

Original Research Article

Trends of suicidal hanging in Western Mumbai region

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ABSTRACT

Background: The present study was conducted with aims to determine various epidemiological factors of death due to hanging in the western Mumbai region and variation in types of hanging deaths.

Methods: Four year study conducted at H. B. T. Medical College & Cooper Hospital, Mumbai for period of January 2015 to December 2018. During study period total 6338 of medico-legal autopsies were conducted, of which 228 (3.59%) autopsies were of death due to hanging.

Results: 228 out of 6338 medicolegal autopsies were of death due to hanging making incidence rate 3.59 % of hanging. Age group most commonly involved in hanging was 21-30 years constitutes 41.22% cases of hanging deaths. Male victims constitute of 59.64% cases and female victims were 40.36% cases. In 96.5% cases place of hanging was closed place inside room 3.5% cases hangings takes place in open place. Most common ligature material used for hanging was dupatta/odani constitute 46.5% cases followed by rope in 20.17% cases.

Conclusions: Young age group population between 21-40 years are more susceptible victims of suicides by hanging constitute 65.78% cases. Proper parental and social guidance and support could prevent suicides in this age group. Timely counselling of such vulnerable group victims could preventable. Effective prevention strategies are needed to promote awareness of prevention of suicides in young age group.

Keywords: Complete and partial hanging, Hanging, Ligature material, Typical and atypical hanging

INTRODUCTION

Hanging is the form of asphyxial death which is caused by suspension of the body by a ligature material compressing the neck externally and the constricting force being the weight of the body itself. Hanging is always considered suicidal except accidental hanging in sexual pervers, homicidal hanging in lynching and justifiable judicial hanging.¹ The most common method of self-suspension involves attaching the suspending material (rope, string, sari, chunni, wearing apparel, etc.) to a high point such as fan or ceiling beam, etc., and the lower end may be formed into a 'fixed loop or running noose' and is placed around the neck. The victim stands

on the chair/stool/table or some other support and either jumps or kicks away the support and gets suspended. The hanging is most common type of asphyxia death and it is one of the leading methods of committing suicide.² The present study was conducted with aims to study the variation in epidemiological factors in hanging deaths and types of hangings.

METHODS

Place of study

The present study of suicidal hanging was conducted at the department of forensic medicine and toxicology at H.B.T. medical college and Cooper Hospital

Study period

The study was conducted prospectively for four- years from 1st January 2015 to 31st December 2018.

During the study period total 6338 medico-legal autopsies were conducted of which total 228 (3.59%) medico-legal autopsies were of suicidal hanging.

Study population

Includes the all the deceased person from the western Mumbai region (population of western suburb region of the Mumbai).

The data includes cases of suicidal hanging referred for postmortem by police station from western Mumbai (western suburbs) region which comes under the jurisdiction of postmortem centre of H. B. T. medical college.

Inclusion criteria

- The study includes the deaths due to suicidal hanging.
- Victims of the age more than one year.

Exclusion criteria

- Accidental and homicidal hanging case.
- Infant deaths.

The manner of hanging (suicidal, accidental or homicidal) was determined on the basis of the circumstances of hanging, crime scene/spot panchanama, history given by accompanying person and autopsy findings of cases.

The preformed proforma was used to record each case. Proforma includes the various socio-demographic parameter for study like age, sex, time and date of hanging, place of hanging, circumstances of hanging, ligature material used for suspension of body during hanging, position of knot at the time of hanging, position of body at the time of hanging and type of hanging. The position of knot in cases where the body was brought to autopsies without the ligature material around the neck was concluded on the basis of the pattern of ligature mark seen on neck during the external examination of body.

The information of cases was obtained from police inquest, ADR forms, crime scene photos, statement of relatives of victims, hospital papers, and history of incidence was obtained from relative or friends accompanying with deceased person. The statistical analysis used for interpretation of result and observation was average and calculations of percentages.

All the data of each case of suicidal hanging was meticulously examined for details of case.

RESULTS

Table 1: Total number of autopsies and its relation to deaths due to hanging.

Period	Total autopsies	Hanging autopsies
Jan 2015-Dec 2015	1524	53(3.47%)
Jan 2016-Dec 2016	1590	61(3.83%)
Jan 2017-Dec 2017	1692	59(3.48%)
Jan 2018-Dec 2018	1532	55(3.59%)
Total	6338	228(3.59%)

In year 2015 hanging cases constitutes 3.47% cases of total hanging. In year 2016 hanging cases constitutes 3.83% cases. In year 2017 hanging cases constitutes 3.48% if all autopsies. In 2018 hanging cases accounts for 3.59% cases. Total 6338 autopsies were conducted in period of four- year i.e. January 2015 - December 2018 out of which total 228(3.59%) cases were of suicidal hanging. So overall four-year autopsies making average incidence of hanging cases was 3.59%.

