STUDY OF FACTORS AFFECTING SUICIDE ATTEMPTS IN PERSONS WITH SCHIZOPHRENIA

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ABSTRACT

BACKGROUND

Schizophrenia has been called a 'Life-shortening disease', because many sufferers die early than general population and suicide accounts for a significant proportion of those dying prematurely. Suicide attempts in schizophrenia has been an intriguing area of research work for mental health professionals. Indian research on suicide attempts in schizophrenia have been few.

OBJECTIVES

The objectives were to study the suicidal behaviour in schizophrenia, to compare and study the positive and negative symptoms, depressive symptoms, hopelessness and suicide intent in schizophrenic population with suicide attempt compared to non-attempters, along with socio-demographic parameters.

METHODS

A sample of 60 consecutive patients attending OPD of a Private tertiary care Hospital in Chennai were selected. Those who had a diagnosis of schizophrenia were screened for the presence of past suicide attempts. They were divided into two groups as suicide attempters and non-attempters, and analysed using the Positive and Negative Syndrome Scale (PANSS), Calgary Depression Scale for Schizophrenia (CDSS), Beck's hopelessness scale (BHS), and Suicide intent scale (SIS).

RESULTS

Among the disorders schizophrenia is rated the second most common reason for suicide attempts (53.3%), especially when associated with positive symptoms, depressive features and significant hopelessness. Demographic parameters like age, sex, educational status, occupation, economic status, and marital status were not found to be significant factors linked to the suicide attempts, however family history of suicide had a significant association in schizophrenic suicide attempts. Suicidal intent severity was medium to high among most of the attempters; poisoning was the commonest method; and were found to be due to positive symptoms and depressive symptoms in the schizophrenic illness course.

KEYWORDS

Schizophrenia, Suicide attempt, Hopelessness.

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INTRODUCTION: Schizophrenia is a chronic disease that afflicts approximately 1% of the population worldwide. It usually affects people at a young age and, according to a report of the World Health Organization (WHO 2001).[(1)] it is the seventh most disabling disease in the age group between 15 and 44, far surpassing diabetes, HIV or Cardiovascular diseases according to the World Health Organization, 2001 report. The suffering of patients with schizophrenia and their families is usually immense. In people suffering from Schizophrenia life expectancy is reduced by 10 years compared with general population, and suicide accounts for majority of these.

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The word suicide is derived from the Latin word for "Self-murder." If successful, it is a fatal act that represents the person's wish to die. Suicide is the most devastating possible outcome of a schizophrenic illness. Suicide attempts, often result in death from suicide at a much later time. Among people with schizophrenia 20-40% make suicide attempts (Landmark J et al 1987, Planasky K et al 1971, Drake RE 2006)[(2,3,4)] Schizophrenia may be more lethal than depression since the lifetime risk of completed suicide is between 10 and 13% (Caldwell CB et al 1990)[(5)]. Recent research indicates risk factors for suicide includes mental disorder, past suicidal attempts, unemployment, low income, single/divorced marital status, painful physical illness, alcohol/ drug problems, and a family history of suicide (Sadock BJ et al 2009)[(6)]. Since Schizophrenia is associated with high suicidal risk, those treating mental health professionals, need to be wary of the fact and take proper preventive measures. However, recent work from India (Manjoranjitham et al 2010)[(7)] has found mental disorder in

less than half those who completed suicide depicting cultural variations.

The risk factors for suicide according to many studies are belonging to male gender, young age, and for women living without a partner (Maurizio Pompili et al 2007)[8] Past history of suicide attempt is a major risk factor for future completed suicide and the individuals usually communicate their wish to die. Suicidal behaviour in 1st and 2nd degree relatives has also been found to be a strong risk factor for suicide attempt. According to literature suicide attempt can occur throughout the course of the schizophrenic illness, especially during florid positive symptoms, during depressive episodes and after recent discharge (Sadock BJ et al 2009)[6]. In people with psychosis, hopelessness is a major risk factor and acts as a trigger for suicide (Aguilar EJ et al 1997)[9]. Studies on positive symptoms of schizophrenia reported a statistically significant association with suicidal risk in numerous studies (Heila H et al 1997, Hu WH et al 1991, De Hert M et al 2001)[10,11,12]. Negative symptoms did not show any overall association with suicide risk, however, Fawcett J et al 1990[13] found a relationship between anhedonia and committing suicide within a year of onset of psychiatric illness. Depressive symptoms are common in schizophrenia and can occur in every phase of the disorder. Estimates of frequency vary but appear to occur in approximately 25% of individuals with schizophrenia (APA, 2000).[14]

Hopelessness defined as negative expectancies about the future may be an important factor in accounting for the link between suicide and depression. According to Beck AT et al 1993[15] hopelessness has been shown to co-relate better with suicidal intent and subsequent suicide. Rabany L et al 2013[16] observed that hopelessness is one among the three factors apart from depression and guilt in contributing to suicide in schizophrenia patients. Among the causes for suicide, schizophrenia is the second leading disorder contributing for the same, preceded only by depressive disorders. Hence analysing the risk factors and psychological aspects of suicide attempters in schizophrenia will throw light in reducing the worldwide mortality. There has been very few of Indian studies in this subject.

