

Psychological Autopsy Studies of Suicide

Dr. C. L. Pradhan

Consultant Neuro-psychiatrist, STNM Hospital, Gangtok, Sikkim, India.

ABSTRACT

Background: Suicide rate in Sikkim has significantly increased in recent years. However to date, there have been no study investigating the profile of suicide completers hence psychological autopsy study was conducted in 231 suicide cases during the year 2012 to 2014.

Aim: To assess the socio-demographic characteristics, psychosocial factors, substance abuse, psychiatric and physical co-morbidity in suicide completers and find out preventive strategies based on region-specific and demographic in a culturally sensitive manner.

Materials and Methods: Two hundred thirty one suicide cases were assessed using semi-structured self-designed questionnaire, the family, friends and relatives of the deceased were interviewed to understand the profile of suicide completers.

Results: Majority (74) of suicide victims were in the age group 21 to 30 years. Males, 33.54% outnumbered females 28.76%. The most preferred method was hanging, male 96.20%, female 95.98%. Significant numbers represented from the rural area, male 82.77% and female 80.82% from nuclear family background, male 81.01% and female 71.23%. Majority of those male, 68.35% and female 71.23% were diagnosed with mental disorders, however, only 6.96% of male and 8.21% of

female victims sought treatment before the suicidal attempt. The life events were noticeable in 187 cases, male 79.11% and female 84.935 respectively.

Conclusion: Clinical, psychosocial factors and life events were associated with suicide. These results highlight the significance of early recognition of risk factors and treatment of psychiatric disorders and enhancing coping strategies in a vulnerable population. More studies are required for evaluation and better understanding of suicide.

Keywords: Psychological Autopsy, Suicide, Psychiatric Disorders, Key Informants.

*Correspondence to:

Dr. C. L. Pradhan

Consultant Neuro-psychiatrist,
STNM Hospital, Gangtok, Sikkim, India.

Article History:

Received: 26-09-2018, Revised: 21-10-2018, Accepted: 12-11-2018

Access this article online	
Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2018.4.6.013	

INTRODUCTION

A psychological autopsy is the in depth study of the history of suicide and the reconstruction of events leading to suicidal death.^{1,2} This is the standard approach and the most informative means of studying the nature and the causes of suicide.³ The findings from the studies highlight the clues for managing suicidal patients and enable us to plan preventive strategies.⁴

Suicide is one of the major causes of death worldwide.⁵ It constitutes a major global public health problem concerning India.⁶ Suicide rate in India is approximately 11.4 per 1 lakh in males and 8.0 per 1 lakh in females.⁷ India and China contributes 30% of suicide worldwide.⁷ Psychological autopsy studies gives a comprehensive view of the root cause of the problems and currently which is the most direct technique to examine the relationship between specific factors leading to suicide.⁸

Suicide is a major social concern in Sikkim, one of the small state of India in North-Eastern region. No study has been conducted examining various psychological characteristics and the risk factors for suicide. Hence, an attempt was made to investigate suicide cases that have occurred in previous three years. The aim of the present study is to examine socio-demographic, clinical and

psychosocial correlates of suicides using psychological autopsy approach and to investigate risk factors associated with suicide.

MATERIALS AND METHODS

The study was conducted in the department of psychiatry, Sir Thutob Namgyal Memorial Hospital, Gangtok, Sikkim. Both the urban and rural population was included in the study.

Study Area

Sikkim, one of the small state located in the North-Eastern part of India with a Hindu-Buddhist based culture nuclear family system is common. Industry is now in its developing stages.

Sample

Two hundred thirty one suicide cases that occurred in the general population irrespective of age, sex, residence since past three years duration(2012 to 2014) were analyzed. The exact months of suicide were concealed to protect the identity. The information regarding the circumstances of death was assessed at the hospital from the families, friends and relatives of the deceased. After thoroughly reviewing all relevant information cause of suicidal death were determined.

Procedure

The nature of the study and the questionnaire was fully explained to the deceased family members, relatives and friends. Verbal consent and information was obtained from the individual identified as "Key informant" of the suicide victim; viz: spouse, offspring, sibling, parent or anyone who has been living with the deceased and yielding reliable information.

