

Demography of Suicide in Coastal Region of Odisha: An Autopsy Based Study

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Abstract

Introduction: Suicide being a major contributor to fatality world over still remains an enigma for the many scholars who have devoted time and resources to unravel its secrets. As per WHO, there occurs one suicidal death every 40 seconds. *Materials and Methods:* A prospective autopsy based study was conducted over a 3 year period from 2014-2016 in S.C.B. Medical College and Hospital, Cuttack and a total of 904 cases of suicidal deaths were studied using a specially devised questionnaire. Multiple social, biological and psychological factors were taken into account. *Result:* It revealed a male to female ratio in completed suicides of 1:1.17 and 69.14% suicides to be in the age group of 15-44 years. The victims predominantly belonged to lower income groups followed by those from lower middle class. Married females clearly outnumbered the married males. Males were seen to be more vulnerable when living in a nuclear setup. Poisoning followed by hanging was found to be the most preferred methods to commit suicide. Housewives contributed heavily to the total case load. It was found that persons with a regular employment were least likely to commit suicide.

Keywords: Suicide; Demography; Marital Status; Family Structure; Occupation.

Introduction

Suicide has simply been defined as deliberately putting an end to one's own life. This phenomenon which has distinctively remained a human affair, continues since time immemorial, having its fair share of mention in ancient texts as well as in recorded history. It is an outcome of a complex vicious cycle with multiple social, biological and psychological factors as its components. As per WHO, there occurs a suicidal death every 40 seconds the world throughout and in the last half a century or so there has been 60% rise in its incidence. Each year suicide accounts for about 1 million deaths globally with an overall mortality rate of 16 per 100,000 population. It is among the three leading causes of death among the 15-44 year age group worldwide [1]. As per the NCRB (2014) report, total

number of suicide reported in India has gone up from 1,13,697 in 2004 to 1,31,666 in 2014, a rise of 15.8% over a decade. Within the said period population in India has seen a growth of 14.6%. Although there is an effective rise in suicide in this period, a declining trend has also been noticed for the period 2011-14. In 2014, when the national average was 10.6 per a lakh population, the state Odisha showed a suicide rate of 9.9 [2].

Although this phenomena has never been satisfactorily explained through logic or reasoning, still etiological factors that have been attributed to this self vanquishing mode of human mind are many. Depression, desperation, frustration, stress, remorse, self reproach, addiction, unemployment, disappointment in love, extreme poverty, disharmony, failures in trade, profession, studies, loss in business, burdened under loans and sudden fall from grace & social standing are only few to be mentioned. The means and methods adopted also vary considerably depending upon multiple epidemiological factors like age, sex, social status, economic strength, level of education, profession and also on moral values, attitudes as well as socio-cultural environment.

This study has been undertaken with a view to relate various epidemiological factors to the trends of suicides observed in coastal belt of Odisha. The

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sole aim of the study is to compare the trends with other regions of the country and with the national as well as world scenario.

Methodology

The study was conducted in department of Forensic Medicine of S.C.B. Medical College and Hospital, Cuttack which receives cases for medico-legal autopsy not only from the biggest apex hospital of the state of Odisha, but also from whole of Cuttack city limits, sub-urban area surrounding the city as well as cases referred from faraway places of coastal Odisha. A prospective study module was designed to probe the incidence, distribution and triggering factors of suicidal deaths in relation to age, sex, educational status, socio-economic status, employment, marital status over an period of three years from 2014-2016.

The epidemiological tool employed was an interview method using pretested, predesigned questionnaire which proved to be a flexible tool to collate accurate information from relatives and persons accompanying the case. Due precaution was taken to interview each individual separately and in case of ambiguity in a particular response, cross questioning was employed to verify the veracity. The recording of information was conducted in conducive environment, with a sympathetic approach with all efforts to gain the confidence and without any coercion or threat, whatsoever. Due care was exercised to lucidly explain the objectives of the research to the next of kin, relatives or friends so as to ensure maximum cooperation. Utmost degree of confidentiality was assured.

The alleged cases of suicide where the manner could not be established clearly beyond doubt were excluded from the study. Similarly the cases, where the version of the family members & relatives was contrary to the autopsy findings, were left out of the ambit of the study. Unclaimed deceased though confirmed to be case of suicides, were not considered due to lack of history.

Result and Discussion

Over the 3 year study period a total of 1240 cases of alleged suicides were encountered out of which 904 cases could be identified to be suicidal death without any ambiguity (Table 1). It constituted about 10.88 % of the total number of autopsies. As far as

incidence of suicide goes our finding of 10.88% was little less than the 16% reported by Azmak et al [3] and 16.4% reported by Khajuria et al [4].

