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Suicidality, Mode of Suicide Attempt and Psychiatric Co- Morbidity Among Suicide Attempters in A Tertiary Hospital of North-East India – An Observational Study

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ABSTRACT

Introduction: Suicide is considered as a fatal act of self injury (self harm) undertaken with more or less conscious self destructive intent to end his/her life, however vague and ambitious. Psychiatric illnesses are often identified as risk factors for suicide attempt. The present study was conducted with the objective of assessing the suicidality, mode of suicide attempt and psychiatric co-morbidity among suicide attempters in a tertiary hospital of North-East India.

Materials and Methods: This was a hospital based observational study carried out in a tertiary hospital located in the upper part of Assam, India. The study duration was of six months. The study received approval from the institutional ethical committee. Every consecutive patient admitted in the hospital during this period was included in the study sample and analysis of the observed data was done using tests like frequency distribution, multinomial logistic regression, fisher's test and chi square test in SPSS windows version 16.0.

Results: Poisoning was the most common mode of suicide attempt among both males and females. No significant association was found between suicidal risk and mode of suicide attempt. Suicidal Risk was also higher in those who had a psychiatric diagnosis than those with no psychiatric co-morbidity. How ever no significant association was found between suicidal risk and any of the individual psychiatric co-morbidities

Conclusion: Severity of suicidal risk cannot determine the mode of suicide attempt. Mental illness, although it is associated with suicidal risk, cannot predict the severity of suicidal ideation.

Keywords: *Suicide, Suicidal Risk, Mental Illness, Suicidal Ideation*

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INTRODUCTION

Suicidal behavior or suicidality can be conceptualized as a continuum ranging from suicidal ideation and communications to suicide attempts and completed suicide. Suicide is considered as a fatal act of self-injury (self-harm) undertaken with more or less conscious self-destructive intent to end his/her life, however vague and ambitious. It is usually preceded by years of suicidal behavior or feelings and plans and warnings. In about half of all studies, a previous history of suicide attempt is present which offers, in theory, an opportunity for suicide intervention wherever suicide attempts occur. [1,2]

According to the World Health Organization (WHO), Suicide in 2004 was the eight-leading cause of potential years of life lost worldwide among persons aged 15-44 years. [3] It is the third leading cause of death among those aged between 15-44 years, and the second leading cause of death in the 10-24 years age group. [4] Suicide rates have increased by 60% worldwide from 1950 to 1995.[5] The average rate of suicide increased from 10.1 per 100,000 in 1950 to 16 per 100,000 in 1995.[6] In India, the rate of suicide in 2009 was 10.9 per 100,000 population [7] which showed a 1.7% increase in suicides since 2008. [8] In 2010 it rose to 11.4 per 100,000 population; an increase of 5.9% in the number of suicides.[9]The suicide rates vary widely across the states of India, ranging from 0.5/100,000 in Nagaland to 45.9/100,000 in Sikkim against the national average of 11.4/100,000 in 2010.[9]

Various risk or protective factors underlie suicidal behavior. An appearance of suicidality means either an intensified effect of risk factors or a weakened effect of protective factors. The choice of a specific method takes place at the very end of the suicide process and represents the last possibility to intervene. [10] Hanging is the most common suicide method globally. Nowadays the increasing suicide rate in many Asian societies has been largely linked with pesticides and other poisons. Firearms, carbon monoxide and hanging have the highest potential to cause death. Jumping from a height or leaping in front of a moving vehicle are more passive ways but are highly damaging in nature. Poisoning, drowning, or wrist cutting are typically methods which leave more time for intervention. While numerous factors contribute to the choice of a suicide method, societal patterns of suicide can be understood from basic concepts such as the social acceptability of the method (i.e. culture and tradition) and its availability (i.e. opportunity). Violent and highly lethal methods such as firearm suicide and hanging are more frequent among men, whereas women often choose poisoning or drowning, which are less violent and less lethal. Readily available poisons and firearms facilitate unplanned suicide acts, which are typical of impulsive suicide. Each method has its own obstacles. Typically, the greater the obstacles, the lower the acceptability of the method and the greater the proportion of suicides associated with psychosis and other severe mental disorder.[11]

