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Original Article

Risk Factors Associated with Suicide Attempters Admitted to Tertiary Care Hospital

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ABSTRACT
Background: *The present study is conducted based on the case record analysis for the risk factors associated with suicide attempts in patients who were admitted to a hospital for attempting suicide which may throw light on the vulnerable groups.*
Methods: *One year's worth of data (June 2014 to May 2015) was obtained retrospectively from case records of patients who had attempted suicide.*
Results: *In the year sampled, there were 1600 attempted suicide cases, of which 809 were referred to a psychiatrist for a risk-factor evaluation. More suicide attempters were female 412 0.9% than male397 (49.1%). Most subjects were married574 (71%), belonged to a nuclear family485 (60.5%), of middle socioeconomic status 919 (88%), and from rural background 509 (63%).High incidence occurred in the young adult and middle-age group 535 (21-40 years;66.1%) and in tHhose with pre university education 589 (73.9%).Unskilled workers (e.g., farmers and housewives) had high incidence 517(63.97%). Severe lethal methods like hanging, organophosphorous compound and drowning constitute higher percentage322 (40.8%) than other methods. A univariate regression analysis of different risk factors for suicide showed the most significant were presence of alcohol abuse (.001), physical illness (.001), and financial stress (.023), personality traits (.083). Moderate significance was found for presence of mental illness (.175), interpersonal conflicts (.240), academic stress (.591), family history of mental illness (.484), history of suicide in family (.462), and alcohol use in family (.544). Minimal significance with past history of suicide attempts (.790), and presence of other stress (.744)*
Conclusion: *This study from the case records elucidates common risk factors associated with suicide attempts, which may help in suicide prevention.*
Keywords: *suicide attempt, risk factors, prevention.*

Introduction

Suicide is an important public health problem. It is among the top three causes of death among youth worldwide. According to the WHO, every year, almost one million people die from suicide and 20 times of this number attempt suicide. The global mortality rate for suicide is 16 deaths per 100,000 people, or one death every 40 seconds and one attempt every 3 seconds, on average. Suicide worldwide was estimated to represent 1.8% of the total global burden of disease in 1998; in 2020, this figure is projected to be 2.4%[1]. According to the most recent World Health Organization (WHO) data of 2011, suicide rates range from 0.7/100,000 in the Maldives to 63.3/100,000 in Belarus[1]. India ranks 43rd in descending order of rates of suicide, with a rate of 10.6/100,000 reported in 2009 (WHO suicide rates).[1]Suicide rates have greatly increased among youth, and youth are now the group at greatest risk in one-third of developed and developing countries. There has been less work systematically profiling risk factors in developing countries than in their developed counterparts.[2]That suicide risk factors vary among cultures and periods of time is known.[3]However, more research is required, especially with respect to developing nations.[4]

According to the National Crime Report Bureau (NCRB) report of 2014, more than one lakh people die every year due to suicide in India.[5] Moreover, suicide rates vary widely across the different states of India, ranging from as high as 40.4 in Pondicherry to as low as 0.6 in Nagaland. According to the latest report of the NCRB, during the past 10 years (2004–2014) the number of suicides has increased by15.8%.The NCRB data do not give insight into the causes of suicide for each specific population. However, the regional information provides valuable input by which to understand the factors associated with suicide, which in turn, will help to formulate an effective prevention program.[6]

Risk Factors for Suicide[7]

Risk factors are those that leading to, or are associated with, suicide. That is, individuals "possessing"each risk factor are at greater potential risk of suicidal behavior. These are majorly classified as biopsychosocial, environmental and sociocultural risk factors.

Biopsychosocial risk factors includes Mental disorders, particularly mood disorders, schizophrenia, anxiety disorders, certain personality disorders,. alcohol abuse substance use disorders, hopelessness, impulsive and/or aggressive tendencies, history of trauma or abuse, some major physical illnesses, previous suicide attempt(s), and family history of suicide[7].

Environmental Risk Factors includes job loss or financial insecurity, relationship-related or social loss, easy access to lethal means of committing suicide, and local clusters of suicide, which have a contagious influence[7].

Socio cultural Risk Factors includes lack of social support and sense of isolation, stigma associated with help-seeking behavior, barriers to accessing health care, especially mental health and substance abuse treatment, certain cultural and religious beliefs (for instance, the belief that suicide is a noble resolution of a personal dilemma)[7]

Exposure to, including through the media, and influence of others who have died by suicide risk in the general population has been reported to be associated with male gender,[8] single marital status,[9,10] unemployment,[11,12] lower social class,[13] substance abuse,[14] physical illness,[15] and psychiatric disorders.[16,17]

Objective

To study the risk factors associated with suicide attempts in patients admitted to hospital with a history of suicide attempt(s).

Material and Methods

Source of Data

Detailed information was collected from the case records of patients who were admitted between June 2014 to May 2015 with a suicide attempt. Case records were included in this analysis of such patients who had received a psychiatric

evaluation. Cases of accidental poisoning were excluded, as were incomplete case records, and patients who did not receive a referral to a psychiatrist. Ethical approval was obtained from the Institutional Ethical Committee.

