

Trend of suicidal autopsy cases at Government Medical College & New Civil Hospital, Surat

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Received February 12, 2015. Accepted March 2, 2015

Abstract

Background: Surat is one of the fastest growing cities in Asia, situated in the southern region of the state of Gujarat, India. Suicidal deaths reflect overall social and mental stress and grief of any society. We analyzed the current trend of suicidal deaths in Surat in this epidemiological study.

Objective: To analyze various demographic, social, and forensic aspects of suicidal deaths in Surat.

Materials and Methods: A total of 358 profiles of suicidal autopsy cases were studied retrospectively, which were conducted during 2012 at GMC & NCH, Surat, Gujarat, India. The observations were compared with previous studies conducted in same region as well as studies conducted in other regions.

Result: In this study, the incidence rate of suicidal deaths was 16.52% and major age group among the victims was 31–40 years (i.e. 22.06%). In 62.84% cases, the victims were male. The chief method of suicide was poisoning, used by 40.50% of deceased, involved in 45.53% of cases. Conspicuously, steep rise (21.17%) in number of suicides seen in third quarter of the year, that is, in beginning of monsoon.

Conclusion: The current incidence rate of suicidal deaths in Surat shows an inclining trend recently. Maximum affected victims were middle-aged males (31–40 years) but cases of suicides of females have been increased in recent years. The chief method of suicide was poisoning and main mode of death was asphyxia.

KEY WORDS: Suicidal death, suicide, autopsy, Surat

Introduction

By doing suicide, you don't just 'die' & become 'free' ... actually you 'run away' from the battlefield.

Shreemad Bhagvad Geeta

Suicide is defined as the act of deliberately killing oneself.^[1] It is one of the leading causes of unnatural deaths. To commit a suicide, two elements – *mens rea*, which means

preplanning or a forethought, and *actus reus*, which means the actual execution – should work together to constitute the crime.^[2] Suicide is a lugubrious act of mankind. It reveals depth of depression in a society. Suicidal deaths represent a reasonable proxy for all kinds of tension, depression, and grief in general. As all patients of depression not been treated or supported by the health system and society, suicide can be considered as the 'tip of the iceberg of neglected depression and tension of a society'. After accidental deaths, suicide is the second most common factor that causes loss of most productive people of society (i.e. youth). For the same, this study explores and analyses the recent patterns of the suicidal deaths and its demographic, social, and medicolegal aspects in one of the major cities of Gujarat state.

The aims and objectives of this study were as follows:

- To analyze various aspects of suicidal autopsy cases.
- To find out age-, sex-, religion-, season-, and month-wise variation of suicidal cases.

Access this article online	
Website: http://www.ijmsph.com	Quick Response Code: 
DOI: 10.5455/ijmsph.2015.12022015273	

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- To find out distribution of various modes of death and various types of weapons used in suicidal offences.
- To draw public attention and awareness regarding current patterns of suicidal offences.

Previously similar studies have been carried out in the same region by Prajapati *et al.* during 2009–2010.^[10] Several national and international statistical reports were also done regularly. Relevant findings of those studies are compared with findings of this study and cited here.

Materials and Methods

All types of suicidal cases were included in this study. Data were collected retrospectively of period from 1st January, 2012 to 31st December, 2012 during which total 2166 autopsy cases were conducted at the mortuary of New Civil Hospital, Surat, Gujarat, India. The autopsy cases conducted at New Civil Hospital, Surat includes cases from south zone, south-east zone, east zone, and part of central zone of Surat city as well as the referral cases from peripheral health centers of Surat, Dang, Bharuch, Navsari, Vapi and Valsad districts, and Daman (Union Territory). Among all the cases, 358 cases were confirmed as suicidal, either by police investigations or found to be suicidal in autopsy. Detailed history regarding age, sex, religion, address, incidence of offence, circumstances, object or substance used in the offence, etc., was collected from inquest punchnama, marnottar form, other documentary records, photographs and from statements of concerned police investigating officers, and relatives of victim. Autopsies were conducted as per standard autopsy protocol. Postmortem report notes, reports of chemical analysis, histopathological examinations, and other reports of various tests from forensic science laboratory were taken under stringent consideration. The collected data were analyzed and compared with previous studies.