Virtually all mental disorders carry an increased risk of suicide. In anorexia nervosa and major depression, the risk is about 2 0f old and in other mood disorders and psychotic disorders about10-15 times higher than expected. In anxiety, personality and substance use disorders the suicide risk is at lower levels but about 5-10 times higher than the expected value. In substance use disorders The risk is dependent on the type of disorder, being clearly lowest in alcohol, cannabis and nicotine abusers.

Depression of suicide victims seems to be more severe and is associated with insomnia, weight loss, feelings of worthlessness, inappropriate guilt and thoughts of death. In addition, substance abuse and cluster B personality disorders increase the risk of suicide in major depression. Schizophrenic suicide victims differ from other patients of schizophrenia in having suicidal thoughts and previous suicide attempts, being more depressive and have more positive symptoms. Mental disorders, particularly depressive disorders, substance abuse and antisocial behavior have an important role in adolescent suicides. The diagnostic distribution of mental disorders among them is surprisingly similar to that of the young and even middle-aged adults. [12 –15]

The present study was carried out in an attempt to assess the suicidality, the mode of suicide

attempt and the Psychiatric co-morbidity among suicide attempters admitted in a tertiary hospital of North-east India.

MATERIALS AND METHODS

This was a hospital based observational study carried out in a tertiary hospital located in the upper part of Assam, India. The study duration was of six months (July 2016- December 2016). The study received approval from the institution ethics committee (H). An informed written consent was obtained from each case once they were medically stable i.e. on the fifth day of admission to maintain uniformity and they were free to withdraw their consent at any point of time. The total sample size was 66. The cases were selected from patients, admitted in the hospital between July 2016 and December 2016, with suicide attempt and who gave an informed written consent for participating in the study. Every consecutive patient admitted in the hospital during this period was included in the study sample that fulfilled the exclusion and inclusion criteria.

Inclusion criteria

1. Patients in the age group of 12 to 65years.
2. Patients of both the sexes.
3. Patients with suicide attempt admitted within the defined study period
4. Patients giving informed written consent for the study and assent from minors and consent from parents.

Exclusion criteria

1. Patients with Mental Retardation
2. Patients who did not survive the period of hospitalization
3. Patients with deliberate self-harm

Assessment tools

1. Informed consent form
2. Socio-demographic Proforma for socio-demographic details of patients
3. Kuppuswamy's Socioeconomic status scale,2014
4. Mini Plus 5.0.0 for assessing suicidality and diagnosis of psychiatric co-morbidity (if any)
5. Beck Suicide Intent Scale
6. SPSS version 16.0 for statistical analysis of obtained data

Procedure–Patients in the age group of 12-65 years, admitted within the time period of July 2016 to December 2016, in various departments including Medicine, Surgery, E.N.T and Plastic Surgery with suicide attempt, fulfilling the inclusion criteria and exclusion criteria were included in study sample. Every consecutive case admitted in the study period was selected in the study group till the total sample size was reached. Informed written consent was taken from each participant of the study group. They were free to withdraw their consent at any given point of time. Socio- demographic proforma, previously validated in the hospital itself was used to collect socio- demographic details of the patients. Kuppuswamy's socioeconomic status scale was used to evaluate the socio-economic background of the patient. MINI Plus 5.0.0 was applied to assess suicidality and look for any psychiatric co-morbidity in the patient. Information was collected from the patients once they were medically stable i.e. on the fifth day of admission to maintain uniformity and prevent distortion of information. Analysis of the observed data was done in SPSS windows version 16.0.