Inclusion Criteria

The cases were selected from the deceased sent for medical autopsy at Sir Thutob Namgyal Memorial Hospital, Gangtok, Sikkim and also the individuals being recognized as a "key informant" were interviewed over the telephone after obtaining contact numbers from the village Panchayat, police, community leaders and also from the patients relatives attending psychiatry OPD, which was quiet possible because of small area with less

scattered population. Psychiatric diagnosis was made by the questionnaire which presumably fit into the diagnostic criteria for the disorders.

Tool used

Self-designed questionnaire for assessment of psychosocial-demographic variables including age, sex, marital status, locality, social status, education, family, income, schooling and job, interpersonal relationship, various stressors, substance abuse, alcoholism, physical illness, history of psychiatric disorders and treatment, change in behavior before suicide, methods used, suicide note, family history of mental illness and suicide, previous attempts and treatment history before the attempt were assessed. Stresses, life events and immediate crisis related to specific time were also evaluated. The family knowledge and awareness about suicide were also assessed.

Table I: Age distribution of suicides

Age (years)	Male (158) %	Female(73) %
Less than 10 years	05 (3.3%)	0
11 – 20 years	26 (16.45%)	21 (28.76%)
21 – 30 years	53 (33.54%)	21 (28.76%)
31 – 40 years	30 (18.98%)	20 (27.39%)
41 – 50 years	26 (16.45%)	09 (12.32%)
51 – 60 years	11 (6.9%)	01 (1.36%)
More than 60 years	07 (4.4%)	01 (1.36%)

Table II: Socio demographic variables in suicide

Variables	Male (158) %	Female (73) %	
Education	Illiterate	29(18.35%)	16(21.91%)
	Primary	41(25.94)	12(16.43)
	Middle	28(17.72)	20(27.39)
	Secondary	24(15.18)	13(17.80)
	Higher Secondary	11(6.9)	07(9.85)
	Graduate and above	25(15.82)	05(6.84)
Occupation	House wife	0	09(12.32)
	Student	25(15.82)	24(32.87)
	Private job	28(17.72)	06(8.21)
	Govt. job	20(12.65)	10(13.69)
	Farmers	44(27.84)	18(24.65)
	Unemployed	29(18.35)	04(5.47)
	Labor	10(6.3)	02(2.73)
	Priest	02(1.2)	0
Residence	Rural	130(82.27)	59(80.82)
	Urban	28(17.73)	14(19.18)
	Non - Local	09 (5.69)	0
Marital Status	Married	82(51.89)	46(63.01)
	Unmarried	76(48.11)	27(36.98)
	Love marriage	55(34.81)	29(39.72)
Family Type	Nuclear	128(81.01)	52(71.23)
	Joint	30(18.98)	21(28.76)
Socioeconomic Status	Low	71(44.93)	33(45.20)
	Middle	65(41.13)	25(15.82)
	High	22(13.92)	15(20.54)
Religion	Hindu	112(70.88)	43(58.90)
	Buddhist	37(23.41)	26(35.61)
	Christian	09(5.69)	04(5.47)

Table III: Mode of Suicides

Methods	Male (158) %	Female (73) %
Hanging	152(96.20)	70(95.98)
Jumping	03(1.89)	01(1.36)
Drowning	02(1.26)	0
Organo-phosphorous poisoning	01(0.63)	02(2.73)
Timing:		
	6AM- 5PM	93(58.82%)
	5PM-6AM	65(41.14%)

Table IV: Suicidal gestures and signs in suicides

Variables:	Male (158)%	Female (73)%
Warning signs	55(34.81)	29(39.72)
Death wishes	63(39.87)	33(45.30)
Previous attempts	35(22.51)	19(26.02)
Suicide notes	06(3.79)	05(6.84)
Family history of suicide	23(14.55)	18(24.65)
Family history of mental illness	45(28.48)	23(31.50)
Poor anger control	53(33.54)	24(32.87)

