

Research Article**Study of Trends of Suicidal Deaths in Central Mumbai Region of India****Rajesh Sukhadeve^{1*}, Manoj Bhausaheb Parchake², Abhijeet Hosmani³, Harish Pathak⁴, Ravikumar Kamble⁵, Shashank Tyagi⁶**

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Abstract: Suicide is one of the largest and most complex social problems that have accompanied man since antiquity. Globally, more than a million deaths accounted, out of which 20% were Indians. Aim of our study is to find out most common age group involved, marital status, socioeconomic status, cause of death and reason behind suicide. A total of 157 cases of suicide were noted in our study. Males (62.42%) outnumbered the females (37.57%) in our study. Most common age group involved in suicidal deaths third (21-30) and fourth decade (31-40). Most of the cases were belonging to Hindu religion (87.89%) and unemployed (21.65%). Majority of suicidal deaths were seen in low socioeconomic status (Class 4- 44.58%). Most common cause of death was hanging (43.31%), followed by poisoning (30.57%) and burns (19.10%). Reason for majority of suicidal deaths was mental stress. This Study is conducted to observe various reasons, socio-cultural factors affecting suicidal deaths, so that sound prevention program could be recommended.

Keywords: Suicide, Central, Mumbai, India, males, Mental stress, Hanging

INTRODUCTION

Suicide is one of the largest and most complex social problems that have accompanied the human since antiquity. Suicidal death is one type of violent death, caused by an act of the decedent with intent to kill himself/herself [1]. Worldwide, more than a million deaths of suicide reported, out of which 20% were Indians [2]. National Crime Record Bureau (NCRB) report states that, on an average, more than one lakh person committing suicides every year in the country during the decade periods (2003 – 2013). The number of suicides have increased in the country during the decade (2003–2013), recorded an increase in 21.6%. The highest incidents of 16,622 suicides were recorded in Maharashtra state followed by 16,601 in Tamil Nadu state that accounts for 12.3% each of these total suicides [3]. There was no such a type of study conducted in our region, hence an attempt is made to study various reasons, socio-cultural factors affecting suicidal deaths, so that sound prevention program could be suggested.

MATERIAL AND METHODS

A retrospective study was conducted in Department of Forensic Medicine at Seth GS Medical College and KEMH Parel Mumbai from May 2013 to October 2014. During this period, total number 157 suicidal deaths were studied. Data onto age, sex, religion, marital status, socio-economic status, cause of death, reason for suicide was collected from history,

inquest, postmortem reports, statements, hospital and other police records. All the data studied properly and analysis was done by SPSS program.

RESULTS

Table 1 shows that most of the suicidal deaths were seen in third decade 21-30 years 64 cases (40.76%), followed by fourth decade 31-40 years 31 cases (19.74%) and second decade 11-20 years. If we combine third and fourth decade suicidal deaths then 95 cases (60.50%) were seen in this group which is younger one. Male 98 (62.42%) outnumbered female 59 (37.57%). Fig. 1 it was clearly evident that most of the suicidal deaths were seen in Hindu (87.89%), followed by Muslim (9.55%), Christian (1.27%) and Buddha (1.27%). Table 2 shows that most of the suicidal deaths were seen in unemployed (21.65%) victims, followed by laborer (20.35%) and housewife (20.38%) and least in retired person (1.7%). Table 3 shows that most of the females were belonging to class 4 (44.58%), followed by class 5 (38.85%) and least in class 1 (0.63%). Fig. 2 shows that most of the suicidal deaths were married (65.60%). From table 4 it was clearly evident that most common reasons for suicidal deaths in males were mental stress 37(37.75%), followed by chronic illness 25(25.51%), poverty 20(20.40%) and least in rash and negligence 1(1.02%). While in females most common reasons were due quarrel 21(35.59%), followed by chronic illness 13(22.06%), love affair 5(8.47%) and

least common in demand of dowry 2(3.38%). Table 5 shows that most common cause of death in our study is hanging (43.31%), followed by poisoning (30.57%), burns (19.10%) and least in cut throat (0.63 %). From

table 6 shows that in suicidal deaths due to chronic illness, (8.28%) deaths were noted in tuberculosis, followed by minor illness (7.64%) and mental illness (5.07%).