RESULTS

The present study shows that among the 66 patients who took part in the study 42 (63.6%) were males whereas 24 (36.4%) were females. The mean age of the study sample was 32.59 years. Most of the participants were in the age group of 18-29 years (33.3%) and 30-41 years (37.9%). Most of the cases included in the study were Hindus (97%). Majority of the cases belonged to lower middle socio-economic class. Majority of the cases were married (72.72%) whereas only 21.21% were unmarried. 97% of the cases belonged to nuclear families. Majority of the cases (81.8%) belonged to rural domicile. Among the cases, most (63.6%) had high risk suicidality whereas around 15.2% of the cases had low risk and 21.2% of the cases had medium risk suicidality.

TABLE 1: Distribution of cases according to mode of suicide attempt

Mode of Suicide attempt	No of patients	Percentage (%)
Poisoning	27	40.9
Hanging	16	24.2
Drowning	8	12.1
Self-immolation	7	10.6
Cutthroat	3	4.5
Wrist Cutting	5	7.6

TABLE 2: Association between mode of suicide attempt and gender

Mode of Suicide	Male (42)	Female (24)	P-value*
Poisoning (27)	15	12	0.82
Hanging (16)	13	3	0.09
Drowning (8)	4	4	0.39
Cutthroat (3)	3	0	0.29
Self-immolation (7)	4	3	0.70
Wrist Slash (5)	3	2	0.86

*P value significant at <0.05

Table1 shows the distribution of cases according to their mode of suicide attempt. From the table it is seen that overall, the most frequently employed methods were poisoning (40.9%), hanging (24.2%) and drowning (12.1%). Table 2 shows that among males poisoning and hanging were most common whereas among females poisoning was most common followed by drowning. However, on applying Chi square test and Fisher's test (for cutthroat injury) no significant relationship was found between gender of the cases and the mode of suicide attempt employed by them.

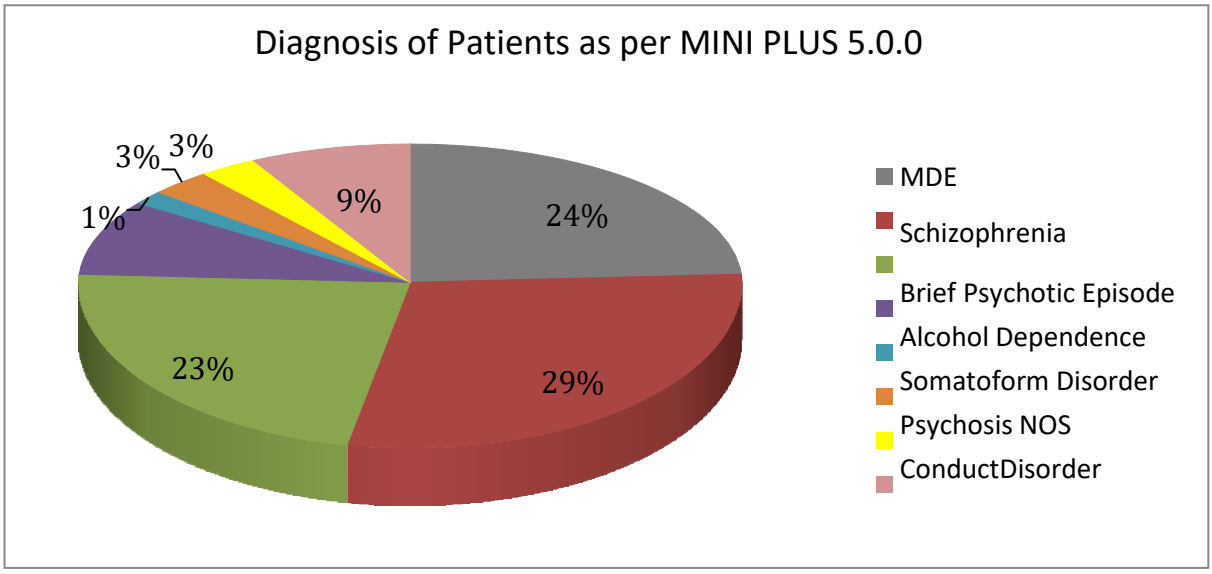

FIGURE 1: Diagnosis of patients as per MINI Plus 5.0.0

From Figure 1, it is seen that the most common psychiatric co-morbidity among the cases were Schizophrenia (29%) followed by Major Depressive Episode (24%) and Brief Psychotic Episode (23%) respectively. 9% of the cases had no psychiatric diagnosis and were diagnosed as Nil Psychiatry.

