



Study of Gender and different Age Groups in Deaths due to compression of Neck by Ligature - An Autopsy Based Prospective Study

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Abstract

Deaths due to compression of neck by ligature are one of the very common encountered cases in the practice of forensic medicine. Plenty of factors are responsible of deaths due compression of neck by ligature, of which various age groups and sex are playing very important roles in such deaths. Here, did detailed study in terms of sex and age of such deaths. Thus, the current study is done to highlight the various aspects of gender and different age groups in cases of death due to compression of neck by ligature. Hospital Based Descriptive Observational Study was Medico-Legal autopsies conducted for deaths due to compression of neck by ligature at S.M.S. Medical College Jaipur, during period 1st Aug. 2020 to 31st July 2021 on total 100 cases for ligature mark study in terms of age and gender-wise distribution. Predominant affected age group was young adults 42 (42%) cases and majority of males 64 (64%) cases were presented.

Keywords: Compression of neck, Hanging, Ligature Strangulation.

Introduction

Death is universal fact for all creature including human being. But human being has the intelligence to take their lives any time by many means prematurely [1]. Compression by ligature is also the means to take the life by self.

Hanging is that form of death which is caused (i) either by exclusion of air from lungs or oxygenated blood from the brain (ii) by means of a ligature round the neck, (iii) the constricting force being the weight of the body [2]. Hanging is a common method of committing suicide worldwide [3].

Ligature strangulation (termed as strangulation in common use) is that form of death which is caused (i) either by exclusion of air from lungs or oxygenated blood from the brain (ii) by means of a ligature round the neck, (iii) the constricting force being anything other than the weight of the body [2].

We did this study to understand, which age group and sex is more vulnerable of such type of deaths in the Jaipur Region During the study period.

Material & Methods

Present study was done from 1st Aug. 2020 to 31st July 2021 at mortuary, Department of Forensic Medicine & Toxicology, SMS Hospital, Jaipur on 100 cases selected randomly due compression of neck, out of total universe 4096. Out of 100 cases, 97 were hanging and 3 were ligature strangulation deaths for which postmortem examination done in this department with respect to the ligature material used and detailed history was taken from available relatives and investigating officer. Sex of the deceased was noted. The age of the deceased as provided in police papers were noted. Cases with no history of compression to neck and decomposed body were excluded from the study. The cases were studied with respect to the different age groups and gender-wise.

Observation & Results

This study was conducted from from 1st Aug. 2020 to 31st July 2021 at mortuary, Department of Forensic Medicine & Toxicology, SMS Medical College & Attached Hospitals, Jaipur, Rajasthan, India. 100 cases were studied, out of which 97 cases were hanging (of them 96 were suicidal, & 1 was accidental) and 3 cases were ligature strangulation (homicidal deaths).

Table 1: distribution of age group among deaths due to compression of neck by ligature.

Age groups in years	Hanging	Ligature Strangulation	Total	Percentage
10-19 years	19 (19.6%)	0	19	19 %
20-29 years	42 (43.3%)	0	42	42 %
30-39 years	19 (19.6%)	2 (66.67%)	21	21 %

40-49 years	10 (10.3%)	0	10	10 %
50-59 years	4 (4.1%)	1 (33.3%)	5	5 %
60-69 years	1 (1%)	0	1	1 %
>70 years	2 (2.1%)	0	2	2 %
Total	97 (100%)	3 (100%)	100	100 %

In the present study 97 % cases were hanging among them, 20-29 (43.3%) yrs 42 cases of age group is predominant deaths due to Hanging, followed by 30-39 (19.6%) yrs of age group 19 cases, 40-49 (10.3%) yrs 10 cases, 10-19 (19.6%) yrs 19 cases, 50-59 (4.1%) yrs 4 cases, >70 (2.1%) yrs 2 cases and least common is 60-69 years (1.03%) of age group 1 case reported.

A total of only 3 cases were ligature strangulation among which, 2 cases were in 30-39 (66.67%) years of age group, while 1 case is in 50-59 (33.3%) years of age group.