AIM: To study the frequency of suicide attempts in schizophrenia, and study the socio-demographic profile, clinical profile and various risk factors for suicide attempts in persons suffering from schizophrenia.

METHODS: The study was carried out in the Department of Psychiatry of a Private University Hospital in Chennai. 60 consecutive patients diagnosed as suffering from Schizophrenia according to ICD-10 criteria, who were attending the OPD, between September 2014 and December 2014 were selected. After diagnosis those started on medications within one year were included. Patients indulging in substance use apart from Nicotine, those having an organic condition, those below the age of 16 years and above 65 years, and those who could not be evaluated due to their present mental state which prevented them from giving necessary details were excluded.

The interviewer had no knowledge whether these individuals had a suicide attempt before the evaluation. Informed consent was obtained from every individual and closest accompanying family member before the start of the study. The study was approved by the University ethics committee.

MEASURES: A Semi-structured Proforma was used to collect the socio-demographic details of the participants which included family history, duration of illness, age, gender, marital status, treatment history and details of suicide attempt if present.

The Positive and Negative Syndrome scale (PANSS) developed by Kay SR et al 1987[17] was used for evaluating the positive, negative and other symptom dimensions of schizophrenia. The PANSS includes 30 items on 3 sub-scales: 7 covering positive symptoms, 7 covering negative symptoms and 16 covering general psychopathology. Each item is scored on a seven-point item specific scale ranging from 1 to 7.

CDSS (The Calgary Depression rating Scale for Schizophrenia): The CDSS was a scale which was developed by D. and J. Addington in 1990.[18] at the Calgary University for assessing specifically the severity of depression in schizophrenia, compared with primary depressive illness, differentiating from positive symptoms, negative symptoms and extra pyramidal symptoms. CDSS has been extensively tested in both relapsed and remitted patients, having very few overlap compared to Hamilton Depression rating scale. The scale has 9 items, scored from 0 to 3, evaluated by the observer, in the form of a semi-structured interview.

Beck Hopelessness Scale (**BHS**)**:** Developed by Beck AT et al 1988[19] a 20-item self-report inventory was used to measure three major aspects of hopelessness: feelings about the future, loss of motivation, and expectations. The test is designed for adults, in the age range of 17-80 years. It measures the extent of the respondent's negative attitudes, or pessimism, about the future. It may be used as an indicator of suicidal risk in depressed people who have made suicide attempt.

Beck Suicide Intent Scale (SIS): This scale was developed by Beck AT et al 1979[20] to assess the suicidal intent's severity, having 2 components of a subjective self-report (7 items) and objective analyses of the circumstances (8 items). The items are scored between 0 and 2, and total score lies between 0 and 30.

RESULTS:

Suicide Attempt	Frequency (n)	Percentage (%)
Yes	32	53.3
No	28	46.7
Total	60	100.0
Table 1: Frequency of Suicide Attempt		
Suicide Attempt Rate - 53.3%	95% CI = 40 - 65%	

In the study, 53.3% had made suicide attempts and 46.7% did not.

	Variables	Frequency	Percentage	P value
Age	18-20 yrs.	4	6.7	0.37
	21-30 yrs.	20	33.3	
	31-40 yrs.	21	35.0	
	41-50 yrs.	13	21.7	
	51-60 yrs.	2	3.3	
Gender	Male	33	55.0	0.43
	Female	27	45.0	
Marital status	Single	21	35.0	0.13
	Married	38	63.3	
	Divorced	1	1.7	
Education	Secondary	21	35.0	0.99
	High school	18	30.0	
	Higher Secondary	7	11.7	
	Graduate+	14	23.3	
Occupation	Professional	2	3.3	0.58
	Business	1	1.7	
	Skilled	14	33.3	
	Semi-skilled	20	23.3	
	Unemployed	23	38.3	
Table 2: Socio-Demographic Characteristics of the Participants				

The p value for sociodemographic parameters were found to be not significant.

		Suicide Attempt		Total	X^2	P value
		Yes	No			
		N (%)	N (%)			
Family History of Mental Illness	Yes	10(31.3)	9(32.1)	19	0.006	0.94
	No	22(68.8)	19(67.9)	41		
Total		**32(100)**	**28(100)**	**60(100)**		
Table 3: Comparison Between Suicide Attempters and Non attempters by Family History of Psychiatric Illness						

There was no statistically significant difference between suicide attempters and non-attempters in regards to family history of mental illness.