Table 1: Showing distribution of suicidal deaths as per age and sex

Age in Years	No. of Victims		Total (%)
	Male (%)	Female (%)	
11 To 20	9 (9.18%)	14 (23.72%)	23 (14.64%)
21 To 30	35 (35.71%)	29 (49.15%)	64 (40.76%)
31 To 40	25 (25.31%)	6 (10.18%)	31 (19.74%)
41 To 50	13 (13.26%)	4 (6.79%)	17 (10.82%)
51 To 60	11 (11.22%)	3 (5.08%)	14 (8.91%)
Above 60	5 (5.12%)	3 (5.08%)	8 (5.09%)
Total	98 (62.42%)	59 (37.58%)	157

Table 2: Showing distribution of suicidal deaths as per occupation

Occupation of Victim	No. of Victims (%)
Driver	04 (2.5%)
Farmer	09 (5.73%)
Hawker	06 (3.82%)
Service	18 (11.46%)
Worker/Labourer	32 (20.38%)
Retired	02 (1.27%)
Student	20 (12.73%)
Housewife	32 (20.38%)
Unemployed	34 (21.65%)
Total	157

Table 3: Showing distribution of suicidal deaths as per socio-economic status

As Per Prasad's Scale 2014	Socio-Economic Status	No. of Victims (%)
Rs 5571 And Above	Class 1	01 (0.63%)
Rs 2786-5570	Class 2	02 (1.27%)
Rs 1671-2785	Class 3	23 (14.64%)
Rs 836-1670	Class 4	70 (44.58%)
Below Rs 836	Class 5	61 (38.85%)
	Total	157

AICPI for Industrial Workers (Base 1982 = 100) shows the current Price index as 1130 in May 2014 [. Therefore, the multiplication factor = Value of AICPI [7] x CF/100. Multiplication factor will be = 1130 x 4.93/100 = 55.71. (Rs100*55.71= Rs 5571).

Table 4: Showing distribution of suicidal deaths as per reason for suicide

Reason Stated	No of Victims		Total No. of Victims (%)
	Male (%)	Female (%)	
Academic Failure	03 (3.06%)	04 (6.77%)	07 (4.45%)
Chronic Illness	25 (25.51%)	13 (22.06%)	38 (24.20%)
Dowry Demand	00 (00%)	02 (3.38%)	02 (1.27%)
Love Affair	01 (1.02%)	05 (8.47%)	06 (3.82%)
Mental Stress	37 (37.75%)	05 (8.47%)	42 (26.75%)
Poverty & Financial Problem	20 (20.40%)	01 (1.69%)	21 (13.37%)
Psychiatric Problem	03 (3.06%)	02 (3.38%)	05 (3.18%)
Quarrel	08 (8.18%)	21 (35.59%)	29 (18.47%)
Rash And Nigligence	01 (1.02%)	06 (10.69%)	07 (4.45%)
Total	98 (62.42%)	59 (37.58%)	157

Table 5: Showing distribution of suicidal deaths according to cause of death

Cause of Death	Total (%)
Burn	30 (19.10%)
Cut Throt	01 (0.63%)
Hanging	68 (43.31%)
Head Injury	03 (1.91%)
Septicemia (Cut Wrist)	01 (0.63%)
Shock & Hemorrhage	06 (3.82%)
Poisoining	48 (30.57%)
Total	157

Table 6: Showing distribution of suicidal deaths due to chronic illness

Chronic Illness	Total (%)
Tuberculosis	13 (8.28%)
Hiv+Tb	05 (3.18%)
Hypertension	06 (3.82%)
Dibeties	01 (0.63%)
Cancer	06 (3.82%)
Minor Illness	12 (7.64%)
Convulsion	03 (1.90%)
Mental Illness	08 (5.09%)
No Disease	103(65.60%)
Total	157

