

Socio-demographic Profile of Victims of Suicidal Hanging: A Study from Western Maharashtra, India

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ABSTRACT

A descriptive cross-sectional study was conducted on all cases of deaths due to hanging autopsied at the mortuary of Pravara Rural Hospital, Loni, a rural region in Western Maharashtra, India. The study was conducted over a period of 4 years, two years retrospective (record based) from September 2012 to August 2014 and two years prospective from September 2014 to August 2016. Data was being collected from medico-legal autopsy records of hanging victims. The cases were studied to know the socio-demographic profile of the victims. The cases represented approximately 3.73% of all autopsy cases. Majority of the victims were male (83.67%) belonging to the age group of 21-30 years (57.14%). Most of the victims (46.94%) were laborers by occupation. The most common motive behind suicidal hanging was financial crisis (34.69%) followed by family problems (16.33%). To reduce the rate of suicides, awareness has to be created by appropriate education and by influencing the media in their portrayal of suicidal news. Counselling centers should also be established in rural areas to help the victims.

KEYWORDS: Hanging; Suicide; Autopsy; Rural; Death.

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INTRODUCTION

Oxygen is essential to sustain life. A reduced concentration of oxygen in blood which reaches the brain can cause rapid loss of consciousness. The brain constitutes approximately 2% of the body weight, but utilizes 20% of the total available oxygen. The failure to deliver oxygen to the brain is commonly due to asphyxia.¹ Violent asphyxial deaths can be caused by different methods such as hanging, strangulation, drowning

and suffocation. Hanging is a common method of committing suicide and makes a major proportion of asphyxial deaths.

Suicide is a leading public health problem worldwide. It was the fourth leading cause of death in the young adult age group of 15-29 years globally in 2019.² People who are victims of some sort of violence including child abuse, bullying or sexual assault have a higher suicidal tendency.³ A prior suicide attempt is the single most important risk factor for committing suicide.² History of medical disorders such as depression, mood disorder and cognitive impairment are other important risk factors for suicide.⁴ The rate of suicide in young people increased dramatically over the last few decades. According to data collected from NCRB (2021), hanging was the most common method of committing suicide in India.⁵ An increasing trend of suicide by hanging was also observed in Japan, Australia and in 16 countries which participated in European Alliance Against Depression (EAAD).^{6,7,8} All cases of deaths due to hanging are considered to be suicidal until the contrary is proved. Accidental hanging may be possible in factories, by children during playing and in masochistic practice.^{9,10} Hanging is perhaps one of the most preferred methods used to commit suicide due to the anticipated nature of death it causes and easy accessibility of means.¹¹ It produces a painless death for the victims. A thin rope tied around the neck may cause unconsciousness in only 15 seconds.¹² Suicidal behaviour and rates vary in different populations and culture and also by age and sex.¹³ We have undertaken this study to evaluate the socio-demographic profile of hanging victims in Loni, a rural region of Western Maharashtra, situated 26 kilometers from Shirdi, holy place of Saibaba. This data can be used in future to identify individuals who are at risk of committing suicide by hanging and a suicide prevention program can be planned accordingly.

MATERIAL AND METHODS

The current study was a descriptive cross-sectional study carried out at Department of Forensic Medicine, Rural Medical College, Loni conducted over a period of 4 years, two years retrospective (record based) from September 2012 to August 2014 and two years prospective from September 2014 to August 2016.

Detailed analysis of the cases was based on medicolegal records and evaluation of postmortem reports of hanging victims autopsied at Pravara

Rural Hospital, a tertiary care hospital attached to Rural Medical College. Information regarding the deceased, circumstances of death were collected from the investigating officer and relatives. Data was analyzed with regard to socio-demographic profile of the victims, reason behind suicide, seasonal variation and place of occurrence of the cases. Putrefied bodies were excluded from this study. Approval for study was obtained from Institutional Ethics committee of Pravara Institute of Medical Sciences.

