ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 06, pp.32696-32701, June, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

ASSOCIATION OF PSYCHIATRIC MORBIDITY WITH CASES OF ATTEMPTED SUICIDE IN A TERTIARY CARE HOSPITAL

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ARTICLE INFO

Article History:
Received 30th March, 2016
Received in revised form
27th April, 2016
Accepted 28th May, 2016
Published online 15th June, 2016

Key words:

Attempted Suicide,
Method Adopted,
Psychiatric Morbidity.

ABSTRACT

Background: Suicide is the third leading cause of death among young adults worldwide. The number of suicides in India during the last decade has recorded an increase of 25.0%. Suicide attempt rates are found to be higher than rates for completed suicides.

Aim: This study is aimed to evaluate the socio demographic profile and psychiatric morbidity in attempted suicide patients.

Settings and Design: The study was conducted in the Agartala Govt. Medical College & GBP Hospital, Agartala, Tripura. The samples for the study were recruited from those who admitted to different departments of AGMC and GBP hospital. These patients were interviewed within the first week of their admission. After application of the inclusion and exclusion criteria sample were included in the study.

Materials and Methods: This study assesses the various socio-demographic correlates, the method adopted and the psychiatric disorders in patients with attempted suicide. The tools used were: a) informed consent form, b) proforma for socio demographic datac) MINI plus (mini international neuropsychiatric interview, d) ICD 10 Diagnostic criteria for diagnosis of psychiatric illness. e) Statistical analysis was done by using SPSS- 20.

Results: The prevalence of suicidal attempt was high among males with psychiatric illness, whereas more female suicide attempters were without psychiatric illness. The most common psychiatric illnesses were found to be mood disorders (n=23) and dissociative disorders (n=14) as per the ICD-10 criteria. Family type, economic status and religion appears to be playing non-significant role in suicide attempt in this part of the country whereas age, sex, locality, occupation, educational status, Marital status, family history ,past suicidal attempt, mode of suicidal attempt and psychiatric illnesses are playing important role in suicide attempt. Other demographic variables, though, were statistically non-significant, but, below 30 years of age group, low socio-economic status, low education and nuclear families were found to be more vulnerable factors for suicide.

Conclusion: The presence of psychiatric morbidity was observed to confer a considerable risk of suicide. Attempted suicide now a day is the burning issue There is need for further study in Indian population using samples from different regions and cultures within the county.

Citation: Dr. Bhubaneswar Roy and Dr. Priyajyoti Chakma, 2016. "Association of psychiatric morbidity with cases of attempted suicide in a tertiary care hospital", *International Journal of Current Research*, 8, (06), 32696-32701.

INTRODUCTION

The World Health Organization (W.H.O. 1968) defines suicide act as "the injury with varying degrees of lethal intent and that suicide may be defined as a suicidal act with fatal outcome."Deliberate self-harm is a major issue in the health care all over the world. Many factors including biological, socio-cultural, and personality traits can modify this complex behavior.

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There is a major concern all over the world regarding the rise in attempting suicide in certain population especially among the young. Wide variation has been found in suicidal attempt among different cultures, societies and countries. In developing countries, suicide along with accidents and poisoning form the fifth most common cause of death. (W.H.O. 1968) Suicidal behavior can be conceptualized as a continuum ranging from suicidal ideation to suicide attempts and completed suicide. Suicide is the tragic loss of human life which is untimely and devastating (National Crime Record Bureau, 2009). Suicide and attempted suicide are growing as a silent epidemic causing enormous financial and mental burden to the patients and relatives.