		Suicide Attempt		Total	X^2	P value
		Yes	No			
		N (%)	N (%)			
Family History of Suicide Attempt	Yes	7(21.9)	3(10.7)	10	1.79	0.62
	No	25(78.1)	25(89.3)	8		
Total		**32(100)**	**28(100)**	**60**		
Table 4: Comparison of Suicide Attempters and Non attempters by Family History of Suicide						

There was no statistically significant difference between suicide attempters and non-attempters in regards to family history of suicide.

Variables	Attempters (n - 32)		Non-attempters (n - 28)		t-value	P value
	Mean	S.D.	Mean	S.D.		
Positive Symptoms	49.69	4.50	46.78	6.08	2.17	**0.034***
Negative Symptoms	49.78	8.35	48.82	7.86	-0.46	0.65
General Psychopathology	54.72	7.44	51.29	6.67	1.87	0.066

Table 5: Comparison of the Two Groups by PANSS Scores

*p<0.05

There is a significant difference between the two groups on positive symptoms. No significant difference is observed between the two groups on negative symptoms and general psychopathology.

Scales Used	Attempters (n - 32)		Non-attempters (n- 28)		t-value	P value
	Mean	S.D.	Mean	S.D.		
Depression (CDSS)	13.31	4.67	8.71	3.18	4.21	0.001**
Hopelessness (BHS)	9.94	7.10	5.64	4.59	2.74	0.008*

Table 6: Comparison of Depression and Hopelessness between the Two Groups

*p<0.05, **p<0.001

There is significant difference between the two groups on depression and hopelessness.

Mode of Attempt	Frequency (n - 32)	Percentage (%)
Hanging	13	40.6
Poisoning	14	43.8
Drowning	3	9.4
Self-immolation	1	3.1
Self-inflicted wound	1	3.1

Table 8: Distribution by Mode of Attempt

Suicide attempts in 43.8% was by poisoning, followed by hanging in 40.6%.

Other modes of attempt included drowning (9.4%), self-immolation (3.1%) and self-inflicted wounds (3.1%).

Suicide Intent	Frequency (n-32)	Percentage (%)
Low	1	3.1
Medium	20	62.5
High	11	34.4
Total	**60**	**100**

Table 9: Schizophrenic Suicide Attempter's, Intent Severity

Majority of those who attempted suicide had medium intent (62.5%).

Variables		Positive Symptoms	Negative Symptoms	General Psycho-Pathology	Composite Index	Depression	Hopelessness	Suicide Intent Scale
Positive Symptoms	r value		.113	.440	-.497	.362	.199	.285
	p value		.391	<0.001**	<0.001**	.004*	.127	.027*
	n		60	60	60	60	60	60
Negative Symptoms	r value			.526	.785	-.031	.369	.055
	p value			<0.001**	<0.001**	.812	.004*	.678
	n			60	60	60	60	60
General Psycho-Pathology	r value				.182	.383	.411	.242
	p value				.163	**.003***	**.001***	.062
	n				60	60	60	60
Composite Index	r value					-.218	.189	-.132
	p value					.095	.148	.316
	n					60	60	60
Depression	r value						.433	.497
	p value						.001*	<0.001 **
	n						60	60
Hopelessness	r value							.366
	p value							.004*
	n							60

Table 10: Correlation of Depression, Hopelessness and Suicide Intent with Positive and Negative Symptoms

*p > 0.05, **p > 0.001

The results showed that positive symptoms significantly correlated with depression and suicide intent, in a positive direction. Similarly, negative symptoms correlated with hopelessness. Depression is positively correlated with both hopelessness and suicide intent and hopelessness correlated with suicide intent in a positive direction.

DISCUSSION: The frequency of suicide attempt was found to be 53.3% in the present study, similar to report by Shih-Jen Tsai et al 2007 and Getinet A 2016[21,22] which is somewhat higher than many previous studies which found that 20-40% of individuals with schizophrenia made suicide attempts (Landmark J et al 1987, Planasky K et al 1971, Drake RE 2006)[2,3,4] The present day competitive life could be the likely factor driving more individuals with schizophrenia towards suicide attempt.

The role of demographic variables in suicidal behaviour has given contrasting results across various studies. Vanessa R 2001[23] reported higher risk in young males, while Ho TP 2003[24] gave higher suicide attempt rates in females. In the present study, we could not establish age and gender to be associated with suicidal attempts in schizophrenia. Although unemployment has been found to be a risk factor for suicide attempt in schizophrenia by Sadock BJ et al 2009 and Vanessa R 2001[6,23] we found the role of unemployment to be not significant, similar to studies by Harkavy et al 1999[25] Study by Vanessa R 2001[23] showed majority of the schizophrenic suicides were found in unmarried, divorced and socially aloof, but in our study marital status was not found to be a significant risk factor for suicide attempts.

