

Original Article

Study of Manner of Death, Time and Place of Incidence in Cases of Hanging and Strangulation

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ABSTRACT

Hanging and Strangulation are amongst the commonest mode of Asphyxial deaths. Usually deaths due to hanging are suicidal and those due to strangulation are homicidal in nature. This study was conducted in department of Forensic Medicine and Toxicology, Moti Lal Nehru Medical College Allahabad. The present study was conducted between 1st May 2016 to 30th April 2017, for cases of Asphyxial deaths coming for medico legal post mortem at mortuary of Swaroop Rani Nehru hospital Allahabad are examined. Cases of Hanging are more common in either sex in comparison with strangulation as in Table 1 and Figure 1a and 1b. Majority of victims of both Hanging (55%) and Strangulation (13.33%) were of age group 21-40 years as in Table 2 and Figure 2a and 2b. Out of 94 cases of hanging suicide accounts for maximum in 92(76.66%) while out of 26 cases of strangulation homicidal cases are maximum 25(20.85%). In majority of cases the place of incidence was inside home 88 (73.33%) and outside home 12(10%) respectively. Cases of hanging and strangulation has been taken place most commonly in 45 (37.5%) during 6 -12 pm and 8(6.6%) during 12-6 am respectively.

Keywords: Asphyxia, Autopsy, Hanging, Ligature, Mortuary Strangulation

INTRODUCTION

Commonest cause of Asphyxial deaths are Hanging and Strangulation. Usually deaths due to hanging are suicidal and those due to strangulation are homicidal in nature. The term Asphyxia is taken from Greek word that means "pulselessness". Death occurred due to asphyxia when respiratory function ceases first and initiate the process of failure of other two vital systems. In Asphyxia there is prevention of exchange of air between the atmosphere and the alveoli of the lungs and there is a lack of oxygen supply to the tissues^[8]. The deprivation of oxygen can be partial (hypoxia) or lethal (anoxia)^[8]. The classical sings of asphyxia are visceral congestion, petechiae, cyanosis

and fluidity of blood^[4]. The classical features are found when the air passage is constricted by pressure to the neck or to the chest and when there has been struggle to breathe^[4]. In all forms of asphyxia heart may continue to beat for several minutes after stoppage of respiration. The types of asphyxia may be mechanical, pathological, traumatic, environmental, positional and iatrogenic. Mechanical asphyxia are of various types like hanging, strangulation, smothering, throttling, traumatic, choking and drowning. Among all hanging is one of leading cause of suicide. In forensic context, it is usually obstructive in nature, where some physical barrier prevents access of air to lung.

In hanging, there is a suspension of body by a ligature material compressing the neck externally, weight of body or weight of head are constricting force causes death^[11]. In strangulation, cause of death is due to compression of neck structure by a constricting force other than the body's own weight, the force may be exerted by different means such as ligature (throttling), by the use of hand (manual strangulation), by elbow (mugging) and bamboo (basdola)^[11, 12]. Serious deprivation of oxygen for 5 to 10 minutes can result permanent damage of CNS and CVS resulting death^[9].

MATERIAL AND METHOD

Cases for the present study were selected from dead bodies brought to the mortuary of Swaroop Rani Nehru hospital MLN Medical College Allahabad for medico legal autopsy examination, from the various police stations of Allahabad and surrounding areas. Total 2654 cases autopsied during the study period since 01st May 2016 to 30th April 2017, 184 cases (6.93%) were of violent Asphyxial death. Out of 120 (65.2%) cases of hanging (94) and strangulation (26) were taken for study. The various epidemiological details i.e. age, sex, manner of death, time and place of incidence etc along with the name of police station, which brought the dead body, were collected.