As per WHO reports over 20 million attempt suicide and one million people die as a result of suicide every year worldwide (Cheng *et al*., 1997). Suicide is the tragic loss of human life, which is untimely and devastating. Suicidal behavior is all the more perplexing because it is a conscious volitional act (Foster *et al*., 1999; Henriksson *et al*., 1993; Foster *et al*., 1997). It is a fatal act due to a complex interaction of social, environmental, biological and cultural factors operating on an individual's life. WHO estimated that 877 000 deaths were due to suicide in the year 2002 (W.H.O. 1968). More than one lakh persons in India lost their lives by committing suicide during the year 2008, the all India rate of suicides being 10.8. However, Sikkim reported the highest rate of suicide (48.2) followed by Puducherry (46.9) and suicide rate in Andhra Pradesh was 17.4 in 2008 (National crime records Bureau, 2008; Matthew *et al*., 2008). Suicide attempt rates are found to be 10–40 times higher than rates for completed suicides (Schmidtke *et al*., 1996).

The rate of suicide has greatly increased among youth. In India It is estimated that there will be at least 5 million suicide attempts each year which will be a major public and mental health concern. In India suicide attempts are more common in females & mostly are Hindus. Mostly are unemployed. Poisoning is the commonest mode of suicide attempt in India. Most psychiatric disorders like affective disorder, substance use disorder, psychotic disorder, adjustment disorder increase the risk of suicidal behavior. Attempted suicide is one of the main predictor of complete suicide (National Crime Record Bureau, 2009). The rate of attempted suicide is 8-10 times more than the completed suicide In Indian history (Aiyappan and Jayadev, 1958; Badrinarayana, 1977; Gupta and Singh, 1981; Hegde, 1975). The 2011 statistics from the National Crime Records Bureau (NCRB) reveal that 1,35,585 people died of suicide in India, with Tripura topping the list with 703 reported cases, followed by Sikkim (184), Meghalaya (156), Arunachal Pradesh (134), Mizoram (90), Nagaland (33) and Manipur (33).More than 50% of the suicide attempters made more than one attempt. More than 50% of the suicide attempters made more than one attempt, and nearly 20% of the second attempts were made within 12 months after the first attempt (Schmidtke *et al*., 1996; Matthew *et al*., 2008). Socio demographic risk factors associated with repetition are belonging to the age group of 25 to 49 years, being divorced, unemployed, and coming from low social class (Kerkhof and Arensman, 2000). In this above back ground the present study has been undertaken with the aim to assess the role of socio demographic correlates and psychiatric disorders in attempted suicide in a general hospital

MATERIALS AND METHODS

The design of the study

The sample comprised 100 suicide attempters qualifying the criteria for suicide attempt as defined by WHO (1968) admitted to different departments of AGMC and GBP Hospital. These patients were interviewed within the first week of their admission. After getting the information regarding the socio-demographic variables detailed interview with patients and family members was conducted to assess the associated psychiatric illness, if any, on the basis of ICD-10. Ethical approval & consent of the patients & reliable informants were obtained in the initial portion of the study. The period of the study was one year from January 2015 to December 2015.The study was done in Agartalagovt. Medical college hospital which is tertiary care center situated in Agartala, Tripura.

Aims: This study is aimed to evaluate the socio demographic profile and psychiatric morbidity in attempted suicide patients and also assess the association of psychiatric morbidity with cases of attempted suicide.

Inclusion Criteria: a) Those patients & informants who have given written inform consent. b) Age 18 or above 18 years of age. c) Patients & informants of both sexes d) Patients available with reliable informants (staying with the patients for last one year)

Exclusion Criteria: a) Patients with previous history of functional psychiatric disorder before suicidal attempt. b) Mental Retardation. c) chronic debilitating physical illness. d) Unstable medical conditions.

Tools which were used in the study are: a) informed consent form, b) proforma for socio demographic data, c) ICD 10 Diagnostic criteria for diagnosis of psychiatric illness, d) MINI plus (mini international neuropsychiatric interview). e) The Suicide attempt data included nature of attempt, prior thoughts of attempt, history of previous suicidal attempts, reasons for attempt and mode of attempt.

MINI plus (mini international neuropsychiatric interview) 2004: The MINI was designed as a brief structured interview developed by psychiatrists and clinicians in USA and Europe for the Psychiatric disorder in DSM-IV and ICD10. Validation and reliability studies had been done comparing the M.I.N.I.to the SCID-P for DSM-IV TR and the CIDI. The result sows MINI has high validation and reliability scores. The test questionnaires were validated in the department of Psychiatry.