RESULTS

Overall, 1315 medicolegal autopsies were carried out during the study period, out of which 49 cases were deaths due to hanging which constitutes around 3.73% of total cases. In our study all the 49 cases of hanging were suicidal in nature. Majority of the victims (83.67%) were male as compared to female (16.33%) and the male/female ratio was 5.12:1. The age range of victims in the study period was 13 to 60 years and the commonest age group involved was 21-30 years (57.14%) (Table 1).

Table 1: Distribution in relation to age and gender of victims

	n	%
Total number of autopsies	1315	100
Total deaths due to hanging	49	3.73
Sex		
Male	41	83.67
Female	08	16.33
Age		
00 - 10	00	00
11 - 20	07	14.28
21 - 30	28	57.14
31 - 40	07	14.28
41 - 50	03	6.12
51 - 60	04	8.16
> 60	00	00

The incidence of hanging was more common in married persons (53.06%) as compared to unmarried ones (46.94%). In present study, the most common working group involved were laborers (46.94%), followed by farmers and students (12.24%, each) (Table 2).

Table 2: Distribution in relation to marital status and occupation of victims

	n	%
Marital Status		
Married	26	53.06
Unmarried	23	46.94
Occupation		
Laborer	23	46.94
Farmer	06	12.24
Student	06	12.24
Unemployed	05	10.20
Housewife	04	8.16
Service	03	6.12
Business	02	4.08

Most commonly known motive behind suicide was financial crisis (34.69%) followed by family problems (16.33%) and the reason was not known in 18.37% cases (Table 3).

Table 3: Distribution based on motive behind suicidal hanging

	n	%
Financial Problems	17	34.69
Family Problems	08	16.33
Love affair	06	12.24
Personal	05	10.20
Failure in Exam	04	8.16
Unknown	09	18.37

The peak incidence of suicidal hanging (42.86%) occurred in summer season in the months of March to June and June was the most commonly affected month in summer contributing to 16.33% cases. Most of the suicides (81.63%) occurred in the victim's home, 14.28% cases occurred at farm where the victims hanged themselves from the branches of trees, while in 4.08% cases the victims hanged themselves in their hostel room (Table 4).

Table 4: Distribution in relation to season and place of occurrence

	n	%
Season		
March-June (Summer)	21	42.86
July-October (Monsoon)	14	28.57
November-February (Winter)	14	28.57

Place	n	%
Home	40	81.63
Farm	07	14.28
Hostel room	02	4.08

DISCUSSION

The pattern of suicidal hanging may highlight underlying social, economic, physical and psychological problems in a specific region or population. Out of the total number of autopsies carried out in the study period, deaths due to hanging constituted around 3.73% of cases. This is consistent with the studies of Smith Z (3.9%) and Kanchan *et al.* (4.50%).^{14,15} However, a relatively higher incidence rate (7.56%) was observed in the study of Nagar *et al.*¹⁶ The variation in hanging trends may be due to the difference in culture, ethnicity and genetic variations in different regions of the world. Also, different racial groups and geographical areas tend to adopt distinct methods to commit suicide.

Majority of the victims in our study were male and the male/female ratio was 5.12:1. A male preponderance was also seen in most of the studies by other researchers.¹³⁻²⁰ However in the study of Rao D, female victims were slightly more affected than males.²¹ There is an increase in stress and strain, tension, anxiety, poverty in daily life which leads to alcoholism and drug abuse, and ours being a male dominated society, males are more commonly affected than females.

The most common age group affected in our study was 21-30 years. An increasing trend of suicide by hanging in the age group of 21-30 years was also observed in the studies of other researchers in different parts of the world.^{14-16,18-20} However the fourth decade of life contributed to majority of cases in the studies of AI Madni OM *et al.* and Rao D.^{13,21} The third decade of life is probably the most active period of an individual's life. People are more vulnerable to the fast changing social trends and cultures in this period. Also there can be fluctuation of emotions as they are a bit immature at this stage. People are more exposed to stress, anxiety, failure in academics, financial problems, broken relationships, unemployment and unable to get married at this point of life.