Results

As per the observation tables mentioned below, maximum cases of suicide (11.73%) were reported in the month of August (Table 1) followed by 10.05% cases in the month of September. In view of seasons, 38.25% cases were reported in monsoon, and nearly the same number of cases were reported in summer and winter (Table 2). Males were victims in 62.84% cases (Table 4). Male to female victim ratio was 1.69:1. In age distribution, maximum cases (i.e. 37.7%) were among the age group of 21–30 years followed by 22.06% cases from age group of 31–40 years. Conspicuously, 1 case was noted at age of 10 years (Table 5). Considering the religion, 93.29% victims were Hindu and 4.18% victims were Muslim whereas 2.51% victims were of other religion or their religion was not known (Table 6). Regarding method of suicide, most common method was poisoning (reported in 40.5% cases) that was followed by hanging seen in 36.03%

Table 1: Month-wise distribution

	Total	%
January	27	7.54
February	31	8.65
March	26	7.26
April	20	5.58
May	32	8.93
June	33	9.21
July	25	6.98
August	42	11.73
September	36	10.05
October	34	9.49
November	30	8.37
December	22	6.14
Total	358	100

Table 2: Season-wise distribution

	Total	%
Winter (November–February)	110	30.7
Summer (March–June)	111	30.98
Monsoon (July–October)	137	38.25
Total	358	100

Table 3: Quarter of year-wise distribution

	Total	%
First quarter	84	23.46
Second quarter	85	23.74
Third quarter	103	28.77
Fourth quarter	86	24.02
Total	358	100

Table 4: Sex-wise distribution

	Total	%
Male	225	62.84
Female	133	37.15
Total	358	100

Table 5: Age-wise distribution

Years	Male	Female	Total	%
<11	0	1	1	0.27
11–20	27	42	69	19.27
21–30	92	43	135	37.7
31–40	48	31	79	22.06
41–50	27	9	36	10.05
51–60	16	4	20	5.58
61–70	14	2	16	4.46
>70	1	1	2	0.55
Total	225	133	358	100

cases (Table 7). Majority of victims died due to asphyxia (45.53%), which was followed by shock due to poisoning contributing to 40.5% cases (Table 8). One conspicuous observation we found was that incidence of drowning was

Table 6: Religion-wise distribution

	Total	%
Hindu	334	93.29
Muslim	15	4.18
Other/unknown	9	2.51
Total	358	100

Table 7: Method of suicide-wise distribution

	Male	Female	Total	%
Hanging	86	43	129	36.03
Burns	16	32	48	13.4
Poisoning	96	49	145	40.5
Drowning	25	9	34	9.49
Jump against moving vehicle	1	0	1	0.27
Fall from height	1	0	1	0.27
Total	225	133	358	100

Table 8: Mode of death-wise distribution

	Total	%
Haemorrhagic/hypovolemic shock	10	2.79
Neurogenic shock	5	1.39
Septicemic shock	35	9.77
Asphyxia	163	45.53
Shock due to poisoning	145	40.5
Total	358	100

more in males whereas cases of burns were reported more in females. Hanging and poisoning cases were reported in similar number in both sexes. Solitary cases of violent type of methods, such as jumping from height and jumping against moving vehicle, were also noted that were exclusively reported in males (Table 7).

Discussion

In the present age of stressful lifestyle and competition, suicidal deaths are inevitable part of any society. Financial loss, business loss, exam phobia and fear of failure, infidelity, love affairs, loneliness, poverty, stress, poor educational and recreational facilities, migratory population, poor temperament and judgment ability, unemployment, substance abuse, negligence to recognize and treat psychiatric problems, dowry, incurable diseases, etc., are some inducing circumstances for suicidal incidences including loss in farming business, which is a sensitive issue in rural regions.

In this study of 1 year duration, suicidal percentage was 16.52% of total autopsy cases and the suicidal rate of Surat city was 12.1% for 2012.^[4] These findings and results correlate with results of the WHO for India and are higher than overall global suicidal rate (11.6% per million people).^[3] These figures are also higher than national average (11.2%)

and Gujarat state suicidal rates (11.8%) for 2012.^[4] This rate is lower than other major cities of India such as Bengaluru (23.4%), Pune (14.1%), Coimbatore (18.4%), Gwalior (18.9%), Jabalpur (45.1%), Rajkot (30.5%), and Indore (20.0%) whereas it is higher than Ahmedabad (9.7%), Amritsar (5.1%), Jaipur (11.0%), Kota (7.0%), Lukhnow (7.8%), Mumbai (7.0%), and Dhanbad (7.0%).^[4] This may be due to abundant migratory population in Surat.^[5] Recent analysis by the WHO shows that during the last 50 years, the heart of the problem of suicide mortality has shifted from Western Europe to Eastern Europe and now seems to be shifting to Asia. China and India are the biggest contributors to the number of suicides in the world now.^[3]