Table V: Psychiatric and co- morbid Diagnosis

Diagnosis	Male (158) %	Female (73) %
Depressive Disorders	54(34.17)	33(45.20)
Schizophrenia	24(15.18)	10(13.69)
Alcoholism with Depression	06(3.79)	05(8.21)
Alcoholism with Psychosis	5(3.16)	01(1.36)
Substance dependence with Depression	02(1.26)	0
Substance dependence with Psychosis	03(1.89)	0
Epileptic Psychosis	04(2.53)	0
Epilepsy	01(0.63)	0
Attention Deficit Hyperactive Disorder	03(1.89)	0
Multidrug Resistant TB with Psychosis	02(1.26)	01(1.36)
Multidrug Resistant TB with Depression	04(2.53)	02(2.73)
Anniversary Suicide	01(0.63)	01(1.36)
Copy cat	0	01(1.36)
Impulsive traits	48(30.37)	21(28.76)
Diagnosis not known	50(31.64)	21(28.76)

Table VI: Treatment profile of suicides

Treatment	Male(158)%	Female(73)%
Psychiatric	11(6.96)	05(8.21)
Medical	65(41.13)	30(41.09)
Faith healing	20(12.65)	08(10.95)
Non treatment	62(39.24)	30(41.09)

Table VII: Physical manifestation of suicides

Physical symptoms:	Male(158)%	Female(73)%
Headache	15(9.49)	11(15.6)
GERD	14(8.86)	08(10.95)
Multidrug Resistant TB	06(3.79)	03(4.10)
Back ache	09(5.6)	04(5.4)
Epilepsy	03(1.89)	01(1.36)
Hypertension	06(3.79)	02(2.73)
Cancer	01(0.63)	0
Cataract	01(0.63)	0
Loss of eye sight	01(0.63)	0
Deafness	01(0.63)	0
Alopecia	0	01(1.36)
Cirrhosis	03(1.89)	0
Total	65(41.13)	30(41.09)

RESULTS

The suicide rate was highest among the 21 – 30 years age group, male 33.54% and female 28.76%, followed by 31 – 40 years of age group, male 18.98% and female 27.39% respectively and the male outnumbered females. The socio demographic characteristics of the cases are given in table I & II.

Majority of the victims were married male, 51.89 and female 63.01, love relationship marriage was evident in 34.81% of male and 39.72% of female. Majority of the male victims had primary education (25.94%) and majority of the females victims had education up to middle school, 27.39%. 18.35% of male and 21.91% of female were illiterate. More numbers of female students, 32.87%, were represented compared to male 15.82%. Farmers constituted about 27.84% of male and 24.65% of female and more males (18.35%) were unemployed than females (5.47%). More males, 17.72% were engaged in private jobs compared to females, 8.21%. As many as 82.27% of male and 80.82% of females were from rural and nuclear family background, male 81.01% and female 71.23%, 5.7% of the victims were migrated from other parts of India and abroad. About half of the victims, male 44.93% and female 45.20% were represented from low-income group followed by middle, male 41.13% and female 15.82% - table II. Majority of the cases were Hindu, male 70.88% and female 58.90%, followed by Buddhist, male 23.41% and female 35.61% respectively. Hanging was the most common method, male 96.20% and female 95.98% compared to other methods -Table-III. As many as 58.83% of male and 58.90% of females committed suicide during day time (6. AM to 5. PM) followed by evening to 5. PM to 6 AM, male 41.14% and female 41.10%.

Past suicide attempts noticed in 22.51% of male and 26.02% of females, with a family history of mental illness, male 28.48% and female 31.50% and also the suicide, male 14.55% and female 24.65% -Table IV. About 34.81% of male and 39.72% of female hinted their intention of suicide to their family members and friends. Suicide note was evident in 3.79% of male and 6.84% of female, as many as 39.82% of male and 45.30% of females expressed death wishes before attempt, and 33.54% of male and 32.87% of female had a history of poor anger control -Table IV.

Suicide cases showed higher prevalence of psychiatric disorders, male 68.35% and female 71.23%. The most prevalent disorder was major depressive episode, male 34.17% and female 45.20%, followed by schizophrenia and other psychotic disorder, male 24.05% and female 16.43%-Table-V. However only 6.96% of male and 8.21% of female had received psychiatric treatment and had discontinued prior to attempt. 12.65% of male and 10.95% of female also sought help for their problems from traditional healers prior to death. The majority of cases did not have history of taking treatment in male 39.24% and female 41.09%. As many as 41.13% of male and 41.09% of female has visited primary healthcare professional during a month prior to death -Table VI.