Table 2: Age and sex wise distribution of hanging cases.

Age group	Male	Female	Total (%)
1-10 years	-	-	-
11-20 years	22	16	38 (16.66%)
21-30 years	58	36	94(41.22%)
31-40 years	32	24	56(24.56%)
41-50 years	22	14	36 (15.78%)
51- and above	2	2	4(1.75%)
Total	136 (59.64%)	92 (40.36%)	228(100%)

The study reveals no single case of suicidal hanging in age group of 1-10 years. Predominance of male victims (59.64%) observed over female victims account for (40.36%). Maximum number of victims (41.22%) were found in the age group of 21-30 years, followed by age group of 31-40 years which accounts for (24.56%) of cases. Together age group of 21-40 years accounts for more than half of cases (65.78%). Age group 41-50 years accounts for 15.78% of suicidal hangings.

Table 3: Distribution of cases based on marital status.

Marital status	No. of cases	Percentage
Married	106	46.49%
Unmarried	122	53.51%
Total	228	100%

The suicidal hanging was common in unmarried person and which accounts for 53.51% cases of all hanging

conducted during the study period of four- years (January 2015-December 2018) compared to married person which accounts 46.49% cases. This shows the unmarried population are more prone for suicidal tendency compared to married population.

Table 4: Distribution of cases based on place of hanging.

Place	No. of cases	percentage
Closed place	220	96.5%
Open space	8	3.50%
Total	228	100%

The preferred place for committing suicidal hanging was closed place and seen in 96.5% cases. In closed places hanging is common as the person get privacy and got enough time for preparation for execution of hanging when deceased were not observed by others. Suicidal hanging was committed in open place seen in 3.5% cases. Even in cases of hanging at open place all the open places were at lonely place like forest or in hilly region and act was committed preferably in night hours.

Table 5: Type of hanging based on position of knot.

Type of hanging	no. of cases	percentage
Typical	22	9.65%
Atypical	206	90.35%
Total	228	100

On the basis of knot position the hanging is divided in Typical and Atypical when the position of knot is on the occiput at back of neck it is typical hanging, however knot position other than occiput it is Atypical hanging. Position of knot was found at occiput (Typical hanging) in 9.65% cases. About 90.35% cases were of atypical hanging where the position of knot was other than occiput region i.e. right side of neck, left side of neck and front of neck.

Table 6: Type of hanging based on the suspension of body.

Type of hanging	No. of cases	percentage
Complete	150	65.78%
Partial	78	34.22%
Total	228	100%

Body was completely suspended in 65.78% cases that account for complete hanging cases. In the cases of complete hanging the point of suspension was high as ceiling fan or beam of house. In 34.22% cases body of deceased was not completely suspended and some part of body like feet or hand was touching to ground that were accounts for cases of partial hanging. In the partial hanging the point of suspension was low and the feet of body was touching to ground.

Table 7: Type of ligature material used.

Ligature material	No. of cases	Percentages
Dupatta/ Odhani	106	46.5%
Sari	36	15.78%
Bed sheet	22	9.64%
Rope	46	20.17%
Cable wire	10	4.38%
Lungi	8	3.5%
Total	228	100%

The commonest ligature material used for suspension of body in hanging was Dupatta/ Odhani (46.5%). Dupatta being the most commonly available material in house account for the most of cases. The rope was the second common ligature material (20.17%). Ligature material Sari accounts for 15.78% cases, ligature material bed sheet was used for suspension of body in 9.64% cases, cable wire as ligature material was used for the suspension of body in 4.38% cases and lungi as ligature material for suspension of body used in 3.5% cases of hanging.

DISCUSSION

The present study is conducted over a four - year period from January 2015 to December 2018. During this period, a total of 6338 autopsies were conducted of which 228 deaths were of hanging constituting 3.59 % cases of all autopsies. A similar study conducted by Dinesh Rao over years 2010 to 2013 at Bangalore showed an incidence rate of 3.31% cases of total autopsies conducted which were consistent with the present study.³ Two-year study by Dekal V, Shruthi P shows the incidence rate of hanging rate 27.9% of total autopsies.⁴ Dr. Amit Yadav, Dr. Divyesh Saxena et al, study in Indore for a period of 2012-2013 shows the incidence rate of hanging deaths 30.28% of total autopsies.⁵ Mohit Shrivastava, P.S. Thakur et al, study conducted between 2017-2018 reported the incidence of hanging death 9.2%.⁶ A 10 year study between the period in 2003-2013 by Der EM, Dakwah IA, Derkyi-Kwarteng L et al, reveals the incidence of hanging death 0.34% in Ghana.⁷