RESULT AND DISCUSSION

In this study, in Table 3 and Figure 3a and 3b it is found that suicide accounts for all 92 (76.66%) cases of hanging except in 2 (1.66%) where it was accidental. No cases of homicidal hanging i.e., lynching has been observed. Similarly, observed (98.5%) cases of suicidal hanging in Maharashtra in India^[2]. Gujarat reported 97.5% hanging cases were suicidal in nature^[10]. Bakkannavar *et al.* (2015)^[1] found suicidal in 97.5%. Khalko *et al.* (2016-2018)^[5] in Uttar Pradesh reported 117(78%) cases of suicidal hanging. Chand *et al.* (2010-12) in New Delhi Reported 52(100%) cases of suicidal hanging and (Mukherjee 2016)^[7] had observed in 71(92.20%) cases were suicidal and 6 accidental in hanging in Western Australia was observed that in 280(88.0%) cases. 261 cases were suicidal, 14 cases were accidental, 1 was

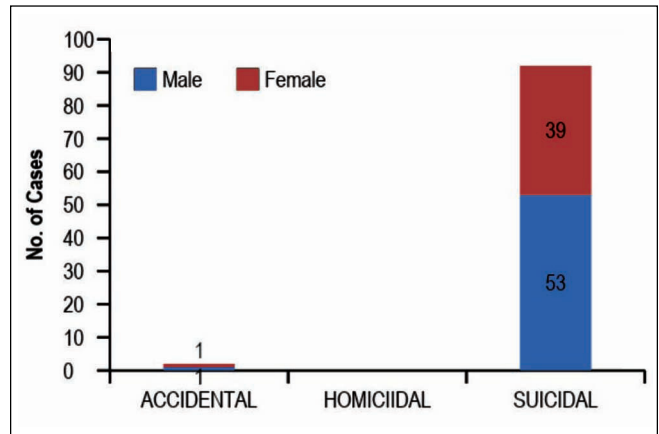


Figure 1(a): Distribution of cases of hanging on the basis of their manner of death

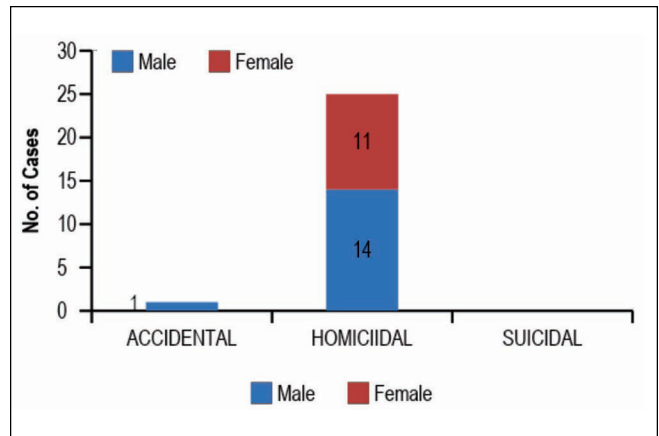


Figure 1(b): Distribution of cases strangulation on the basis of their manner of death

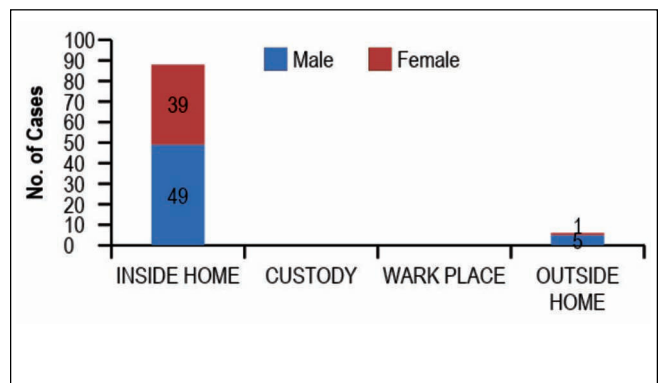


Figure 2(a): Distribution of cases of hanging on the basis of place of incidence

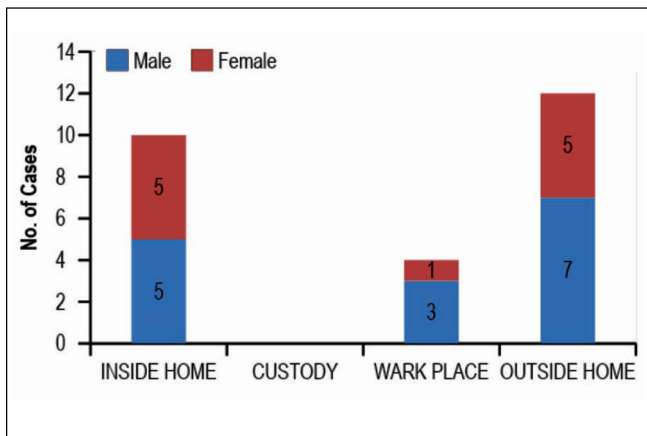


Figure 2(b): Distribution of cases of strangulation on the basis of place of incidence

