Original Research Article

A Study on Pattern of Suicidal Deaths Brought for Medicolegal Autopsy at Mortuary of Siddhartha Medical College and Govt. General Hospital, Vijayawada, Andhra Pradesh

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Abstract

Background: The aim is to study the pattern of suicidal deaths, demographic profile including various contributary factors of victims and analyze the magnitude of deaths in and around Vijayawada part of Andhra Pradesh so that preventive measures can be set up to avoid such situation. A death by suicide is defined as the deliberate termination of life. For a death to be a suicide, it should be an un-natural death, the desire to die should originate within the person, and there should be a reason for ending their life, according to the National Crime Records Bureau. While India's suicide rate of 14.04/lakh population in 2019 puts it at 49th rank globally, the grim reality of the highest numbers of suicides being reported annually from India cannot be overlooked. When you look at suicide deaths, the highest suicide rates are in the south. In central India, including Maharashtra, Madhya Pradesh and Rajasthan, you have "middling suicide rates", and the rate falls up north, in Uttar Pradesh and Bihar.

Material & Methods: A five years retrospective and cross-sectional study was conducted in Forensic Medicine and Toxicology Department, Siddhartha Medical College, Vijayawada, Andhra Pradesh. All the autopsies conducted on victims of suicidal deaths during the period from Jan, 2016 to Dec, 2020 were studied from the available data. Inclusion criteria includes all the suicidal deaths due to poisoning, hanging and self-immolation by burns. Exclusion criteria includes suicidal deaths from causes other than poisoning, hanging and suicidal burns like drowning, electrocution, fall from height etc.

Results: It is clear that committing suicide by consuming poison accounts for major number of deaths followed by committing suicide by hanging and least followed by committing suicide by self-immolation. It is also clear that committing suicides has increased year by year from 2016 to 2020 irrespective of committing suicide by hanging, poisoning. Coming to sex pattern, suicide by hanging was observed more in males. Sex pattern in suicidal deaths due to poisoning clearly showed that females outnumbered males. Sex pattern in suicidal deaths due to self-immolation clearly showed that females outnumbered males with high margin. Coming to the age pattern in committing suicidal deaths by hanging, 30 – 45 years age group showed highest incidence year by year followed by 45 – 60 years and least among 15 – 25 years age group. Where as in case of suicidal deaths by poisoning and self-immolation, incidence was highest in 30 – 45 age group followed by 15 – 30 years age group and least among 45 – 60 years group.

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Conclusion: According to the World Health Organization, in India, suicide is an emerging and serious public health issue. Suicide rates in India have been rising over the past five decades. India's contribution to global suicide deaths increased from 25.3% in 1990 to 36.6% in 2016 among women, and from 18.7% to 24.3% among men. In 2016, suicide was the most common cause of death in both the age groups of 15–29 years and 15–39 years in India. Factors such as frustration, family problems, love affairs, poverty, harassment, sexual violence, social boycott, chronic diseases and bankruptcy were studied as the main reasons leading to committing of suicides in people.

The need for a strategy which will raise awareness and help make suicide prevention a national priority has to be recognized. Such a national strategy will need a comprehensive approach that encompasses the promotion, coordination, and support of activities to be implemented across the country at national, regional, and local levels. The program would need to be tailored for populations at risk.

Keywords: Suicidal Deaths, Hanging, Poisoning, Self-Immolation, Medicolegal Autopsy

Introduction

The Government of India classifies a death as suicide if it meets the following three criteria: 1. It is an unnatural death 2) the intent to die originated within the person 3) there is a reason for the person to end his or her life. The reason may have been specified in a suicide note or unspecified. If one of these criteria is not met, the death may be classified as death because of illness, murder or in another statistical.