Females slightly outnumbered males with a male to female ratio of 1:1.17. Suicides committed below the age of 15 yrs stands at a negligible 3.10%. Similarly above the age of 60 years it was a mere 6.41%. Apart from the extremes of age, in males it was evenly distributed whereas in females a whopping 77% of suicides occurred in the age group of 15-44 years (Table 2).

The gender divide in the present study resembles similar sex ratio of 1: 1.24 as reported by Lalwani S et al [5]. Bhugra D et al have observed that Asian females exceed the males in suicides [6]. However, the NCRB data, 2009 & 2012 [7] shows the contrary. Male predominance has been reported by Kanchan T et al [8] and Vijay kumar L [9].

This study reveals a peak incidence of suicide in the age group of 15-29 years with majority belonging to female sex, which is consistent with NCRB, 2009 figures. The highest at risk age group of 15-29 has also been reiterated by Vikram Patel & Prabhat Jha et al [10], Azmak AD et al [3] and Murthy OP et al [11].

Our study reveals 72.24% of suicides to have occurred below age of 49 which is coherent with findings of Vijaykumar [9]. Similarly the maximum case burden in the age group of 15-49 years also consistent with study of Meera Th et al [12]. Many of the victims i.e. 47.57% were found to be educated upto secondary school level i.e. either high school dropouts or have read upto matriculation (Table 3). This tallies with the observation of Vijay kumar L [9].

Majority of victims i.e. 60.43% in males and 77.20% in females were married (Table 4). Male victims belonging to nuclear families clearly outnumber those of joint families whereas females in joint family structure slightly exceed those from a nuclear family scenario. The majority of suicides belonging to the married group echoes well with findings of Shukla et al [13]. In contrast to our observations Sharma et al [14] have reported more suicides to be taking place in joint families. Victims belonging to low income group at 461 cases and lower middle income groups at 345 cases clearly share the bulk of the burden (Table 5).

Married females outnumbered their unmarried counterparts whereas in males this difference was not so marked. High incidence among low socio-economic strata has also been reported by Sorref SM et al [15]. Poverty as a reason has been put forth by Gururaj et al [16], Chavan et al [17], which has been

contradicted by Vijay kumar L [9] who goes on to say that the phenomenon is more seen in high socio-economic group. Prajapati P et al [18] have noticed highest numbers in the upper middle class.

Poisoning (51.22%) and hanging (24.78%) were found to be the most favoured means of committing suicide in this region (Table 6). Very few males resorted to burns whereas when it came to railway run-over, males clearly surpassed females. All the 7 cases of cutthroat injuries have been invariably seen in males. Khan MM et al [19] have detected organophosphate poisoning in more than half the

cases they studied. Patel SP et al [20] are of the view that hanging, poisoning and burns are the commonest of methods. Khajuria B et al [4] and Arun M et al [21] have detected poisoning as the most commonly adopted method whereas Kanchan T et al [8] and Chavan BS et al [17] have reported hanging as the preferred method for suicide.

Housewives (36.06%) were found to be the single most vulnerable group to have committed suicide (Table 7). In males, the highest representation was from persons engaged in unorganised sector, distantly followed by agriculture. In females, grown

Table 1:

| Period of study | 2014 | 2015 | 2016 | Total |
|-------------------------|------|------|------|-------|
| Total cases | 2732 | 2682 | 2898 | 8312 |
| Alleged suicides | 386 | 413 | 441 | 1240 |
| Manner ambiguous | 106 | 112 | 118 | 336 |
| Clear cases of suicides | 280 | 301 | 323 | 904 |

Table 2: Age and Sex distribution in victims of Suicide

| Age in years | Male | | Female | | Total | |
|--------------|------|--------|--------|--------|-------|--------|
| | No. | % | No. | % | No. | % |
| <15 | 9 | 2.16 | 19 | 3.90 | 28 | 3.10 |
| 15-29 | 102 | 24.46 | 250 | 51.33 | 352 | 38.94 |
| 30-44 | 148 | 35.49 | 125 | 25.67 | 273 | 30.20 |
| 45-59 | 126 | 30.21 | 67 | 13.76 | 193 | 21.35 |
| 60 & above | 32 | 7.67 | 26 | 5.34 | 58 | 6.41 |
| Total | 417 | (100%) | 487 | (100%) | 904 | (100%) |

