risk like adoption studies of Roy A et al 1991.[12]

Fenton WS et al 1997[13] found that individuals with paranoid schizophrenia had an elevated suicidal risk. But, our findings did not find association of any particular sub-type of schizophrenia to suicide attempts.

Prominent delusions and suspiciousness (Fenton WS et al, 1997),[13] and persistent hallucinations (Falloon IR et al 1999, Montross LP et al 2005),[14,15] have been reported with elevated risk of schizophrenic suicide. Positive symptoms were correlated with suicidal behaviour by Sadock BJ et al 2009, Fenton WS et al 1997, Falloon IR et al 1999,[1,13,14] which was similar to our findings. Bralet MC et al 2000[16] reported lesser suicidal risk with negative schizophrenic symptoms, but our study did not have any association of suicide attempts with negative symptoms.

Numerous studies (Drake RE et al 1986, Heila H et al 1997, Siris SG 2001, Roy A 1982),[17,18,19,20] have found depressive symptoms to be strongly related to suicidal behaviour in schizophrenia, which was also established in our study.

Our results clearly showed that majority of the people who attempted suicide did so during early periods of their illness similar to the studies by Roy A 1982, Rajiv Tandon et al 2003, Pinikahana J et al 2003.[20,21,22]

The finding of delusions to be the most common cause of suicidal attempt in our study is similar to the reports by Fenton WS et al 1997.[13] Depression was also a very common cause as quoted Siris SG 2001, and Roy A 1982,[19,20] which was attributed by nearly one third of suicide attempters in our study. Impulsive acts were found to be the third common reason.

Though an oft repeated cause stated by some (Falloon IR et al 1999, Montross LP et al 2005)[14,15] to be significant hallucinations contributory to the suicidal attempts in a very small proportion. Suicidal command hallucinations have been found to be rare both in attempted and completed suicides (WS Fenton et al 1997, JM Harkavy-Friedman et al 2003),[13,23] which was replicated in our study.

The notion that insight maybe associated with greater suicidal behaviour is partially supported by XF Amador et al 1996.[24] In our study too, only small proportion of attempters attributed gaining insight as the reason.

In India, according to Rajiv Radhakrishnan and Chittaranjan Andrade 2009[25], consumption of a poison, hanging, self-immolation, and drowning were the commonest modes of suicide. In our study, hanging was found to be the commonest mode of attempt. Nearly one fourth of the individuals who attempted suicide did so by overdose of medication given for their illness, the second commonest cause. Other causes for attempted suicide were drowning, self-immolation, and organophosphorus compound poisoning. Thus, it is advocated in people suffering from schizophrenia especially those prone for suicidal behaviour that drugs be given under supervision by the caregiver. Only one individual attempted suicide by trying to catch a live electric wire, which is contrary to the finding by ED Radomsky et al 1999[5] that medically dangerous, lethal, and violent methods are higher in suicide attempts in schizophrenia.

More than 80% of those who attempted suicide were hospitalised for their attempt and nearly one third communicated their attempt. This should make us to look into the fact that verbal warnings given by the individuals suffering from schizophrenia should not be ignored and needs to be addressed and intervened to avoid a calamitous outcome.

On assessing the suicidal intent for the highest attempt, nearly two thirds had medium-to-high intent. This is in keeping with the study done by (Radomsky et al 1999 and JM Harkavy-Friedman et al 1999),[5,6] which found that most suicidal attempts in schizophrenia were serious.

LIMITATION: Certain variables like socio-economic status, educational, and employment status were not fully representative of the population since the study was conducted in a tertiary care hospital providing free treatment. The evaluation was done not at the time of attempt, hence the severity of psychopathology could have

undergone natural changes characteristic of the course of schizophrenic illness. Recall bias could have influenced the patients and relatives. To analyse the entire suicidal behaviour, completed suicides also needs to be studied.

CONCLUSIONS: People suffering from schizophrenia are at a high risk for making suicidal attempts especially when the illness is acute and severe in early stages when accompanied by positive and depressive symptoms. Clinicians need to be wary of this fact and intervene aggressively and early. More attention is needed for the higher risk group, which includes those with a family history of suicide and persons communicating their intention. Maintaining care beyond the point of clinical recovery is important in protecting high risk individuals. Prevention of suicide in schizophrenia is likely to result from symptom identification, improving adherence to treatment, and maintaining special vigilance in patients with medical and social risk factors. Carers and professionals are often left with feelings of profound ineffectiveness and guilt in the face of suicide, so it is vital for clinicians to feel confident in their understanding of risk assessment in this particularly vulnerable group.