RESULTS

Table 1. Age wise distribution of sample (n=100)

Age in years	Frequency	Percentage
18-30	74	74
31-40	20	20
41-50	6	6

In this study 74% attempters belonged to 18-30 years of age, 20% were within 31-40 years of age,6% were from 41-50 years age groups.

Table 2. Sex wise distribution of sample (n=100)

sex	N	Percentage
Male	26	26
Female	74	74

In this study 26% were male & 74% were female

Table 3. Distribution according to marital status

Marital status	N	Percentage
single	60	60
married	34	34
widow	6	6
total	100	100

In this study 60%were unmarried (single) followed by 34% were married & 6% were widow

Table 4. Distribution according to locality (n=100)

Locality	N	Percentage
Rural	60	60
Urban	40	40

Most of the samples were from rural background (60%) only 40% were from urban background.

Table 5. Education wise distribution of sample (n=100)

Educational status	N	Percentage
illiterate	10	10
Primary school	20	20
High school	25	25
Higher secondary	40	40
Graduate or Postgraduate	5	5
Total	100	100

Majority of the samples were education up to higher secondary 40% followed by high school 25%, primary school 20%, illiterate up to 10% only 5% were graduate or post graduate.

Table 6. Distribution of sample according to religion (n=100)

Religion	N	Percentage
Hindu	90	90
Muslim	3	3
Christian	3	3
Buddhist	4	4

Majority of the samples were Hindu (90%) followed by 4% were buddhist, 3%were Christian and 3% were Muslim

Table 7. Distribution of sample according to occupation (n=100)

Occupation	N	Percentage
Housewife	25	25
Student	15	15
Shop-owner	3	3
Unemployed	52	52
Farmers	4	4
Others	1	1

In this study most of the sample were unemployed (52%)followed by 25%were housewife,15% were student,4% were farmers,3% shop owner only 1% from other occupation.

Table 8. Distribution of sample according to income (n=100)

Income	N	Percentage
up to 1600	25	25
1600-3199	45	45
3200-6399	20	20
6400 & above	10	10

Most of the sample were from (45%) income of Rs.1600-3199 followed by 25% were from income of Rsup to 1600, 20% were from income of Rs. 3200-6399 & only 10% were from income of Rs 6400 and above.

Table 9. Distribution of sample according to type of family (n=100)

Type of family	No	Percentage
Nuclear	65	65
Joint	35	35

In this study most of the sample were from nuclear family (65%) and 35% were from joint family

Table 10. Distribution of sample according to the method used for suicide (n=100)

Method used	N	Percentage
Oganophosphorus compound	47	47
Other poisons	20	20
Drug overdose	15	15
Hanging	3	3
Corrosive	9	9
Kerosene	6	6

Most common methods used among attempters were poisoning by organ phosphorus compound (47%), other poisons 20% (rodenticide, phenyl, and oleander seeds), drug overdose 15%, corrosive 9%, kerosene 6% & Hanging 3%.

Table 11. distribution of study participants according to family history

Variable (family history)	Frequency	Percentage
Attempted suicide	29	29
Committed suicide	4	4
Psychiatric illness	28	28
Physical illness	18	18

In this study family history of attempted suicide were present in 29%, 4% had family history of committed suicide,28% had family history of psychiatric illness & 18% of total sample had family history of physical illness In this study it was found that past history of attempted suicide was present 15%, 5% had past history of psychiatric illness & 11% had past history of physical illness.