Table 3: Educational status in victims of Suicide

| Literacy | Male | | Female | | Total | |
|---------------------------------|------|-------|--------|-------|-------|-------|
| | No. | % | No. | % | No. | % |
| Never received formal education | 41 | 9.83 | 67 | 13.76 | 108 | 11.95 |
| Primary school | 61 | 14.63 | 62 | 12.73 | 123 | 13.60 |
| Secondary school | 195 | 46.76 | 235 | 48.25 | 430 | 47.57 |
| Higher secondary | 67 | 16.07 | 73 | 14.99 | 140 | 15.49 |
| Graduation or above | 53 | 12.71 | 50 | 10.27 | 103 | 11.39 |

Table 4: Marital status and Family structure in suicide victims

| Family type | Married | | Unmarried | | Total | |
|--------------|---------|--------|-----------|--------|-------|--------|
| | Male | Female | Male | Female | Male | Female |
| Nuclear | 133 | 156 | 103 | 70 | 236 | 226 |
| Joint | 93 | 217 | 51 | 40 | 144 | 257 |
| Living alone | 26 | 3 | 11 | 1 | 37 | 4 |
| Total | 252 | 376 | 165 | 111 | 417 | 487 |

Table 5: Socio-economic status of victims of suicide

| S E status | Married | | Unmarried | | Total | |
|---------------|---------|--------|-----------|--------|---------|-----------|
| | Male | Female | Male | Female | Married | Unmarried |
| High income | 1 | 2 | 0 | 1 | 3 | 1 |
| Upper- middle | 14 | 49 | 17 | 14 | 63 | 31 |
| Lower-middle | 111 | 129 | 66 | 39 | 240 | 105 |
| Low income | 126 | 196 | 82 | 57 | 322 | 139 |
| Total | 252 | 376 | 165 | 111 | 628 | 276 |

Table 6: Methods and Means adopted by the victims of suicide

| Methods | → | Poisoning | Hanging | Burns | Railway runover | drowning | Jump from height | Cut on neck/wrist | Firearms | Total |
|------------|-----|-----------|---------|-------|-----------------|----------|------------------|-------------------|----------|-------|
| age | sex | | | | | | | | | |
| <15 yr | M | 7 | 1 | - | - | - | - | 1 | - | 9 |
| | F | 12 | 5 | - | - | 2 | - | - | - | 19 |
| 15-29 | M | 56 | 28 | 5 | 9 | 2 | - | 2 | - | 102 |
| | F | 123 | 61 | 56 | 6 | 4 | - | - | - | 250 |
| 30-44 | M | 83 | 37 | 4 | 19 | 1 | 2 | 2 | - | 148 |
| | F | 51 | 29 | 35 | 10 | - | - | - | - | 125 |
| 45-59 | M | 69 | 37 | 3 | 13 | - | 2 | 2 | - | 126 |
| | F | 27 | 17 | 18 | 5 | - | - | - | - | 67 |
| 60 & above | M | 23 | 4 | - | 5 | - | - | - | - | 32 |
| | F | 12 | 5 | 9 | - | - | - | - | - | 26 |
| total | → | 463 | 224 | 130 | 67 | 9 | 4 | 7 | | 904 |
| Male | → | 238 | 107 | 12 | 46 | 3 | 4 | 7 | | |
| Female | → | 225 | 117 | 118 | 21 | 6 | 0 | 0 | | |

Table 7: Occupation of the victims of suicide

| Occupation | Male | Female | Total |
|--------------------------------|------|--------|-------|
| Students | 12 | 19 | 31 |
| Unemployed | 75 | 83 | 158 |
| Housewives | - | 326 | 326 |
| Agriculture | 85 | 3 | 88 |
| Employed in organised sector | 39 | 11 | 50 |
| Employed in unorganised sector | 123 | 42 | 165 |
| Self employed/ Business | 83 | 12 | 95 |
| Total | 417 | 487 | 904 |

up girls dependent on the family were the second most common group to have committed suicide. Chavan BS et al [17] have claimed unemployment to be a major factor in suicide which also has been corroborated by Chakraborty NK [22] et al. Williams JMG & Pollock LR [23] have also emphasized on the relation of unemployment to suicides.

Conclusion

The outcome of this study reveals that the more resourceful age group of the population predominate among the suicide victims along with a slight female preponderance.

Majority of victims have attended school which has been stopped midway. Lowest to lower-middle income groups are specifically vulnerable.

Poisoning, hanging and burns in decreasing order were the usual means adopted. Unemployment is one of the major contributors to suicide. Punitive measures in Law have never been or can never be a credible deterrent for a person with suicidal intent to prevent him/her to take the extreme step.

Here comes the role of family, friends, relatives, peer groups and society as a whole, as timely intervention can avert the momentary decision of self destruction.

Diagnosing premonitory symptoms, psychological counselling and social security network for vulnerable groups is need of the hour.

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