A large number of cases, male 41.13% and female 41.09% presented predominantly of physical symptoms manifestation mostly the headache, peptic ulcer disease, backache, hypertension and MDR-TB - table VII.

A large number of cases, male 41.13% and female 41.09% presented predominantly of physical symptoms manifestation mostly the headache, peptic ulcer disease, backache, hypertension and MDR-TB - table VII. High proportion of male, 28.48% and female, 35.61% were alcoholics with the family history of alcohol dependence, followed by cannabis and opioid in male, 15.82% and 5.06% - table VIII.

Precipitating factors were noted in 34.81% of male and 38.35% of the female, mostly the family quarrel, male 24.05% and female 21.91% followed by severe physical or psychic pain, male 9.4% and female 16.43%- table IX. Most of the victim's families, 41.12% had knowledge of having their physical problems, 8.65% of the families knew about their mental disorders, 23.80% of the families failed to notice their problems and 26.64% of the families believed of not having any problems, table- X.As many as 79.11% of male and 84.93% of female experienced life events stress in the previous months, mostly the negative life events. Family conflicts, unhappy marriages, broken love and extramarital relationship where the triggers in the male, 15.82%, 13.92%, 8.2%, 7.59% respectively and interpersonal problem, unhappy marriages, extramarital relationship were the triggers in female, 12.32%, 10.95%- table XI.

Table VIII: Alcohol and drug dependence

Substance	Male(158)%	Female(73)%
Alcohol	45(28.48)	26(35.61)
Cannabis	25(15.82)	01(1.36)
Opioid	08(5.06)	01(1.36)
Total	78(49.36)	28(38.35)

Table IX: Precipitating factors for suicides

Factors	Male(158)%	Female(73)%
Family quarrel	38(24.05)	16(21.91)
Severe pain	15(9.4)	12(16.43)
Threatening phone calls	02(1.26)	0
Total	55(34.81)	28(38.35)

Table X: Family perception of illness in suicides

Illness:	Total (231) %
Mental	20(8.65)
Physical	95(41.12)
Can't say	55(23.80)
No illness	61(26.64)
TOTAL	231

Table XI: Presumptive Stressful Life Event in Suicides

Life Events	Male(158)%	Female(73)%
Family conflicts	25(15.82)	09(12.32)
Marital conflicts	22(13.92)	08(10.95)
Broken love affairs	13(8.2)	06(8.21)
Extramarital love	12(7.59)	09(12.32)
Divorce	03(1.89)	02(2.73)
Separation	03(1.89)	04(5.4)
Financial problem	09(5.69)	01(1.36)
Unemployment	03(1.89)	01(1.36)
Legal matter	01(0.63)	01(1.36)
Illness	10(6.3)	04(5.4)
Drug abuse by family members	03(1.89)	0
Multidrug resistant TB	06(3.79)	02(2.73)
Exam failure	01(0.63)	01(1.36)
Large loan	02(1.26)	0
Exam stress	0	01(1.36)
Adjustment problem	02(1.26)	0
Cancer	01(0.63)	0
Severe hair loss	0	01(1.36)
Lack of son	01(0.63)	0
Excessive gambling	01(0.63)	0
Imprisonment	0	01(1.36)
Second marriage	01(0.63)	04(5.4)
Loss of eye	01(0.63)	0
Lack of domicile	01(0.63)	0
False document	01(0.63)	0
Auditory hallucination	01(0.63)	0
Death of family members	02(1.26)	02(2.73)
Teen pregnancy	0	02(2.73)
Illegitimate pregnancy	0	02(2.73)
Prostitution	0	01(1.36)
Not known	33(20.88)	11(15.06)

DISCUSSION

Suicide has become a concern for mental health professionals on accounts of its rising incidence. Psychological autopsy approach was used by interviewing key informants to elucidate the nature and causes of suicide. Similar approach has been employed in earlier Indian and International studies.³⁻⁹ The present study demonstrates a wide range of psychosocial factors especially in the rural and urban population and the clinical factors, the psychiatric diagnosis and interpersonal problems indicated the risk factor. The importance of family knowledge about the suicide and its implication on the outcome of the attempt was noticeable.