Design

The present study used retrospective analysis of case records to evaluate the risk factors associated with suicide attempts in those patients who were admitted to hospital with a history of suicide attempts.

Results

Between June 2014 to May 2015, a total of 1600 attempted-suicide cases were reported, of which 809 were referred to the psychiatry department for assessment. Details of those patients who were referred to the Psychiatric Department were assessed. Among these patients, 412(50.9 %) were females and 397(49.1%) were males. The incidence of female suicide attempts was higher than that of males, but not significantly so. Most subjects were married (574; 71%), and are from a nuclear family (485;60%), of middle socioeconomic status (919,88%), and from a rural background (509;63%). The incidence with respect to age was185 (22.91%) for <20 years, 535 (66.1%) for 21–40 years, and 89 (11.0%) for >41years.Thus the young adult age group and the middle age-group showed a higher incidence of suicide than the other age group. The suicide rate was high among those with preuniversity education (598; 73.9%), and lower among the subjects having no formal education (53; 6.6%) primary-education groups (136; 16.8%),and those patients with undergraduate degrees (22; 2.7%). Unskilled workers (e.g.,farmers and those without formal employment outside the home housewives) had high incidence (517; 63.97%), whereas lower risk was present among the students (209;25.8%), skilled workers(76; 9.4%), and professionals(7; 0.9%). Details are shown in Table1 and Figures1–2

Regarding the method of suicide attempts, mildly harmful methods were used in 34.7% of cases (i.e., consumption of a few tablets), moderately harmful methods in 24.5% of cases (i.e.,cypermethrin, commonly used to avoid insects, rat poisoning, etc.), and severely harmful methods in 40.8% of cases (i.e., hanging, organophosphate and drowning).

Table 2 summarizes a univariate regression analysis of different risk factors for suicide showed the most significant (p value) were presence of alcohol abuse (.001), physical illness (.001), and financial stress (.023), personality traits (.083). Moderate significance was found for presence of mental illness (.175), interpersonal conflicts (.240), academic stress (.591), family history of mental illness(.484), history of suicide in family (.462), and alcohol use in family (.544). Minimal significance with past history of suicide attempts (.790), and presence of other stress (.744)

Table 1. Sociodemographic characteristics of patients who attempted suicide.

Variables	Category	Number (n=809)	Percentage
Age	<20	185	22.9
	21–40	535	66.1
	>40	89	11.0
Sex	Female	412	50.9
	Male	397	49.1
MarriageMarried	574	71.0	
	Single	235	29.0
Family	Nuclear	485	60.0
	Joint	324	40.0
Region	Rural	509	63.0
	Urban	300	37.0
SES	LSES	104	12.8
	MSES	919	88.0
	HSES	06	00.7
Education	Illiterate	53	06.6
	Primary	136	16.8
	Pre University	598	73.9
	Degree and above	22	02.7
Occupation	Unemployed	209	25.8
	Unskilled	517	63.9
	Skilled	76	09.4
	professional	7	00.9

LSES-Low Socio Economic, MSES-Middle Socio Economic, HSES-High Socio Economic

Table 2. Univariate regression analysis of different risk factors for suicide.

Risk factors	Unstandardized Coefficients		Standardized Coefficients	t	Significance (p)
	B	Std. Error	Beta		
(Constant)	2.343	.551		4.255	.001
Education	-.157	.049	-.112	-3.183	.002
Occupation	.098	.055	.065	1.778	.076
Mental illness	-.029	.051	-.022	-.570	.569
Personality disorder	-.156	.090	-.061	-1.736	.083
Substance use disorder	.118	.035	.130	3.367	.001
Physical illness	-.466	.122	-.131	-3.820	.001
Personal conflicts	.083	.070	.044	1.177	.240
Financial stress	.171	.075	.082	2.283	.023
Academic stress	-.080	.148	-.019	-.537	.591
Other stress	.022	.067	.012	.326	.744
Past suicide attempt	-.029	.110	-.009	-.266	.790
Family history of mental illness	.266	.381	.024	.700	.484
Family history of alcohol use	-.084	.139	-.021	-.606	.544
Family history of suicide	.099	.135	.026	.735	.462
Diagnosis of mental illness	.024	.018	.060	1.358	.175