Factors contributing to suicide in India in 2019. Following are the contributing factors for committing suicide in India with incidence in percentage (%). Family problems (32.4%), Illness (17.1%), Drug abuse/alcohol addiction (5.6%), Marriage related issues (5.5%), Love affairs (4.5%), Bankruptcy or indebtedness (4.2%), Failure in examination (2.0%), Unemployment (2.0), Professional/career problem (1.2%), Property dispute (1.1%), Death of dear person (0.9%), Poverty (0.8%), Suspected/illicit relation (0.5%), Fall in social reputation (0.4%), Impotency/ infertility (0.3%), Other causes (11.1%), causes not known(10.3%).[1]

Suicide mortality rate is the number of suicide deaths in a year per 100,000 population. India suicide rate for 2019 was 12.70, a 0.79% increase from 2018. India suicide rate for 2018 was 12.60, a 5% increase from 2017. India suicide rate for 2017 was 12.00, a 0.83% decline from 2016.India suicide rate for 2016 was 12.10, a 1.63% decline from 2015. The trend is frightening and alarming that is leading to a heart wrenching situations currently in the society.[2]

Maharashtra reported the highest number of suicides at 18,916, followed by Tamil Nadu, West Bengal, Madhya Pradesh and Karnataka. These five states collectively contributed to 49.5% of India's suicides in 2019. Nagaland reported only 41 suicides in the year. Maharashtra, Tamil Nadu, West Bengal, Madhya Pradesh and Karnataka have consistently accounted for about 8.0% (or more) suicides in India across 2017 to 2019. Among the Union Territories, Delhi reported the highest number of suicides followed by Puducherry. Lakshadweep reported zero suicides. Bihar and Punjab reported a significant increase in the percentage of suicides in 2019 over 2018.

In 2019, the age groups 18–30 and 30–45 years accounted for 35.1% and 31.8% suicides in India, respectively. Combined, this age group of young adults accounted for 67% of total suicides. Thus, out of the total 1.39 lakh total suicides in India, 93,061 were young adults. This indicates that they are the most vulnerable age groups. Compared to 2018, youth suicide rates have risen by 4%. In 2019, 12.6% victims of suicide were illiterate, 16.3% victims of suicide were educated up to primary level, 19.6% of the suicide victims were educated up to middle level and 23.3% of the suicide victims were educated up to matric level. Only 3.7% of total suicide victims were graduates and above.[3]

The number of deaths by suicide has seen an increasing trend from 2016 to 2019. In 2019, it increased by 4.6% compared to 2018. There were 25,891 suicides reported in the largest 53 mega cities of India in 2021. In the year 2021, Delhi City (2,760) recorded the highest number of deaths by suicide among the four metropolitan cities, followed by Chennai (2,699), Bengaluru (2,292) and Mumbai

(1,436). These four cities together reported almost 35.5% of the total suicides reported from the 53 mega cities.

The southern states of Kerala, Karnataka, Andhra Pradesh and Tamil Nadu have a suicide rate of >15 while in the Northern States of Punjab, Uttar Pradesh, Bihar and Jammu and Kashmir, the suicide rate is <3. This variable pattern has been stable for the last 20 years. Higher literacy, a better reporting system, lower external aggression, higher socioeconomic status and higher expectations are the possible explanations for the higher suicide rates in the southern states.

In 2021, the male-to-female ratio of suicide victims was 72.5 : 27.4, while (70.9 : 29.1) in 2020. The total number of male suicides was 1,18,979 and female suicides accounted for 45,026. A total of 28 transgender people died by suicide. The proportion of female victims were more due to "marriage-related issues". Of females who committed suicides, the highest number (23,178) was of house-wives followed by students (5,693) and daily wage earners (4,246). Among males, maximum suicides were by daily wage earners (37,751), followed by self-employed persons (18,803) and unemployed persons (11,724).[4]

Aim and Objectives

The aim and objectives are to study the pattern of suicidal deaths, demographic profile including various contributary factors of victims and analyze the magnitude of deaths in and around Vijayawadapart of Andhra Pradesh so that preventive measures can be set up to avoid such situation.

Materials and Methods

A five years retrospective and cross-sectional study was conducted in Forensic Medicine and Toxicology Department, Siddhartha Medical College, Vijayawada, Andhra Pradesh. All the autopsies conducted on victims of suicidal deaths during the period from Jan, 2016 to Dec, 2020 were studied from the available data. As per the institutional ethical committee guidelines, on paper permission for the study was not necessary as the study is done on already dead victims and is a retrospective study from the available data from the department. Demographic and other variables regarding the pattern of committing suicidal death and causes leading to committing of suicide were studied from the inquest papers, treatment records and post mortem reports. All the data was entered in preformed proforma and was analysed using statistical software.