In the present study there is no significant difference between suicide attempters and non-attempters in relation to the demographic variables. The above results are similar to the findings of Harkavy et al 1999[25]. In the present study, it was found that there is no significant difference between the two groups who had a family history of suicide attempts. The current finding is not in consistence with studies which reported transmission of a genetic risk factor for suicide (Roy A et al 1991)[26]. Prominent delusions and suspiciousness (Fenton WS et al, 1997)[27] and persistent hallucinations (Falloon ER et al 1981, Montross LP et al 2005)[28,29] have been reported to have elevated risk of suicide attempt in schizophrenia. The present study also shows significant association between positive symptoms and suicidal behaviour as found by many studies (Heila H et al 1997, Hu WH et al 1991, De Hert M et al 2001)[10,11,12]. Distress associated with these positive symptoms seems to drive those suffering from schizophrenia to make suicide attempts. We found that there was no association between negative symptoms and suicidal behaviour. The above finding is in agreement with the findings of Vanessa R 2001[23]. The current study found a correlation between negative symptoms and hopelessness however no correlation was seen with suicide intent. In an earlier study, Kuo et al 2005[30] found that depressive symptoms were strongly related to suicidal behaviour in schizophrenia. The results of the present study found a strong and significant relationship between the presence of depressive features and suicide attempt. Similar findings had been reported by other researchers (Keith H et al 2005; Green A et al, 2003; Hafner H et al 2005; Gupta S et al 1998 and Roy A 1992)[31,32,33,34,35].

Hopelessness is one of the major factor related to suicidal attempts in schizophrenia. The present study found a strong link between hopelessness and suicide attempt in individuals with schizophrenia and also there was a positive correlation between hopelessness and suicide attempt. Similar findings were reported by Rabany L et al 2013, Nordentoft M et al 2002, Drake RE et al 1996 and Minkoff K et al 1973[16,36,37,38]. In our study, Hallucinations (command) were the most common cause for suicide attempt in persons with schizophrenia. Those who attempt suicide attribute their positive symptoms (Delusions & Hallucinations) to be the most common reason for the suicide attempt.

Depressive symptoms were also a common reason for the suicide attempts. Impulsivity was one of the risk factors. It was found in our study that a higher percentage of hallucinations (31%) and delusions (21.9%) drive them to make suicide attempts. The above findings are in accord with the findings of previously reported studies (Zisook S et al 1995 and Harkavy-Friedman et al 2003)[39,40]. We found poisoning to be the commonest mode of suicide attempt (43.8%), followed by hanging (40.6%). We found that other reasons for attempting suicide were drowning, self-immolation and self-inflicted wound, which was similar to a pioneer Indian study by Rajiv Radhakrishnan and Chittaranjan Andrade 2009[41], who found consumption of a poison, hanging, self-immolation, and drowning to be the commonest modes of suicide in India. Other studies (Harkavy JM et al 1999, Getinet A 2016)[25,22] found that medically dangerous, lethal and violent methods are higher in schizophrenic suicide attempts, which weren't so in the present study. Since our country has restrictions on guns, the violent method of shooting self, common in Western countries, was never found even in a single individual in our study. Using the Beck Suicide Intent Scale, it was found that 62.5% had medium intent, while another 34.4% had high intent. Similar finding have been reported by Harkavy JM et al 1999[25].

LIMITATIONS: Many of the variables like social status, academic achievement and work status were not fully representative of the population since the study was conducted in a private tertiary care hospital. Since the evaluation was done not during the suicide attempt, the severity of psychopathology may have undergone natural changes characteristic of the schizophrenia illness course. Recall bias regarding the events surrounding the suicide attempt could have altered the patients and relatives information about the attempt. Many other factors which play an important role in suicide among individuals with schizophrenia like insight, number of hospitalization, and treatment with antidepressants were not studied. To know about the entire suicidal behaviour, completed suicides could also have been included in the study.

CONCLUSION: People suffering from schizophrenia, are at a high risk for making suicidal attempts, when accompanied by symptoms of depression and hopelessness. Mental health professionals need to be wary of this fact and intervene promptly and effectively. More attention is needed for the higher risk group which includes those with positive symptoms, depression and hopelessness. Suicide being the single largest cause of premature death among individuals with schizophrenia, early identification of risk factors and possible preventive strategies needs to be devised.

Prevention of suicide in schizophrenia is likely to result from treatment of affective symptoms, improving adherence to treatment, and maintaining special vigilance in patients with risk factors. When a person with schizophrenia attempts suicide care givers and mental health professionals are left with feelings of culpability and inadequacy, so it is vital for mental health professionals to feel confident in their understanding of risk assessment and management in this particularly vulnerable group. This would definitely make us keep a step towards meeting one of the greatest challenges in the prevention of suicidal behaviour in schizophrenia.

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