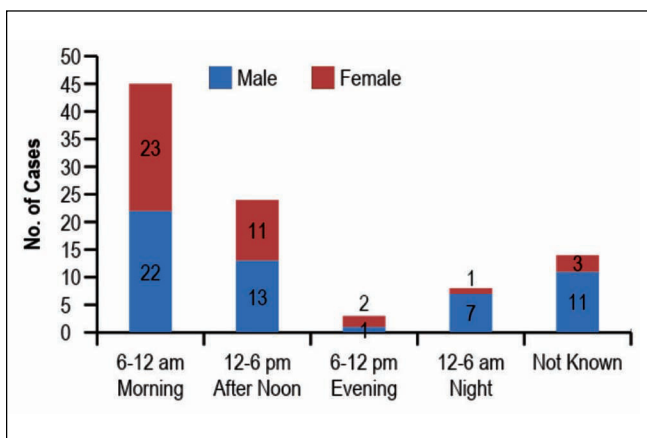


Figure 3(a): Distribution of cases of hanging on the basis of time of incidence

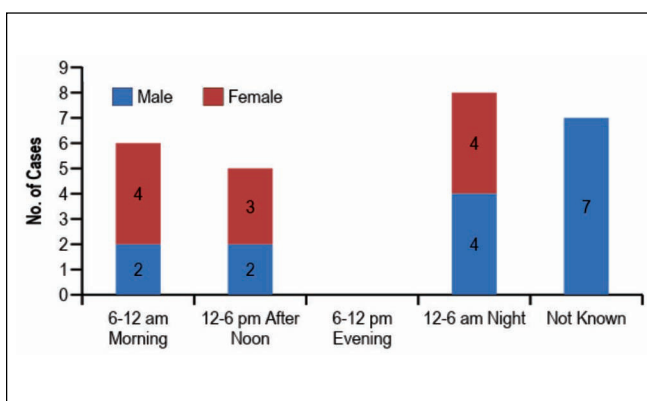


Figure 3(b): Distribution of cases of strangulation on the basis of time of incidence

Table 1: Sex differentiation among cases of hanging and strangulation

Sex	Hanging	Strangulation	Total	Percentage
Male	54	15	69	57.5%
Female	40	11	51	42.5%
Total	94	26	120	100%

homicidal^[3,7]. Among 26 cases of strangulation majority 25 (20.83%) were homicidal in nature, one accidental strangulation, has also been observed. No suicidal case has been observed in strangulation^[6].

In this study, in Table 4 it was found that in majority of cases the place of incidence was inside home 88(73.33%), followed by outside home 6(5%) in hanging. No cases of hanging were observed in outside and work place. Similarly, in Manipal found that 73.81% cases were indoor and 26.19% cases were outside home^[6]. Manipal was observed that the 76.3% cases were inside home and 24.7% cases were outside home^[1]. Gujarat was found that the 97.5% cases were inside home and 24.7% cases outside the home^[10]. Clive Trever (1995) in Australia was found that 71% cases shows place of incidence was inside home. Mumbai was found place of suicide was home in 49 cases (81.66%), custody in 2 cases (3.3%), work place 3 cases (5%) and other at various places jungle, truck etc. in 5 cases (8.3%) in this study^[12].

On the other hand in majority of cases of strangulation the place of incidence was outside home 12(10%) followed by 10(8.33%) inside and 4(3.33%) at work place. No case of strangulation was observed in custody.

In this study, in table no.5 most of the suicide by hanging committed 45(37.5%) during 6-12 am followed by 24(20.2%) in 12-6 pm. Similarly, the in Uttar Pradesh found that maximum deaths occurred in morning time with 52(34.67%) cases^[5]. Mumbai found the maximum cases of suicidal hanging 24 (40%) have occurred during morning time i.e. 6-12 am then at afternoon 18 (30%)^[12].