Age and Sex

Male preponderance of 158 against female 73 found in the study, with higher incidence of suicides in the age group 21-30 years male, 33.54% and female, 28.76%, followed by the fourth decade, which is in accordance with the findings of Shukla et al.¹⁰ and other Indian studies.^{11,12} The highest risk in youth may reflect a higher representation of youth in the population. Some Indian study has identified the age group 15- 39 years as the most vulnerable to suicide.¹⁴ Suicide is the leading cause of death among young people in India.¹⁵ An increase in the number of suicides among older children and adolescents has also been noted.¹³

Marital Status

In the west, marriage is generally protective against suicide.¹⁶ However, marriage is not a strong protective factors for suicide in developing countries¹⁷ as observed in the study where majority of the victims were married, male 51.89% and female 63.01%. Love marriages is becoming a common choice for youngster who

prefers independent living, and are inclined towards nuclear family trends over the joint family which provides family and emotional supports and also provides a place for emotional outlet. Lack of traditional family support, social integration and emotional warmth, unacceptable quality of marital relationship and immature skill of handling stress related to marriage possibly reflects the higher rates of suicides in the young married couple. Similar findings were also observed in other Indian study.¹⁸

Alcoholism and Substance Abuse

Alcoholism is another risk factors with both high rate of suicide among alcoholics and high proportion of alcoholics in suicide completers, the present study revealed 28.48% of male and 35.61% of female was alcoholic, which is in consistent with other Indian study¹¹ and abroad.¹⁹ The financial difficulties, marital discord, delusional jealousy, adjustment difficulty could be the possible determinants of suicide in alcoholics. The growing production and consumption of liquor and easy availability, low cost, freedom of use coupled with marital discord, interpersonal relationship problems and poor frustration tolerance could possibly reflects higher incidence of suicide. Further study is needed to probe the psychosocial influence of alcohol in suicide. Cannabis (15.82%) and opioid abuse (5.06%) were found in male which is similar to findings of Unni and Mani.²⁰

Mode of Suicide

Common methods used in developed countries include firearms, car exhaust asphyxiation and poisoning whereas pesticides poisoning, hanging, self-immolation are common in developing countries. Hanging was the commonest method used by the victims in this study. Similar findings were also reported from

Indian studies.^{10,21} The timing of suicide among majority of the victims was during the day hours (6 am – 5 pm), the selection of secure time when left alone or no help is able, motivates to complete the act as the chances of successful suicide are high compared to other methods.

Psychiatric Diagnosis

Mental disorders as observed were the most influential risk factor for suicide. Present study revealed 68.35% of male and 71.23% of female had mental disorders, which is in consistent with previous study of psychological autopsy.^{22,23} Major depression was the most common diagnosis 34.17% male and 45.20% female which is also in accordance with those of other psychological autopsy studies.²³ The incidence of psychiatric disorders is higher among suicide completers in developed countries compared to developing countries, though under-diagnosis in developing countries could have been the possible explanation. Major depression was followed by schizophrenia, male 15.18% and female 13.69% although the majority was diagnosed to have psychiatric disorder, only about 6.96% male and 8.21% of female did receive psychiatric treatment and had stopped medication prior to suicide. Diagnosis could not be made in 31.64% of male and 28.76% of female. Majority of the victims, male 41.13% and female 41.09% had received treatment from general physicians who probably had underlying psychopathology and has failed to detect. This often highlights the importance of evaluation of risk factors and suicidal behavior by the primary care physicians. As many as 39.24% of male and 41.09% of female had never seek treatment, indicating the lack of family perception, understanding and awareness about suicidal behavior or the clues.

Stressful Life Events

A large number of victims had perception of significant stressful life events, wherein severe interpersonal problems were identified as a risk factor for suicide in the study which is in similarity with those from other Asian studies.^{24,25} Interpersonal problems were in correlation with suicide than other negative life events, such as financial problems. Similar observations have also been found by several other researchers.^{9,10,21} Indian society, being sociocentric, reflects importance of interpersonal relationships, therefore marital conflicts and interpersonal conflicts were represented more in men and women in the study as observed in other Indian studies.^{26,27} Among young suicides, broken love affairs and extramarital relationship problems were the triggerers, pain and illness also featured a common reason and similar findings were also observed in other studies.¹⁸ Kar et al. found that suicide attempters had more stressful life events within 6 months of the attempt¹³, findings were similar to present study.