Table 2: gender wise distribution of study subjects

Gender	Hanging	Ligature Strangulation	Total	Percentage
Male	63 (64.9%)	1 (33.33%)	64	64 %
Female	34 (35.1%)	2 (66.67%)	36	36 %
Total	97 (100%)	3 (100%)	100	100 %

In present study, 64 cases were males, out of which 63 (64.9%) were due to hanging and 1 case (33.33%) was due to ligature strangulation. A total of 36 female deaths, 34 cases (35.10 %) were hanging and 2 (66.67%) were ligature strangulation cases.

Table 3: age group and gender wise distribution of hanging and ligature strangulation deaths

Age groups in years	Type of Neck Compression				Total	%
	Hanging		Ligature Strangulation			
	Male	Female	Male	Female		
10-19 years	8	11	0	0	19	19
20-29 years	26	16	0	0	42	42
30-39 years	13	6	1	1	21	21
40-49 years	9	1	0	0	10	10
50-59 years	4	0	0	1	5	5
60-69 years	1	0	0	0	1	1
>70 years	2	0	0	0	2	2
Total	63	34	1	2	100	100

Table 4: Religion wise distribution of gender among study subjects

Religion	Hanging		Strangulation		Total
	Male	Female	Male	Female	
Hindu	56 (57.70%)	32 (33%)	01 (33.3%)	02 (66.7%)	91
Muslim	07 (7.20%)	02 (2.10%)	0	0	09
Total	63 (64.90%)	34 (35.10%)	01 (33.3%)	02 (66.7%)	100

In this study, 97% cases hanging and 3% ligature strangulation were due to ligature. The religion wise distribution of gender among hanging cases were 91 (91%) Hindu; 9(9%) Muslim. No cases were reported from other religion during the period of study.

Among all cases, majority of cases were male Hindu 56 (57.7%) and least were female Muslims 2 (2.1%) in deaths due to hanging. Among Ligature strangulation 2

(66.7%) female and 1 (33.3%) male were from Hindu religion.

Discussion

In this study, most vulnerable group is found among 20-29 years (42%) of age group which is similar were observed in the studies conducted by Momin SG et al [4] 40.2%, Sheikh et al [5] 42.4% and Joshi et al [6]44.8%, next is 30-39 years (21%), then 10-19 years (19%), 40-49 years (10%), 50-59 years (5%) and least vulnerable age group is more than 60 years (1%) of age group. No cases were reported below 10 years of age is found in our study. (TABLE 1) This observation is quite obvious as majority of un-natural deaths are reported in young adults because of their active participation in day-to-day activities, family problems, unemployment, poverty and stressful events making them more vulnerable to all type of un-natural episodes resulting in fatalities in males. In females, uneventful love life, burden of studies and marital disharmony are the main causes for taking their lives. It is in contrast to the findings observed by Kanchan T, Menezes RG [7] where most vulnerable group is old age group of more than 40 years.

In the present study, 63(64.9%) male and 34(35.1%) female cases are found in hanging. Male to female ratio is 1.7:1 observed. Males were almost twice the number of females accounting to deaths, it is quite obvious fact, male being active member of our society (Table 2). Similar findings were observed in the studies conducted by Sheikh et al [5] and Jani et al [8]. Findings are contrast studied by M Ahmad, et al [9] in which only 40% of total study population is of male sex. However, this study was conducted in Dhaka, Bangladesh.

In the present study, 69% married (48% male, 21% female) and 31% unmarried (16% male, 15% female) cases are observed. It concludes that married couples are

more prone to hang themselves. When compared to unmarried persons. Similar findings were observed in the study conducted by Kumar V et al [10], Nagaraju V et al [11], Chikhalkar BG et al [12] and Behera A et al [13].

In the present study, 91% Hindu (57% male, 34% female), 9% Muslim (7% male, 2% female) and no cases from other religion found death due to compression of neck by ligature. Predominant victims were Hindu, because Hindu population is more in western region of India. (Table 4). Similar findings were observed in the studies conducted by Gouda N et al [14] and Khajuria B [15].

Conclusion

Out of 100 cases of death due to compression to neck by ligature, ages between 20 to 29 years is most vulnerable but age between 10 to 39 years formed more than half of the study subjects. More susceptible gender involved were males. Vulnerable individuals in this age groups should be carefully looked for to avoid them taking such steps to end their life and awareness programmes, psychological-therapy centre establishment should be done by competent such as government, media, NGOs etc.

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