Table 12. Distribution of data according to past history

Variable (past history)	Frequency	Percentage
Attempted suicide	**15**	**15**
Psychiatric illness	**5**	**5**
Physical illness	**11**	**11**

In this study (Table 13) most common psychiatric disorder found mood disorder (n-=23) followed by dissociative disorder (n=14), adjustment disorder (n=12), personality disorder (n=11), schizophrenia (n=5), substance dependence (n=4) & panic disorder (n=1) In this study, (Table 14) significant association was found between age, sex, marital status and locality of attempted suicide cases with psychiatric morbidity. In this study (Table 15) occupation & educational status of attempted suicide cases had significant association with psychiatric morbidity but religion, income & type of family had no association with psychiatric morbidity. In this study (Table 16) significant association was found between modes of attempted suicide and psychiatric morbidity.

Table 13. Psychiatric disorder found in the sample

Psychiatric disorder	ICD 10	Male(n=22)	percentage	Female (n=48)	percentage	Total(n=70)
Mood disorders	F31 & F32	8	36.36	15	31.25	23
Adjustment disorder	F43.2	2	9.09	10	20.83	12
Substance dependence	F10.2 &F11.2	4	18.18	-		4
Schizophrenia	F20	3	13.63	2	4.16	5
Personality disorder	F60	2	9.09	9	18.75	11
Panic disorder	F41	1	4.54	-		1
Dissociative disorder	F44	2	9.09	12	25	14

Table 14. Association of age, sex, marital status and locality with psychiatric morbidity

Variable		Psychiatric morbidity		P value
		Yes	No	0.005**
Age (years)	18-30	34	40	
	31-40	8	12	
	41-50	2	4	
Marital status	Single	20	40	0.002**
	Married	9	26	
	Widow	2	4	
Sex	Male	10	16	0.001**
	Female	40	34	
Locality	Rural	25	35	0.001**
	Urban	15	25	

**significant

Table 15. Association of education, religion, occupation, income & type of family with psychiatric morbidity

Variable		Psychiatric morbidity		P value
		Yes	No	
Educational status	illiterate	2	8	0.002**
	Primary school	12	8	
	High school	11	14	
	Intermediate	16	24	
	Graduate or Postgraduate	2	3	
Religion	Hindu	35	55	0.758
	Muslim	1	2	
	Christian	0	3	
	Buddhist	1	3	
Occupation	Housewife	8	17	0.001**
	Student	2	13	
	Shop owner	1	2	
	Unemployed	5	47	
	Farmers	1	3	
	Others	0	1	
Income	up to 1600	5	20	0.502
	1600-3199	12	33	
	3200-6399	6	14	
	6400 & above	3	7	
Type of family	Nuclear	24	41	0.286
	Joint	13	22	

**significant

Table 16. Association of mode of suicide attempt with psychiatric morbidity

Variable		Psychiatric morbidity		P value
		Yes	No	
Mode of attempt	Oganophosphorus compound	20	27	0.002**
	Other poisons	5	15	
	Drug overdose	6	9	
	Hanging	1	2	
	Corrosive	2	7	
	Kerosene	1	5	

**significant

Table 17. Association of family history & past history of attempted suicide cases with psychiatric morbidity

Variable		Psychiatric morbidity		significance
		yes	No	
Family history	Attempted suicide	14	15	P=0.001**
	Committed suicide	4	0	
	Psychiatric illness	22	6	
	Physical illness	9	9	
Past history	Attempted suicide	10	5	P=0.002**
	Psychiatric illness	1	4	
	Physical illness	2	9	

**significant

In this study significant association was found between family history and past history of attempted suicide cases and psychiatric morbidity.

DISCUSSION

In the present study, we obtained the data on socio demographic and suicide attempt profile, and psychiatric morbidity of the subjects with history of attempted suicide presenting to a general hospital.

Age: In our study majority of the suicide attempters were below 30 years of age (74%). Similar observations were made in most of the Indian studies (Chandrasekaran *et al*., 2003; Ponnudurai *et al*., 1986; Venkoba Rao, 1965). Individuals below 30 years of age were found to be more vulnerable for attempting suicide (Narang *et al*., 2000; Suresh Kumar, 1998).

