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Original Research Article

Trends of suicidal hanging in western Mumbai region

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Article Info

Key words

Hanging
Ligature material
Complete hanging
Partial hanging
Typical hanging
Atypical hanging

Abstract

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

Methods: It is two-year study conducted at mortuary of H. B. T. Medical College & Cooper Hospital, Mumbai for period of January 2015 to December 2016. During study period total 3114 of medico-legal autopsies were conducted, of which 114 (3.6%) autopsies were of death due to hanging. These cases were included in this study.

Result: 114 out of 3114 medicolegal autopsies were of death due to hanging making incidence rate 3.6% 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.

Conclusion: 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.

1. 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

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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

2. Material and methods

The present prospective study of violent asphyxia deaths were conducted at mortuary of the department of forensic medicine and toxicology at H.B.T. medical college & Cooper Hospital for the period of two years i. e. 1st January 2015 to 31st December 2016. Total 3114 autopsies were conducted in this two year period of which 114(3.66%) deaths were due to hanging.

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

Inclusion criteria

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

Exclusion criteria:

1. Accidental and homicidal hanging case.
2. Infant deaths.

The preformed proforma was used to record the various parameter of study like age, sex and type of hanging. The information of cases was obtained from police inquest, ADR forms, crime scene photos, statement of relatives of victims, hospital papers, and history obtained from relative, friends accompanying with deceased person.

3. Observations and result

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

Period	Total autopsies	Hanging autopsies
Jan 2105-Dec 2015	1524	53(3.47%)
Jan 2105-Dec 2015	1590	61(3.83%)
Total	3114	114(3.66%)

Total 3114 autopsies were conducted in period of two year i.e. Jan 2015- Dec. 2016 out of which total 114 (3.66%) cases were of suicidal hanging.

Table 2: Age and sex wise distribution of hanging cases

Age group	Male	Female	Total (%)
1-10 years	-	-	-
11-20 years	11	8	19 (16.66%)
21-30 years	29	18	47(41.22%)
31-40 years	16	12	28(24.56%)
41-50 years	11	7	18(15.78%)
51- and above	1	1	2(1.75%)
Total	68(59.64%)	46(40.36%)	114(100%)

The study reveals no single case of suicidal hanging in age group of 1-10 years. Predominance of male victims 68 (59.64%) observed over female victims account for 46 cases (40.36%). Maximum number of victims 47 (41.22%) were found in the age group of 21-30 years, followed by age group of 31-40 years which accounts for 28 (24.56%) of cases. Together age group of 21-40 years accounts for more than half of cases 75 (65.78%). Age group 41-50 years accounts for 15.78% (18) cases of suicidal hangings.

Table 3: Distribution of cases based on marital status

Marital status	No. of cases	Percentage
Married	53	46.49%
Unmarried	61	53.51%
Total	114	100%

The study found that suicidal hanging was common in unmarried person and accounts for 61 (53.51%) case compared to married person which accounts 53(46.49%) cases.

Table 4: Distribution of cases based on place of hanging

Place	No. of cases	percentage
closed place	110	96.5%
Open space	4	3.50%
Total	114	100%

The study shows that the preferred place for committing suicidal hanging was closed place seen in 110 (96.5%) case. Suicidal hanging was committed in open place seen in 4(3.5%) cases.

Table 5: Type of hanging based on position of knot

Type of hanging	no. of cases	percentage
Typical	11	9.65%
Atypical	103	90.35%
Total	114	100

Typical hanging was observed in 9.65% where the knot was present on occiput. About 90.35% cases were of atypical hanging.

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

Type of hanging	No. of cases	percentage
Complete	75	65.78%
Partial	39	34.22%
Total	114	100%

There were 65.78% cases were of complete hanging and remaining 34.22% cases were of partial hanging.

Table 7: Type of ligature material used

Ligature material	No. of cases	Percentages
<i>Dupatta/ Odhani</i>	53	46.5%
<i>Sari</i>	18	15.78%
Bed sheet	11	9.64%
Rope	23	20.17%
Cable wire	5	4.38%
<i>Lungi</i>	4	3.5%
Total	114	100%

Present study reveals the commonest ligature material used for suspension of body in hanging was *Dupatta/ Odhani*(46.5%). The rope was the second common ligature material (20.17%). Ligature material sari accounts for 15.78%cases, bed sheet for 9.64% cases, cable wire for 4.38% cases and lungi for 3.5% cases of hanging.

4. Discussion

This prospective study is conducted over a two-year period from January 2015 to December 2016. During this period, a total of 3114 autopsies were conducted of which 114 deaths were of hanging constituting 3.66% 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 conducted³ which were consistent with the present study. 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.DivyeshSaxena 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 Shrivastava1, 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 Rao³ found the complete hanging in 88% of cases and partial hanging in 12% cases. Dekal V, Shruthi P study⁴ 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. Dr. Amit Yadav, Dr.DivyeshSaxena et.al⁵ 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.

In Mohit Shrivastava1, P.S. Thakur et.al⁶ study, the typical hanging was detected in 12.3 % cases and atypical hanging in 87.7% cases. Ambade VN, Tumram N et.al study⁸ 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. Dr. S. RanjanBajpai⁹ 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.¹⁰ 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.¹¹ 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.

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 Shrivastava1, P.S. Thakur et. al.⁶ 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%). Additionally, findings of Der EM, Dakwah IA et. al.⁷ 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. RanjanBajpai⁹ 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. Another study by Patel-Ankur P, Bhoot-Rajesh et al.¹¹ 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%). Similar findings was observed in Ravdeep Singh, Anupinder Thind et al.¹² 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%). However, findings of the present study are not consistent with Dinesh rao³ study which shows the predominance of female victims and most common age group affected was 31-40 years followed by 21-30 years.

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 Rao³ study

shows 70.45% of victims were married and 29.55% victims were unmarried.

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 Rao³ 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.⁶ study revealed the most commonplace of hanging was the closed place (95.6%) compared to open space (4.4%). Ravdeep Singh, AnupinderThind et al.¹² study found 95.83% cases hanging occurred in closed place 4.17% case occurred at an open place. Findings of this study are varying from Ambade VN, Tumram N et.al study⁸ which shows that 68.7% hanging cases occurred at a closed place and in 31.35% cases hanging takes place at the open place.

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 Rao³ study which mentioned the most common ligature material was the dupatta followed by the sari. Patel-Ankur P, Bhoot-Rajesh R¹¹ study found that the most common ligature material used was dupatta followed by the bedsheet. Findings in the present study are not similar to MohitShrivastava, Thakur et.al⁶ study which described the most common ligature material used was the rope followed by sari. Der EM, Dakwah IA, Derkyi Kwarteng L et. al.⁷ study found that the most common ligature material was the rope followed by an electric cable wire. Ambade VN, Tumram N⁸ et.al. study reveals the most common material was nylon rope followed by a dupatta.

5. 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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