The present study reported the typical hanging in 9.65% and atypical hanging in 90.35% of total cases, complete hanging found in 65.78% cases and partial hanging in 34.22%. Other studies like Dinesh Rao found the complete hanging in 88% of cases and partial hanging in 12% cases.³ Dekal V, Shruthi P study reported the typical hanging in 4.4% cases and atypical hanging in 95.6% cases, complete hanging in 90.3% cases and partial hanging cases 9.7% cases.⁴ Dr. Amit Yadav, Dr. Divyesh Saxena et al, study shows typical hanging in 4.7% cases and atypical hanging in 95.3% cases, complete hanging in 92% cases and partial hanging in 8% cases.⁵ In Mohit Shrivastava, P.S. Thakur et al, study, the typical hanging was detected in 12.3 % cases and atypical hanging in 87.7% cases. Ambade VN, Tumram N et al, study, study

in Nagpur reveals the typical hanging in 10.2% cases and atypical hanging in 89.8% cases, complete hanging in 67.7 % cases and partial hanging cases 32.3% cases.^{6,8} Dr. S. Ranjan Bajpai study in Nashik region shows 21 cases of complete and 41 cases of partial hanging however in 134 cases type of hanging not known. Chand S, Solanki R et al, study result shows the typical hanging in 11.53% cases and atypical hanging in 88.46% cases, complete hanging in 98.07 % cases and partial hanging in 1.92% cases. Patel-Ankur P, Bhoot-Rajesh et al, study in Ahmadabad found the typical hanging in 2.5% cases and atypical hanging in 97.5% cases, complete hanging in 98.75 % cases and partial hanging in 1.25% cases.⁹⁻¹¹

The present study found a predominance of male victims (59.64%) over female victims (40.36%) and the most common age group affected was 21-30 years (41.22%) followed by 31-40 years (24.56%). Findings in the present study are consistent with Mohit Shrivastava, P.S. Thakur et al, study and which also found the predominance of male victims (67.5%) over female victims (32.5%) and the most common age group affected was 21-30 years (35.9%) followed by 31-40 years (25.1%).⁶ Additionally, findings of Der EM, Dakwah IA et al, study shows the predominance of male victims over female victims and the most common age group affected was 20-29 years (28.7%) followed by 30-39 years (25.1%), Dr. S. Ranjan Bajpai study reveals the similar findings and shows the predominance of male victims and the most common age group affected was 21-30 years followed by 31-40.^{7,9} Another study by Patel-Ankur P, Bhoot-Rajesh et al, shows the similar findings to the present study showing the predominance of male victims (64%) and the most common age group affected was 21-30 years (42.66%).¹¹ Similar findings was observed in Ravdeep Singh, Anupinder Thind et al, study is consistent with the present study showing the predominance of male victims and the most common age group affected was 21-30 years (35.42%) followed by age group 31-40 years (33.33%).¹² However, findings of the present study are not consistent with Dinesh Rao study which shows the predominance of female victims and most common age group affected was 31-40 years followed by 21-30 years.³

The unmarried victims constitute 53.51% cases and married victims constitute 46.49% cases of hanging in the present study. Findings of this study were not consistent with Dinesh Rao study shows 70.45% of victims were married and 29.55% victims were unmarried.³

In 96.5% cases, the location of hanging was a closed place while in 3.5% cases the place of hanging was in open space. Findings of this study are consistent with Dinesh Rao study which suggests the most commonplace of hanging was the closed place (91.85) compared to open space (8.15%). Mohit Shrivastava1, P.S. Thakur et al, study revealed the most commonplace of hanging was the closed place (95.6%) compared to open space (4.4%).^{3,6} Ravdeep Singh, Anupinder Thind et al, study

found 95.83% cases hanging occurred in closed place 4.17% case occurred at an open place.¹² Findings of this study are varying from Ambade VN, Tumram N et al, study which shows that 68.7% hanging cases occurred at a closed place and in 31.35% cases hanging takes place at the open place.⁸

The most common ligature material used for the hanging was a dupatta (46.5%) followed by a rope (20.17%). These findings are consistent with Dinesh Rao study which mentioned the most common ligature material was the dupatta followed by the sari.³ Patel-Ankur P, Bhoot-Rajesh R study found that the most common ligature material used was dupatta followed by the bedsheet.¹¹ Findings in the present study are not similar to Mohit Shrivastava Thakur et al, study which described the most common ligature material used was the rope followed by sari.⁶ Der EM, Dakwah IA, Derkyi Kwarteng L et al, study found that the most common ligature material was the rope followed by an electric cable wire.⁷ Ambade VN, Tumram N et al, study reveals the most common material was nylon rope followed by a dupatta.⁸

CONCLUSION

Young age group population between 21-40 years are more susceptible victims of suicides by hanging which constitutes about 65.78% of total cases. Proper parental and social guidance and support could prevent suicides in this age group. Timely counselling of such vulnerable group of victims could prevent suicide. Effective prevention strategies are needed to promote awareness of the prevention of suicides in the young age group.

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