TABLE 3: Association between mode of suicide attempt and suicidality

Mode of Suicide	Low Risk			Moderate Risk			High Risk	
	No	%	p-value	No	%	p-value	no	%
Poisoning (27)	8	29.6	1.000	11	40.7	.440	8	29.6
Hanging (16)	0	0	.997	2	12.5	.384	14	87.5
Drowning (8)	0	0	.998	0	0	.998	8	100
Cutthroat (3)	0	0		0	0		3	100
Self-immolation (7)	0	0	.998	0	0	.998	7	100
Wrist cutting (5)	2	40		1	20		2	40

*P value significant at <0.05

Table 3 shows the association between the mode of suicide attempt and suicidality of the patients. From the table, it is clear that most of the cases who attempted poisoning had medium risk suicidality (40.7%) whereas most of the cases who attempted hanging had high risk suicidality (87.5%). All patients who attempted to commit suicide by drowning, cut throat wound and burning had high risk suicidality (100%). Among those who attempted suicide by wrist cutting, 40% had low risk suicidality, 40 % had high risk suicidality whereas 20% had medium risk suicidality. On applying multinomial logistic regression, keeping high risk as the reference category, no significant association was found between suicidal risk and mode of suicide attempt.

TABLE 4: Association between psychiatric comorbidity and suicidality

Diagnosis	Low Risk			Moderate Risk			High Risk	
	No	%	p-value	No	%	p-value	no	%
MDE (16)	4	25	.631	2	12.5	.713	10	63.5
Schizophrenia (19)	0	0	.982	6	31.6	.796	13	68.4
BPD (15)	1	6.7	.151	3	20	.880	11	73.3
Alcohol Dependence (5)	1	20	.638	1	20	1.000	3	60
Somatoform Disorder (1)	0	0	.996	0	0	.996	1	100
Psychosis NOS (2)	0	0	.995	1	50	.547	1	50
Conduct Disorder (2)	2	100	.997	0	0		0	0
Nil Psychiatry (6)	2	33.3		1	16.7		3	50

*P value significant at <0.05

Table4 shows the association between the psychiatric co-morbidity and suicidality of the patients. From this table, it is seen that most of the patients with Major Depressive Episode (63.5%), Schizophrenia (68.4%), Brief Psychotic Disorder (73.3%) and Alcohol Dependence (60%) had high risk suicidality. In only one case of Somatoform Disorder, high risk suicidality

was seen. In patients of Psychosis NOS, 50% had medium risk suicidality whereas 50% had high risk suicidality. 100% of patients of conduct disorder had low risk suicidality whereas in patients with no psychiatric co-morbidity 33.3% had low risk suicidality, 16.7% had medium risk suicidality whereas 50% had high risk suicidality. On applying multinomial logistic regression keeping high risk as the reference category, no significant association was found between suicidal risk and any of the psychiatric co-morbidities.