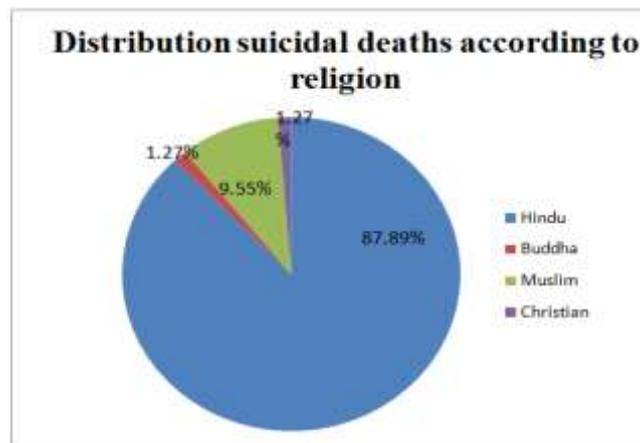


Fig.1: Showing the distribution of suicidal deaths according to religion

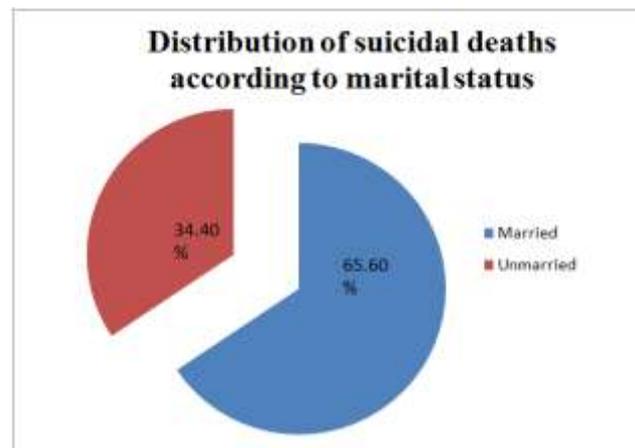


Fig. 2: Showing distribution of suicidal deaths according to marital status

DISCUSSION

Most of the suicidal deaths were seen in third decade 21-30 years 64 cases (40.76%), followed by fourth decade 31-40 years 31 cases (19.74%) and second decade 11-20 years. If we combine third and fourth decade suicidal deaths then 95 cases (60.50%) were seen in this group which is younger one. This might be due to the fact that, this is the active period of life and in Mumbai's fast life young people are in very much mental stress due to different reasons and they are prone to do suicides. Similar study by Kadu and Asawa [15] in Ahmednagar region states that most of the suicidal deaths were seen in 19-25 age (41.8%). According to NCRB [3] report most of the suicidal deaths was seen in 30-44 age group (33.83%). As per Kumar *et al.* [18] study in Lucknow region states that most of the suicidal deaths was noted in age groups of 20-30 years (34.89%). This might be due to the fact, this is the age of youth for work and in females the age of reproduction. This indicates the existence of problems, decrease to the chance of working and chance of marriage in female. Also survey by Shinde *et al.* [16] in his study states that most of the suicidal deaths were seen in 19-25 years (48.50%). Contrast study by Daniel *et al.* [19] in his study at Central Portugal states that most of these suicidal deaths were noted in 65-74 years (20%).

Males 98 (62.42%) outnumbered female 59 (37.57%) in our study. This might be due to the fact that males are more exposed to mental stress due to workloads. Similar study by Shinde [16] states that males (67%) suicides predominate over female suicides (37%). According to NCRB [3] report male: female ratios was 67.2:32.8. Another study by Kumar *et al.* [18] in Lucknow region states that most common suicidal deaths were seen in males (56.61%). This might be due to the fact that increasing stress in males in Lucknow region where the work load is greater for them. Another study by Hawtoon, who stated that the suicide rates of most countries are higher among males than in females, except for china, which has very high rates of suicides in females, especially in rural areas [4, 10]. Also our study compared with other studies, as in the work of Bjerkeset [11], who demonstrated for a follow-up study of failed suicide attempts on a period of 8 years that there was a high suicide risk of men than in women, as they are more susceptible to anxiety and depression [5, 7, 11, 14]. Contrast study by Kadu and Asawa [15] states that most of the suicidal deaths were seen in females (58.23%) than males (42.77%). This might be due to the fact that study is carried out in rural areas where females belong to farming occupation and also easy availability of kerosene, match box and insecticides. Our study also differs from study of Radhakrishnan and Andrade [17], he found that females were more affected than males while a study by Mohanty *et al.* [9] found that males and females were equally affected.

It was clearly evident from our study that most of the suicidal deaths were seen in Hindu (87.89%), followed by Muslim (9.55%), Christian (1.27%) and Buddha (1.27%). This might be due to the fact that majority of populations belongs to Hindu religion and also suicide is less practice in Muslim religion due to spiritual practice. Similar study by Kadu and Asawa [15] states that most of the suicidal deaths were Hindu (87%), followed by Muslim (5%).

Most of the suicidal deaths were seen in unemployed (21.65%) victims, followed by laborer (20.35%) and housewife (20.38%). This might be due to the fact that unemployed people are having much more mental stress than employed people. Similar study by M A Campos [20], where suicide seems to have positive relationship to unemployment. Study by Daniel *et al.* [19] differ from our study, he found most of the suicides were observed in employed people. This might be due to accumulation of quotidian factors (joint with problems of work) and consequent marriage misunderstanding.