Figure 1. Percentage of different age groups and gender with attempted suicide

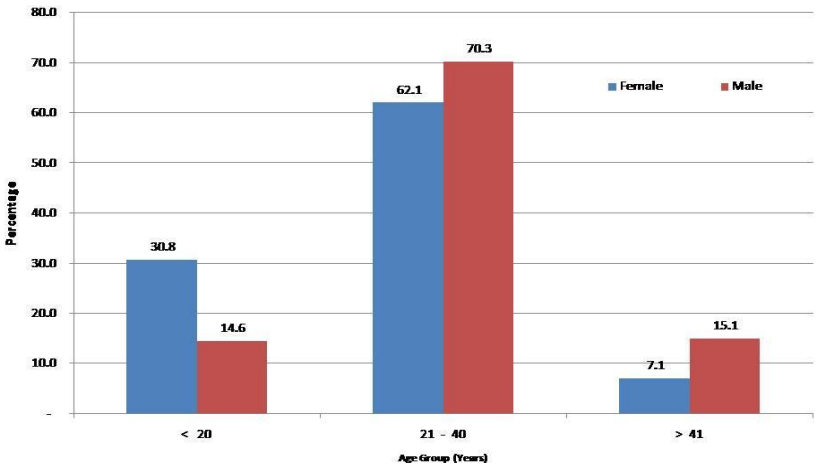
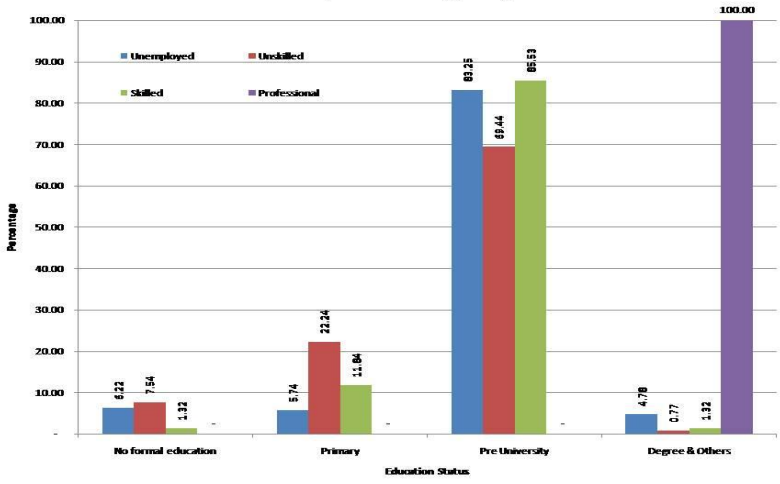


Figure 2.Percentage of suicide attempters by educational and occupational group



Discussion

This was a retrospective study of subjects admitted with a history of suicide attempt(s) to a tertiary care hospital, and referred for a psychiatric consultation-liaison for evaluation. The socio demographic profile of our sample is similar to that in other studies from India.[18,19] Most of our sample comprised young subjects (aged 21–40 years), suggesting that they constitute a vulnerable group. This observation is identical to previous reports from India and the West.[18,20] The female predominance in our sample is also consistent with previous studies from India[18,21,22] and the West.[21]

In this study, the suicide rate was high among those with preuniversity education (73.9%) and primary education (16.8%), and lower among illiterate individuals (6.6%), and graduates (2.7%). This concurs with the NCRB data, which revealed that 25.3% of suicide victims were educated up to primary level, 23.7% had a middle-school education, 21.4% were illiterate, and 3.1% were graduates or postgraduates.[23]Unskilled workers(e.g., farmers and house wives) had high incidence (63.97%), whereas lower risk was present in students (25.8%), skilled workers(9.4%), and professionals(0.9%). This is congruent with the NCRB data, wherein housewives accounted for 18.6% of all suicides and 52.8% of all female victims. Those involved in farming and agriculture formed the next largest group, comprising 11.9% of all victims.[24]The most common method employed to attempt suicide was insecticide poisoning. Similar findings have been reported from elsewhere in India[18,19,25] and other low- and middle-income countries.[26] Unrestricted availability of the insecticides in question is the probable cause. This implies that there is need to enforce legislative control over the availability of insecticides.

Analysis of the different risk factors for suicide showed that the most significant factors were presence of alcohol abuse, physical illness, financial stress and personality traits. Moderate significance was found for presence of mental illness, interpersonal conflicts, academic stress, family history of mental illness, history of suicide in family, and alcohol use in family. Minimal significance with past history of suicide attempts and presence of other stress.

These results may be contrasted with previous studies in India, which have revealed various rates of psychiatric disorders within this population, ranging from 9.5 to 24.9%.[27,28] In one autopsy study, 24% of suicides had a psychiatric diagnosis, namely major depressive disorder, bipolar affective disorder, or schizophrenia; substance abuse was prevalent in 18%.[29]

A significant proportion of the sample did not meet the criteria for any axis-I psychiatric diagnosis. Only 12% had adjustment disorder and 10% had depression. Most subjects (69%) had a precipitating event prior to the intentional self-harm, most common of which was interpersonal problems with family members. Similarly, Parkeret al.[30] also reported that 45% of subjects who attempt suicide/self-harm do not have a diagnosable psychiatric illness. These findings suggest that intentional self-harm is not only limited to psychiatrically ill subjects, but it is also used by so-called normal persons as a coping mechanism under stress, to communicate their needs and distress.

Strengths of the study include a 1 year sample from previous case records, examined a range of socio demographic and clinical variables in psychiatry department in general hospital setting to assess the risk factor for suicide attempt. However, the findings of the study must be interpreted in the context of its many limitations. This was a case record study from a single center and therefore carries some design limitations including possible recall bias.

Conclusions

Suicide, especially among young adults and females with poor coping styles, indicates a need to identify those at risk and offer them active monitoring and counseling, especially in rural

areas of India; this approach may help to prevent suicide.

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Conflicts of Interest
There are no conflicts of interest.

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