Inclusion Criteria: All the suicidal deaths due to poisoning, hanging and self-immolation by burns.

Exclusion Criteria: Suicidal deaths from causes other than poisoning, hanging and suicidal burns like drowning, electrocution, fall from height etc.

Results

Table 1: Year wise incidence of suicidal deaths

Sl. No	Year	Total Cases	Hanging	Poisoning	Suicidal Burns
1.	2016	124	35 (28%)	79 (64%)	10 (8%)
2.	2017	133	40 (30%)	87 (65%)	6 (5%)
3.	2018	156	54 (35%)	93 (60%)	9 (5%)
4.	2019	177	65 (36%)	102 (58%)	10 (6%)
5.	2020	209	77 (37%)	123(59%)	9(4%)

Table 2: Sex pattern in Suicidal Deaths due to Hanging Year Wise

Sl. No	Year	No. of Cases	Males	Females
1.	2016	35	19 (54%)	16(46%)
2.	2017	40	26(65%)	14 (35%)
3.	2018	54	24 (44%)	30 (56%)
4.	2019	65	40 (62%)	25 (38%)
5.	2020	77	32 (42%)	45 (58%)

Table 3: Sex pattern in Suicidal Deaths due to Poisoning Year Wise

Sl. No	Year	No. of Cases	Males	Females
1.	2016	79	40 (51%)	39 (49%)
2.	2017	87	42(48%)	45 (52%)
3.	2018	93	41 (44%)	52 (56%)
4.	2019	102	48 (47%)	54 (53%)
5.	2020	123	50 (41%)	73 (59%)

Table 4: Sex pattern in Suicidal Deaths due to Suicidal Burns Year Wise

Sl. No	Year	No. of Cases	Males	Females
1.	2016	10	0	10 (100%)
2.	2017	6	1 (16%)	5 (84%)
3.	2018	9	1 (11%)	8(89%)
4.	2019	10	2 (20%)	8 (80%)
5.	2020	9	2 (22%)	7 (88%)

Table 5: Distribution based on Age Groups Year Wise

Sl. No	Year	Hanging			Poisoning			Burns		
		15-30 Years	30-45 Years	45-60 Years	15-30 Years	30-45 Years	45-60 Years	15-30 Years	30-45 Years	45-60 Years
1.	2016	5	20	10	28	42	9	1	8	1
2.	2017	7	21	12	30	45	12	0	6	0
3.	2018	10	28	16	33	47	13	1	8	0
4.	2019	15	30	20	23	68	11	2	7	1
5.	2020	20	34	23	40	73	10	1	6	2

Table 6: Marital Status of victims of suicidal death year wise

Sl. No	Year	Hanging		Poisoning		Suicidal Burns	
		Married	Unmarried	Married	Unmarried	Married	Unmarried
1.	2016	25	10	53	26	10	0
2.	2017	28	12	54	33	5	1
3.	2018	36	18	62	31	9	0
4.	2019	42	23	55	47	10	0
5.	2020	47	30	70	53	8	1

Table 7: Literacy among victims of suicidal deaths

Sl. No	Suicidal Death	Literate	Illiterate
1.	Hanging	79	192
2.	Poisoning	176	308
3.	Burns	11	33

Table 8: Distribution of suicidal deaths based on urban or rural area

Sl. No	Suicidal Death	Urban	Rural
1.	Hanging	168	103
2.	Poisoning	226	258
3.	Burns	26	18

Discussion

By analysing the results, it is clear that committing suicide by consuming poison accounts for major number of deaths followed by committing suicide by hanging and least followed by committing suicide by self-immolation. It is also clear that committing suicides has increased year by year from 2016 to 2020 irrespective of committing suicide by hanging, poisoning. Suicides by self-immolation, there was not much change in the incidence except during 2017 which recorded the lowest number of suicidal deaths by self-immolation. Similar findings were found by Silke Bachmann(2018) Johan Bilsen (2018).[5]

Coming to sex pattern, suicide by hanging was observed more in males when compared to females from 2016 to 2020 with exceptions of 2018 and 2020 during which the incidence of suicidal death by hanging was seen more in females. Sex pattern in suicidal deaths due to poisoning clearly showed that females outnumbered males during the years 2018, 2019 & 2020 while males committed suicide by consuming poison more than females during the years 2016 & 2017. Sex pattern in suicidal deaths due to self-immolation clearly showed that females outnumbered males with high margin from 2016 to 2020. Similar findings were found in their study by Rakhi Dandona, G Anil Kumar, R S Dhaliwal, Mohsen Naghavi (2018).[6]