Maximum cases (11.73%) were reported in the month of August followed by 10.05% cases in the month of September (Table 1). According to season-wise distribution, maximum cases noted during monsoon (38.25%), while similar number of cases noted in winter and summer (Table 2). According to quarter of year-wise distribution, conspicuously steep rise in number of cases noted during third quarter of the year (Table 3). In this duration of year, many festivals of Hindu and Muslim communities are celebrated. Pre-festival financial, social troubles and post-festival gloom may be responsible for suicides.

Majority of victims were males (62.84%) in this study, which correlates with most of the other studies, may be because males are more vulnerable to work and financial stress and impulsive behavior and cognitive difference between male and female psychology.^[6] It correlates with national statistics of 2012.^[7] It supports the global observation that though women suffer from depression more than male, females commit more 'attempted suicide' whereas males commit more 'completed suicide'.^[6]

Maximum cases (37.7%) were among the age group of 21–30 years followed by 22.06% cases from age group of 31–40 years (being second dominant age group). Conspicuously one rare case of 10-year-old girl suicide case was also noted. This correlates with national and state data of 2010 and 2012 and findings of Prajapati *et al.*^[4,8,10] Suicide was second leading cause of death globally in the age group of 15–29 years in 2012.^[4] This is because of stressful factors such as school challenges, alcohol and drug abuse, impulsive mental health problems, unemployment, family dysfunction, separation and loneliness, and love break up and correspondingly there is immaturity of mind to handle these issues properly in young age.

Majority of the victims were belonging to Hindu religion (Table 6). This could be due to the fact that, majority of population in the study region belongs to Hindu religion.

In majority of cases, method of suicide used by the victims was poisoning (40.5%), followed by hanging (36.03%) and burns (13.4%). Conspicuously after poisoning and hanging, males preferred drowning whereas females preferred burns as a method for suicide. Rare violent methods such as jumping in front of moving vehicle (e.g. train) and falling from height (e.g. multistoried apartment) also noted in sporadic

male cases. It coincides with global as well as national trend for method of choice for suicide.^[3,4,8] It also supports findings of Prajapati *et al.*^[9] and Prajapati *et al.*^[10] This may be due to easy availability of various poisonous substances and rapid and nonviolent execution of method.

Regarding mode of death, most of the victims died due to asphyxia (45.53%) followed by shock due to fatal poisoning (40.5%).

The ministry of home affairs of India is about to remove Section 309 of the Indian Penal Code (IPC) as recommended by the law commission of India.^[11] IPC 309, which was in force till now, lays down the punishment for attempted suicide that is imprisonment up to 1 year.

The limitation of this study is that autopsy cases from north zone, west zone, north-west zone, and part of central zone of Surat city are conducted at SMIMER Hospital, Surat and those cases are not included in this study.

Conclusion

The incidence rate of suicidal deaths was 16.52% of total autopsy cases during 2012, which is higher than global suicidal rate (11.6%) and national average (11.2%). Maximum victims were 21–30 years, that is, young adults. Male sex was the predominant gender of victims. Highest cases were reported in third quarter of the year, especially in the month of August. The chief mode of death was asphyxia. Most common method used for suicide was poisoning followed by hanging.

Suggestions and Recommendations

1. There should be nationwide support groups especially for the suicide vulnerable persons, such as students, farmers, victims of domestic violence, survivors of attempted suicide persons just same as ICTC centers for HIV-positive persons and NIRBHAYA centers and DILAASA centers for rape victims. AASRA is one of such noble support group functioned by NGO trust in Maharashtra with 24x7 helpline.
2. There should be some legal restrictions and stringent monitoring for sale, stock, distribution, and use of various poisonous substances, pesticides, and inflammable materials.
3. Young people and students should be properly guided, motivated, and supported by family, teachers, senior colleagues, and social workers regarding handling of various stressful issues of life and to make proper decisions.

4. Multicentric studies should be carried out regularly to have an accurate picture of trends of suicidal deaths in a state or nation.

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How to cite this article: Chandegara P, Govekar G, Patel J, Zanzrukiya K. Trend of suicidal autopsy cases at Government Medical College & New Civil Hospital, Surat. *Int J Med Sci Public Health* 2015;4:1334-1337

Source of Support: Nil, **Conflict of Interest:** None declared.