In our study most of the suicidal death were married (65.60%). This might be due to the fact that in our study most of the victims are younger one (21-40) and it is most common age for marriage in our region. Similar study by Shinde *et al.* [16] states that majority of suicidal deaths were married (80%). As per Kadu and Asawa [15] study states most of the suicidal deaths were married (74.68%). Also survey by Daniel *et al.* [19] states most of the suicidal deaths were seen married (54.5%).

In our study most common reasons behind suicidal deaths in males were mental stress 37(37.75%), followed by chronic illness 25(25.51%), poverty 20(20.40%) and least in rash and negligence 1(1.02%). This might be due to the fact in city like Mumbai there is fast life, unemployment problem and struggling life, which increases mental stress of the human being in the city. Contrast study by Shinde *et al.* [16] states that in males most common reason behind suicide was chronic illness (17.50%) followed by insanity (15%). According to NCRB [3] report most common reason behind suicidal deaths were family problems (24.49%), followed by prolonged illness (12.64%), mental illness (6.46%) and least in ideological or hero-worship (0.12%).

Most of the female suicidal deaths in our study were due to quarrel 21(35.59%), followed by chronic illness 13(22.06%) love affair 5(8.47%) and least common in demand of dowry 2(3.38%). This might be due to the fact that in city like Mumbai and fast life of Mumbai where husband and wife both are working and they have to travel a lot and slight misunderstanding can lead to family quarrel. According to NCRB [3] report of India most common reason behind female suicidal deaths were family problems (27.64%)

followed by prolong illness(13.78%), mental illness (6.41%), dowry (4.65 %), love affairs (4.48%), failure in examination (2.66%) and least in ideological or hero-worship (0.18%). Contrast study by Zine *et al.* [12], states that most common reason behind suicides in females were dowry (44.5%) followed by torture by in-laws (16.7%), rash negligent husband (10.2%) and alcoholism of husband (9.8%). Another study by Shinde *et al.* [16] states that most common reason behind suicides in females were dowry (47.29%), followed by insanity (24.32%), chronic illness (6.75%), illicit relationship (6.75%) and least in academic failure (5.40%) and love affairs (0%). This might be due to high prevalence of dowry system in this region, if they did not get the dowry then tortured newly married bridal and ill-treatment by in-laws get started. Unemployment, low education and economic dependence are other contributing factors.

Most common cause of death in our study is hanging (43.31%), followed by poisoning (30.57%), burns (19.10%) and least in cut throat (0.63%). This might be due to the fact people believes that hanging is painless death and easy availability of hanging material. Similarly according to NCRB [3] report most common cause of death was hanging (39.78%), followed by poisoning (27.91%) and burns (7.39%). As per Daniel *et al.* [19] states that most common cause of death was hanging (39%) this might be due to the fact that easy availability hanging methods and to the improvement on health care assistance, specially the great advances on toxicological knowledge. Our study is contrast of Kumar *et al.* [18], they found that most common cause of death was toxins (48%), followed by hanging (24%) and burns (12%). Also Jaga and Dharmani [8] found that there was relation among populations exposed to pesticide, which leads to neurobehavioral effects, depression, suicide and death. As per Sharma *et al.* [6], most common cause of death was poisoning (48%). This might be due to the fact that aluminum phosphide marketed as tablets, has emerged as a dangerous weapon to human lives on account of its availability, non availability of an effective antidote being cheap, efficacious and easy to use and is now single most frequent suicidal method in Northern India. Also study by Kadu and Asawa [15] state that most common cause of death was burns (43.67%).

In our study it is clearly evident that in suicidal deaths due to chronic illness, (8.28%) deaths were noted in tuberculosis, followed by minor illness (7.64%) and mental illness (5.07%). According to NCRB [3] report states that in suicidal deaths due to chronic illness they have found mental illness (5.93%), followed by cancer (0.57%) and paralysis (0.53%).

CONCLUSION

In our study most the suicidal deaths were males married, young and belonging to low socioeconomic status. Majority of suicidal deaths were

Hindu and unemployed. Most common cause of death was hanging and most common reason behind suicidal death was mental stress.

Proper responsiveness program should be done by news-paper, television and street show to prevent suicidal deaths. A proper counseling centre should be established in hospitals in suicidal attempts to prevent further suicidal deaths. Marriage counseling, discouraging costly and ostentatious marriage rituals, strict implementation of anti dowry laws may help in decreasing or preventing the tensions of day to day married life. Most common victims of suicidal deaths were adolescents and young adults. Serious deliberations and thought should be put in to the various reasons cited above and ways and means to decrease the burden of stress related to modern life needed to be evolved. The Non Governmental Organizations and social organizations can contribute by establishing counseling centers.

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