Previous Attempt

The significant risk factor for suicide also includes presence of previous attempt, as similar finding were also observed in other Indian study.²⁸ Attempted suicide has been found to be one of the predictors of future suicide, concomitant with other study.²⁹ Individual completing suicide did not have a positive outlook towards life, problem-solving approaches, and coping skills. An interesting finding was the presence of significant numbers of mental illness and suicide in the family, which possibly reflects the genetic vulnerability of suicide to predisposed individuals. Further studies are needed to identify the genetic risk factors in a vulnerable population. Large number of cases comprised of emotionally unstable, impulsive traits and attempt of high

intentionality and lethality which partly contradicts the findings of other study.³⁰ The majority of families of the victims were also aware of their suicidal intent and threats before contemplating suicide, similar findings were observed in Indian study.⁹ Majority of the cases did visit their general physician prior to death, similar finding were observed in other study³¹.which also highlights the need of imparting adequate training of general practitioners in identifying and treating common mental disorders which would contribute towards significant reduction of suicide.³² But because of the higher rate of somatic presentation of symptoms rather than cognitive symptoms among depressed patients in Indian setting, this may have to be tackled in a culturally sensible manner³³ by the primary care givers.

Education

Majority of male victim's attained primary education (25.94%), the NCRB data had also revealed 25.3% of suicide victims having primary education.³⁴ Similar consistent findings were observed. Majority of the female victims had education up to middle school (27.39%) slightly higher than male; however this contradicts the finding of other study.³⁵ But it is hard to interpret these percentages in the absence of information about the educational attainment of the population.

Urban vs Rural

Although the suicide rate is generally reported to be higher in urban areas because of various stressors related to living and working in cities including social isolation. Studies in recent years are consistent in this regard, as suicide was more common in persons living in urban areas.³⁶ This study revealed majority of the victims, male 82.77% and female 80.02% were from the rural background, which contradicts the earlier findings. The low level of education and awareness about illness and taboos to discuss about suicidal behavior and social stigma would prevent a risk individual from reaching to mental health professional for treatment, could possibly highlights the higher incidence of rural suicides. Further study with inclusion of more socio-cultural determinants is needed to prove it.

Physical Illness

Chronic physical illness, alcohol and tobacco use are risk factors for common mental disorders. Similar pattern is also seen in the study where 41% of male and female had predominant physical manifestation, commonly the headache, peptic ulcer disease, backache etc. as observed in other study.

CONCLUSION

Psychological autopsy is very important investigative tool for assessing the causes and precipitants of suicide, though it is difficult to pin point the exact cause, more convincing studies are required to evaluate the broader aspects of suicide, which is largely preventable public health problem. Early detection and adequate treatment of a primary psychiatric disorder is of paramount importance and intervention aimed at identification of attempters and risk individuals could be the most effective strategy in reducing suicidal deaths. Identification of vulnerable groups requires a multidisciplinary approach with active participation from community and the health professionals in close proximity. Present study revealed the suicides mainly affecting young age group of both the sexes, which is the most productive and reproductive age span, indicating that suicide is an emerging public health issues. The public health approach is required to

address this complex phenomenon including public awareness and approaches, creating village level mechanism to identify suicidal individuals and ensuring effective mental health service at primary care level. Bridging gap between primary care physician and the psychiatric services would contribute promising results in prevention of suicidal deaths.

LIMITATIONS

There has been no control group to specify the various association of suicide in the study. All the suicide in the community could not be identified and included cause of cultural taboo and stigma about suicide. The long duration between the time of death and interview may have caused bias on the part of the informants.

ACKNOWLEDGEMENTS

The author wish to thank all the participants especially those who lost loved one to suicide.

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Source of Support: Nil. **Conflict of Interest:** None Declared.

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Cite this article as: Dr. C. L. Pradhan. Psychological Autopsy Studies of Suicide. *Int J Med Res Prof.* 2018 Nov; 4(6):71-77. DOI:10.21276/ijmrp.2018.4.6.013