However, in contrast Ajay *et al.* (2012) in Karnataka found that hanging cases have occurred at evening time in most of the time 12(33.3%) then in the afternoon 8(22.2%).

Table 2: Distribution of cases of hanging and strangulation among their respective age groups

Age Groups	Hanging			Strangulation		
	Male	Female	Total	Male	Female	Total
0-10yr	0	0	0	1(0.83%)	1(0.83)	2(1.66 %)
11-20yr	11(9.16%)	10(8.3%)	21(17.5%)	01(0.83%)	2(1.66%)	3(2.48%)
21-40yr	36(30%)	29(24.16%)	65(54.0%)	08(6.66%)	08(6.66)	16(3.31%)
41-60yr	07(5.83%)	01(0.83%)	8(6.66%)	05(4.16%)	0	0
61-80yr	0	0	0	0	0	0
Total	54(45%)	40(33.33)	94(78.33%)	15(12.5%)	11(9.16%)	26(21.6%)

Table 3: Distribution of cases of hanging and strangulation on the basis of manner of death

Manner of death	Hanging			Strangulation		
	Male	Female	Total	Male	Female	Total
Occidental	1 (0.83)	1 (0.83%)	2 (1.66%)	1 (0.83%)	0	1(0.83%)
Homicidal	0	0	0	14(11.66%)	11 (9.16%)	25(20.83%)
Suicidal	53 (44.16%)	39 (32.5)	92 (76.66%)	0	0	0
Total	54 (45%)	40 (33.33)	94 (78.33%)	15 (12.5%)	11 (9.16%)	26(21.66%)

Table 4: Distribution of cases of hanging and strangulation on the basis place of incidence

Time and place of incidence	No of Casesof Hanging			Total No of Cases of Strangulation Total		
	Male	Female	Total	Male	Female	Total
Inside home	49 (40.83%)	39 (32.5%)	88 (73.33%)	5 (4.16%)	5 (4.16%)	10(8.33%)
Custody	0	0	0	0	0	0
Work place	0	0	0	3 (2.5%)	1 (0.83%)	4(3.33%)
Outside home	5 (4.16%)	1 (0.83%)	6(5%)	7 (5.83%)	5(4.16%)	12(10%)
Total	54(45%)	40(33.33%)	94(78.33%)	15 (12.5%)	11 (9.16%)	26(21.66%)

Table 5: Distribution of cases of hanging and strangulation on the basis of time of incidence

Time of Incidence	No of Cases of Hanging			No of Cases of Strangulation		
	Male	Female	Total	Male	Female	Total
6-12 am Morning	22(18.33%)	23(19.16%)	45 (37.5%)	2(1.66%)	4(3.33%)	6(5.0%)
12-6 pm After Noon	13(10.83%)	11(9.16%)	24 (20.0%)	2(1.66%)	3(2.5%)	5(4.16%)
6-12 pm Evening	1(0.83%)	2(1.66%)	3 (2.50%)	0	0	0
12-6 am Night	7(5.83%)	1(0.86%)	8 (6.66%)	4(3.33%)	4(3.33%)	8(6.66%)
Not Known	11(9.16%)	3(2.5%)	14 (11.66%)	7(5.83%)	0	7 (5.83%)
Total	54 (45%)	40(33.33%)	94 (78.33%)	15(12.5%)	11(9.16%)	26 (21.66%)

CONCLUSION

In this study, suicide accounted for majority of cases of hanging being 92 (76.66%) while homicidal was main cause in strangulation 25 (20.83%). In this study, majority of cases occurred inside house in hanging 88 (73.33%) and outside house in strangulation 12 (10%). In this study, majority of hanging cases occurred during 6-12 am in morning 45(37.5%) followed by afternoon 24 (20.2%) However, strangulation occurred mostly during night 8 (6.66%) cases.

ETHICAL CLEARANCE

Ethical clearance for this study is taken from Ethical committee of Moti Lal Nehru Medical College, Allahabad

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