DISCUSSION

From the present study, it was seen that most of the cases who took part in the study were males (63.6%). Our finding was in accordance with the findings of Kelly and Bunting, 1998 [16] who found that suicide rates were more in males than in females. The mean age of the study sample was 32.59 years. Most of the patients were in the age group of 18-29 years (33.3%) and 30-41 years (37.9%). It was in line with the findings of Hawton, 1998 [17] who found that suicides were more common in young males mainly due to occupational instability. Most of the patients were Hindus (97%). This was because Hinduism is the major religion among the inhabitants of this region. Most of the cases belonged to lower middle socioeconomic class, married (72.72%), belonged to nuclear families (97%) and were from rural background (81.8%). Our findings were in line with the findings of Kim et al. 2016, [18] who found that those from lower socioeconomic class had more suicidal ideation and more suicidal attempts; Rane et al. 2014, [19] who found that suicides were more common in rural areas and among those from lower socioeconomic class; Latha et al. 1996 [20], who found that suicide attempters were mostly married; Srivastava et al. 2004[21], who found that suicide attempters were mostly married and belonged to nuclear families but contrary to the findings of Baller and Richardson, 2002 [22] and Gibbs, 2000 [23] ; who found that suicides were more common among those who were divorced rather than those who were married.

Among the cases, 63.6% of the cases had high risk suicidality whereas 21.2% and 15.2% had medium risk suicidality and low risk suicidality respectively. Poisoning was the most common mode of suicide attempt among both the genders. Hanging was the second most common mode of suicide attempt in males whereas in females the second most common mode was drowning. Our findings were in accordance with the findings of Kumar et al. 2013 [24] , who found that poisoning was the most common mode of suicide in both Indian males and females and Sharma et al. 1998 [25], who found that poisoning was the most common mode of suicide attempt in India. However no significant relationship was found between gender of the cases and the mode of suicide attempt employed by them.

Most common psychiatric co-morbidity among the cases were Schizophrenia (29%) followed by Major Depressive Episode (24%) and Brief Psychotic Episode (23%) respectively. 9% of the cases had no psychiatric co-morbidity and were diagnosed as Nil Psychiatry. Our findings were in line with the findings of Srivastava et al. 2004 [21], who found that mental disorders like alcohol dependence, depression and schizophrenia were common among suicide attempters; Jain et al. 1999 [26], who found that mood disorders were most common in patients who attempted suicide and Verona et al. 2004 [27], who found that Schizophrenia was the most common psychiatric diagnosis among suicide attempters.

The present study also showed that cases of suicide attempts involving hanging, drowning, self- immolation and cutthroat wound were associated with higher suicidal risk than modes like wrist cutting and poisoning which was associated with lesser percentage of high-risk suicidal cases. Howevernosignificantassociationcouldbeestablishedbetweenthemodeofsuicideattemptand the suicidal risk in the patient. Therefore, the severity of suicidal ideation cannot determine the mode of suicide attempt. It was also seen that psychiatric disorders like Schizophrenia, Major Depressiveepisode,BriefPsychoticDisorder,SomatoformdisorderandAlcoholdependencewere associated with greater suicidal ideation and hence, higher suicidal risk than those who had no psychiatric comorbidity. These findings were in

line with the findings of Kessler et al. 2005 [28], Nock et al 2008 [29] and Borges et al. 2008 [30]. A possible explanation for this could be the experience of distress or impairment that is associated with a mental disorder. Such an interpretation is consistent with an escape model of suicide, which suggests that people attempt suicide in an effort to escape intolerable distress regardless of the specific source of that distress. However no significant association was found between suicidal risk and any of the individual psychiatric co-morbidities. This implied that mental illness, although it is associated with suicidal risk, cannot predict the severity of suicidal risk.

CONCLUSION

From the present study we can conclude that most of the suicide attempters were young males, married and belonged to lower socioeconomic class, nuclear families and rural background. Poisoning was the most common mode of suicide attempt among both males and females. Most of the suicide attempts involving hanging, drowning, self-immolation and cut throat wound were associated with stronger suicidal ideation as compared to poisoning and wrist cutting where less percentage of cases presented with higher suicidal risk. However no significant association could be established between the mode of suicide attempt and the suicidal risk in the patient. Suicidal Risk was higher in those who had a psychiatric diagnosis than those with no psychiatric co- morbidity. However no significant association was found between suicidal risk and any of the individual psychiatric co-morbidities. Some of the limitations of this study included its modest sample size and the cross-sectional design of the study.

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Conflicts of interest

None

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