REFERENCES

1. Sadock BJ, Sadock VA, Ruiz P. Kaplan and Sadocks Comprehensive Textbook of Psychiatry. 9th edn. Vol 1 Philadelphia: Wolters Kluwer Health/Lippincott Williams and Wilkins 2009.
2. Asnis GM, Friedman TA, Sanderson WC, et al. Suicidal behaviours in adult psychiatric outpatients, I: description and prevalence. Am J Psychiatry 1993;150(1):108-112.
3. Allebeck P. Schizophrenia: a life-shortening disease. Schizophrenia Bull 1989;15(1):81-89.
4. Raymont V. Suicide in schizophrenia-how can research influence training and clinical practice? Psychiatric Bulletin 2001;25(2):46-50.
5. Radomsky ED, Haas GL, Mann JJ, et al. Suicidal behaviours in patients with schizophrenia and other psychotic disorders. Am J psychiatry 1999;156(10):1590-1595.
6. Harkavy-Friedman JM, Restifo K, Malaspina D, et al. Suicidal behaviour in schizophrenia: characteristics of individuals who had and had not attempted suicide. Am J Psychiatry 1999;156(8):1276-1278.
7. Andersen NC. Scale for the assessment of negative symptoms. Iowa City, IA, University of Iowa, 1983.
8. Andersen NC. Scale for the assessment of positive symptoms. Iowa City, IA, University of Iowa, 1984.
9. Addington D, Addington J, Schissel B. A depression rating scale for schizophrenics. Schizophrenia Research 1990;3(4):247-251.
10. Aaron BT, Kovacs M, Weissman A. Assessment of suicidal intention: the scale for suicide ideation. Journal of Consulting and Clinical Psychology 1979;47(2):343-352.
11. Ho TP. The suicide risk of discharged psychiatric patients. J Clin Psychiatry 2003;64(6):702-707.
12. Roy A, Segal NL, Centerwall BS, et al. Suicide in twins. Arch Gen Psychiatry 1991;48(1):29-32.
13. Fenton WS, McGlashan TH, Victor BJ, et al. Symptoms subtypes and suicidality in patients with schizophrenia spectrum disorders. Am J Psychiatry 1997;154(2):199-204.
14. Falloon IR, Talbot RE. Persistent auditory hallucinations: coping mechanisms and implications for management. Psychol Med 1981;11(2):329-339.
15. Montross LP, Zisook S, Kasckow J. Suicide among patients with schizophrenia: a consideration of risk and protective factors. Ann Clin Psychiatry 2005;17(3):173-182.
16. Bralet MC, Yon V, Loas G, et al. Cause of mortality in schizophrenic patient: prospective study of years of a cohort of 150 chronic schizophrenic patients. Encephale 2000;26(6):32-41.
17. Drake RE, Cotton PG. Depression, hopelessness, and suicide in chronic schizophrenia. Br J Psychiatry 1986;148:554-559.
18. Heila H, Isometsa ET, Henriksson MM, et al. Suicide and schizophrenia: a nationwide psychological autopsy study on age-and-sex-specific clinical characteristics of 92 suicide victims with schizophrenia. Am J Psychiatry 1997;154(9):1235-1242.
19. Siris SG. Suicide and schizophrenia. J Psychopharmacol 2001;15(2):127-135.
20. Roy A. Suicide in chronic schizophrenia. Br J Psychiatry 1982;141:171-177.
21. Tandon R, Jibson MD. Suicidal behaviour in schizophrenia: diagnosis, neurobiology, and treatment implications. Curr Opin Psychiatry 2003;16(2):1-6.
22. 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(1):27-43.
23. Harkavy-Friedman JM, Kimhy D, Nelson EA, et al. Suicide attempts in schizophrenia: the role of command auditory hallucinations for suicide. J Clin Psychiatry 2003;64(8):871-874.
24. Amador XF, Friedman JH, Kasapis C, et al. Suicidal behaviour in schizophrenia and its relationship to awareness of illness. Am J Psychiatry 1996;153(9):1185-1188.
25. Radhakrishnan R, Andrade C. Suicide: an Indian perspective. Indian J Psychiatry 2012;54(4):304-319.