Gender: Female predominance was observed in our study. Males were found be 26% and females 74%, which was observed in few studies (Chandrasekaran *et al*., 2003; Emma Robertson Blackmore *et al*., 2008). However no such gender difference was observed by Nilamadhab Kar (2010) and Partha Praatim Das *et al.* (2008).

Education status: Most (40%) of the subjects in our study were educated up to Higher secondary, similar results were observed in other studies (Chandrasekaran *et al*., 2003; Venkoba Rao, 1965). Educational disadvantage is a contributory risk factor domain (Emma Robertson Blackmore, 2008). However, Partha Praatim Das *et al.* reported that majority of attempters were educated beyond matriculation (75%) (ParthaPratim Das *et al*., 2008). Employment: In our study majority (52%) of the subjects were unemployed, unemployment was found to be significantly associated with suicide in previous literature from India and the West (Emma Robertson Blackmore, 2008; Nilamadhab Kar, 2010; Srivastava *et al*., 2004; Ping Qin *et al*., 2003). Marital status: Our data showed that most (60%) of the suicide attempters were unmarried which confirm that single marital status was a significant risk factor for suicide (Ping Qin *et al*., 2003). Being separated or divorced was noted to be significantly associated with a suicidal act in another study (Emma Robertson Blackmore, 2008). Socioeconomic status: The observation made in our study that maximum number of suicide attempters belonged to low socioeconomic status (45%) is in accordance with the findings of most Indian studies (Narang *et al*., 2000; Suresh Kumar, 1998; Emma Robertson Blackmore, 2008). Mode of attempt: Oral agents were used for attempting suicide by majority (97%) subjects in our study. Among the agents used organ phosphorus compound were consumed by 47%, followed by other poison (20%) like rat poison, herbicide, oleander seeds and fungicide. Previous studies on attempted suicide reported similar observations that poisoning was the predominantly used method (Emma Robertson Blackmore, 2008; National Crime Record Bureau, 2009; Srivastava *et al*., 2004; Ping Qin *et al*., 2003; Ponnudurai *et al*., 1986). In our study, as all the suicide attempters were from rural background, majority were working in agricultural sector. Insecticides, rat poison, herbicide, fungicide and gammaxene were regularly procured and used for the agricultural purposes. There appears to be a relationship between the occupation (agriculture) and method used as pointed out by Takeshi Sato *et al.* (Takeshi Sato *et al*., 1993). Easy availability of these compounds within the home or premises rendered them the first preference for attempting suicide (Venkoba Rao, 1965; Anuradha Bose *et al*., 2009). An association is observed between method availability and method specific suicide rates (Peter *et al*., 1992). In this study In this study most common psychiatric disorder found mood disorder (n= 23) followed by dissociative disorder (n=14), adjustment disorder (n-=12), personality disorder (n=11), schizophrenia (n=5), substance dependence (n-=4) & panic disorder (n=1). In this study the mean age of the sample was 29years in males & 28 years in females. Similar results were reported by few investigators (Chandrasekaran *et al*., 2003; National crime records Bureau, 2008). In the present study, significant association was found between age, sex, marital status, locality, occupation & educational status of attempted suicide cases with psychiatric morbidity but religion, income & type of family had no association with psychiatric morbidity. In this study also found significant association between family history and past history of attempted suicide cases and psychiatric morbidity.

Conclusion

Thus, it can be concluded that considerable number of attempters suffered from psychiatric disorder. Early diagnosis of the psychiatric disorders and supportive measures for various stressors would help in prevention of suicidal attempts. There is need for further study in Indian population using samples from different regions and cultures within the county. The probability & risk factors in attempted suicide patients for subsequent completed suicide needs to be assessed.

Limitations

The current study has several limitations. First, the Sample size is small and sample constitutes of mostly rural population,

therefore cannot be extrapolated to a large sample and generalized to a general population. Second, this study has shown only 4% representation from higher socio economic status as the sample is from a general hospital. Third, some psychiatric disorders like personality disorders not found in the M. I. N. I. PLUS (which could have lead to suicide attempt) might have been missed.

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