In our study suicidal hanging was more commonly observed in married persons. Married victims also contributed to majority of cases in the study of Rao D.²¹ However in the study of

Smith Z in central South Africa, single men were more vulnerable to commit suicide by hanging.¹⁴ Prevalence of early marriages specially among rural people, increased familial responsibilities, limited source of income, maladjustment in married life, infidelity and unemployment are important causes of more deaths in married persons.

We observed in our study most of the victims affected were laborers by occupation. Male laborers also contributed around 75% cases of hanging in the study of AI Madni OM *et al.* while in the study of Smith Z majority of victims were unemployed.^{13,14} The daily laborers and working class people residing in rural areas are more exposed to poverty, heavy work load, alcohol and substance abuse, increased stress and subsequent frustration in life. Love affair, family problems and academic failures are the major risk factors in students and teenagers.

In our study, most commonly known motive behind suicide was financial problems followed by family problems. Whereas, in the study of Rao D, where female victims outnumbered males, most of the cases were due to domestic disputes (dowry related) followed by love and relationship issues.²¹

The highest number of hanging deaths (42.86%) in our study occurred in summer season (March–June). In the study of AI Madni OM *et al.* in Dammam, peak of the suicides was observed in June.¹³ Summer months also contributed to majority of cases in the studies of other researchers.^{15,16} Warm weather and elevated levels of heat is known to cause physiological and behavioral changes

in people that might lead to suicidal tendency.²² In present study, most of the suicidal hangings occurred in the victim's home. This is consistent with the studies of other researchers where the victims commonly preferred to hang themselves in their place of residence.^{14,17,21,23} The reason might be to maintain privacy and avoid interference while committing the act.

CONCLUSION

Though cases of suicide by hanging are increasing day by day, there is sufficient scope to reduce the number of fatalities through proper education and awareness. To reduce the rate of suicides, awareness has to be created by appropriate education and by influencing the media in their portrayal of suicidal news. Identified individuals must be involved in devotional, encouraging and motivational activities. Counselling, de-addiction and rehabilitation centres should also be established in rural areas to help the victims.

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REFERENCES

- Spitz WU.** *Medicolegal Investigation of Death: guidelines for the application of pathology to crime investigation.* Charles C Thomas, Springfield; 2006.
- World Health Organisation: Suicide. (2021).** Accessed: May 3, 2022; <https://www.who.int/news-room/fact-sheets/detail/suicide>.
- Division of Violence Prevention,** National Center for Injury Prevention and Control, Centers for Disease Control and Prevention: *Preventing Multiple Forms of Violence: A Strategic Vision for Connecting the Dots,* Atlanta, GA. (2016). Accessed: June 10, 2022; https://www.cdc.gov/suicide/pdf/strategic_vision.pdf.
- Pompili M, Venturini P, Lamis DA et al.:** *Suicide in Stroke Survivors: Epidemiology and Prevention.* *Drugs Aging.* 2015;32:21–29.10.1007/s40266-014-0233-x.
- National Crime Records Bureau:** *Accidental deaths and Suicides in India.* (2021). Accessed: February 02, 2022; https://ncrb.gov.in/sites/default/files/ADSI-2021/ADSI_2021_Full_report.pdf.
- Dhungel B, Sugai MK, Gilmour S:** *Trends in Suicide Mortality by Method from 1979 to 2016 in Japan.* *Int J Environ Res Public Health.* 2019, 16:1794.10.3390/ijerph16101794.
- Martínez-Rives NL, Dhungel B, Martin P, Gilmour S:** *Method-Specific Suicide Mortality Trends in Australian Men from 1978 to 2017.* *Int J Environ Res Public Health.* 2021, 18:4557.10.3390/ijerph18094557.
- Värnik A, Kõlves K, van der Feltz-Cornelis CM, et al.:** *Suicide methods in Europe: a gender-specific analysis of countries participating in the "European Alliance Against Depression".* *J Epidemiol Community Health.* 2008, 62:545-51. 10.1136/jech.2007.065391.
- Mukherjee JB:** *Forensic Medicine and Toxicology.* Academic Publishers, Calcutta; 2011.
- Kumral B, Ozdes T, Avsar A, Buyuk Y:** *Accidental deaths by hanging among children in Istanbul, Turkey: retrospective analysis of medicolegal autopsies in 33 years.* *Am J Forensic Med Pathol.* 2014, 35:271-4. 10.1097/PAF.0000000000000118.
- Biddle L, Donovan J, Owen-Smith A, et al:** *Factors influencing the decision to use hanging as a method of suicide: qualitative study.* *Br J Psychiatry.* 2010, 197:320-5.10.1192/bjp.bp.109.076349.