Coming to the age pattern in committing suicidal deaths by hanging, 30 – 45 years age group showed highest incidence year by year followed by 45 – 60 years and least among 15 – 25 years age group. Where as in case of suicidal deaths by poisoning and self-immolation, incidence was highest in 30 – 45 age group followed by 15 – 30 years age group and least among 45 – 60 years group. Similar findings were found in their study by Suryakant Yadava, Aathavan K K, Solveig Argeseanu Cunningham, Pravat Bhandari, Udaya Shankar Mishra, Aditi and Ravita Yadav (2023).[7]

When marital status was analysed in the pattern of suicidal deaths, in hanging, poisoning and self-immolation, suicidal deaths incidence was more among married people when compared with unmarried people. Similar findings were found on marital status in patterns of suicidal deaths by Peter Mayer and Tahereh Ziaian (2002).[8] When literacy was analysed in the pattern of suicidal deaths, all the types are seen more in illiterate people when compared to literate people. Similar findings were found in their study of suicides in India and literacy rate by Rajiv Radhakrishnan and Chittaranjan Andrade (2012).[9] When the pattern of suicidal deaths was studied among urban and rural back ground, all types of suicidal deaths were more seen in urban setup when compared to the rural areas. Similar findingsof suicide incidence in urban and rural background were found in their study by M. Helbich, V. Bluml (2017).[10]

Conclusion

According to The World Health Organization, in India, suicide is an emerging and serious public health issue. Suicide rates in India have been rising over the past five decades. India's contribution to global suicide deaths increased from 25.3% in 1990 to 36.6% in 2016 among women, and from 18.7% to 24.3% among men. In 2016, suicide was the most common cause of death in both the age groups of 15–29 years and 15–39 years in India. Factors such as frustration, family problems, love affairs, poverty, harassment, sexual violence, social boycott, chronic diseases and bankruptcy give rise to a feeling of committing suicide in people.

The need for a strategy which will raise awareness and help make suicide prevention a national priority has to be recognized. Such a national strategy will need a comprehensive approach that encompasses the promotion, coordination, and support of activities to be implemented across the country at national, regional, and local levels. The program would need to be tailored for populations at risk. For example, prevention programs aimed at children and young adults would have to address issues related to gender inequality, physical/sexual abuse, violence and mental illness. Gatekeeper training focuses on skill development to enable community members such as teachers, coaches and others in the community to identify signs of depression and suicide-related behaviours among youth. It encourages individuals to maintain a high index of suspicion and to inquire directly about distress, persuade suicidal individuals to accept help, and serve as a link for local referrals. Such approaches would also require

a multidisciplinary team approach involving psychiatrists, general physicians, psychiatric nurses, psychiatric social workers, and non-governmental organizations (NGOs).

The role of the media is becoming increasingly relevant. A delicate balance needs to be maintained between press freedom and responsibility of the press to minimize the harm to vulnerable individuals. NGOs can play an important role in advocacy as exemplified by the proactive stance taken by the NGO Sneha which found that the suicide rate was highest among students who had failed in one subject. Subsequently, the government introduced a new scheme in 2002 wherein students who fail in one subject can rewrite their examination within a month and can pursue their further studies without losing an academic year.

The task of suicide prevention is daunting. Although suicide attempters are at increased risk of completed suicide, about 10% of attempters persistently deny suicidal intent. This group may continue to be vulnerable. Though restricting availability of lethal means appears to be a possible solution, an early study in India in West Bengal, where legislation was introduced to restrict sale of a pesticide, found no reduction in the overall suicide rate, but merely a change in the modes of suicide. The solutions to suicide prevention may prove to be more complex than the problem of suicide itself.

Source of Funding: Self

Conflict of Interest: Nil

Permission for Doing Study

As per the institutional ethical committee rules, no permission is required if study done on already dead victims and study is retrospective study and permission is taken from Professor & Head of Forensic Medicine Department of Siddhartha Medical College, Vijayawada, Andhra Pradesh

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