- 12. Knight B, Saukko P:**
Knight's Forensic Pathology. Arnold, London; 2004.
- 13. Al Madni OM, Kharoshah MA, Zaki MK, Ghaleb SS:**
Hanging deaths in Dammam, Kingdom of Saudi Arabia. *J Forensic Leg Med.* 2010, 17:265-8. 10.1016/j.jflm.2010.04.003.
- 14. Smith Z:**
Death due to hanging: a retrospective descriptive study of the socioeconomic and demographic profiles of hanging victims in central South Africa. *Forensic Sci Med Pathol.* 2021, 17:223-229. 10.1007/s12024-020-00352-y.
- 15. Kanchan T, Menezes RG:**
Suicidal hanging in Manipal, South India - victim profile and gender differences. *J Forensic Leg Med.* 2008, 15:493-6. 10.1016/j.jflm.2008.05.004.
- 16. Nagar N, Bastia BK:**
The Demographic Profile of Suicidal Hanging Deaths in North India. *Cureus.* 2022, 14:e30409. 10.7759/cureus.30409.
- 17. Russo MC, Verzeletti A, Piras M, De Ferrari F:**
Hanging Deaths: A Retrospective Study Regarding 260 Cases. *Am J Forensic Med Pathol.* 2016, 37:141-5. 10.1097/PAF.0000000000000239.
- 18. Anand A, Kumar S, Panga SK, Ashraf L, Sharma D, Tandon S:**
Socio-demographic profile of suicidal hanging deaths in Delhi and the National Capital Region - a retrospective study. *Med Leg J.* 2021, 11:258172211053697. 10.1177/00258172211053697.
- 19. Meel B:**
Epidemiology of suicide by hanging in Transkei, South Africa. *Am J Forensic Med Pathol.* 2006, 27:75-8. 10.1097/01.paf.0000202738.28446.4a.
- 20. Abd-Elwahab Hassan D, Ghaleb SS, Kotb H, Agamy M, Kharoshah M.**
Suicidal hanging in Kuwait: retrospective analysis of cases from 2010 to 2012. *J Forensic Leg Med.* 2013, 20:1118-21. 10.1016/j.jflm.2013.09.021.
- 21. Rao D:**
An autopsy study of deaths due to Suicidal Hanging. *Egypt J Forensic Sci.* 2016, 6:248 - 254. 10.1016/j.ejfs.2015.01.004.
- 22. Barker A, Hawton K, Fagg J, Jennison C.**
Seasonal and weather factors in parasuicide. *Br J Psychiatry.* 1994, 165:375-80. 10.1192/bjp.165.3.375.
- 23. Taktak S, Kumral B, Unsal A, Ozdes T, Buyuk Y, Celik S:**
Suicidal hanging in Istanbul, Turkey: 1979-2012 Autopsy results. *J Forensic Leg Med.* 2015, 33:44-9. 10.1016/j.jflm.2015.03.008.

