

## Asphyxial Deaths at industrial town-Jamshedpur, Jharkhand A Retrospective study

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### Abstract

“Death” the word itself is enough to frighten a person, still worse, death by any act of violence is by far the most distressing of scenario, a person has to face. As Adelson in 1961 has a very aptly stated-“There is one way to be born, but there are many way to die”. Among them asphyxial death (like Hanging, Strangulation, Smothering, Traumatic asphyxia, Drowning and exposure of gas leading to asphyxia etc.) forms one of the modes of death which may be suicidal, Homicidal or accidental in nature. A retrospective study of autopsies conducted between years 2012-2016 at Dept. of F.M.T, MGMMC, JSR is an attempt to know the incidence of asphyxial deaths at industrial town Jamshedpur, JSR. During this period there were 7144 dead bodies are brought for autopsy examination; out of which 1422 deaths were of asphyxial deaths. The incidences of asphyxial deaths were more in males than in females in the ratio of 1.96:1. In this study we found that among asphyxial deaths hanging were more 1007 (70.81%) followed by drowning 330 (23.20%), Traumatic asphyxia 44 (3.09%), strangulation 35 (2.46%), smothering and asphyxia due to exposure of gas are 3 each (0.21%) respectively. These cases were studied to know age and sex distribution of the victims. Among 1422 cases of asphyxial deaths 100 (7.03%) dead body were brought unknown; having cause of death drowning 70 (70%), followed by hanging 25 (25%), Strangulation 4 (4%) and Traumatic asphyxia 1 (1%) respectively.

On the basis of observation and retrospective studies of post mortem reports and its analysis suicidal is the commonest mode 1007 (70.81%) followed by accidental 377 (26.51%) and Homicidal 38 (2.67%) respectively. But these are our opinion and it may vary; so it's having no any reference value for medico legal purpose.

**Keywords:** Asphyxial deaths, Autopsy, Hanging, Drowning, Traumatic asphyxia, Suicidal.

### Introduction

In asphyxia, there is prevention of exchange of air between the atmosphere and lungs alveoli and there is lack of oxygen supply to the tissues.<sup>(1)</sup> Asphyxia may be:

**Mechanical** (Hanging, strangulation including throttling, smothering, drowning, choking etc.). Toxic (chloroform, CO<sub>2</sub>, H<sub>2</sub>S, CO, phosgene, cyanides, Vapours of ammonia, HNO<sub>3</sub>, HCl etc).

**Traumatic** (traumatic asphyxia-injury to both lungs, fat or air embolism of traumatic origin)  
**Pathological** (like new growth of the lungs or any infection).<sup>(1)</sup>

Hanging is a form of death, produced by suspending the body with a ligature round the neck, the constricting force being the weight of the body (or a part of the body/head).<sup>(2)</sup> Hanging produces painless death for the victims and there is no costs involvement other than that of the ligature material. A thin rope around the neck will cause unconsciousness in 15 seconds only.<sup>(3)</sup> The hangings are commonly suicidal and drowning is either accidental or suicidal, while strangulation including throttling, smothering usually homicidal. In addition accidental compression or trauma to chest by any means that prevent respiratory movement is known as traumatic asphyxia or crush injury.<sup>(4,5)</sup> Toxic asphyxia is common in factories, sewers, close spaces, and these are usually accidental in nature.

Due to increasing stress and strain in our day to day life, poverty, lack of patience, alcoholism, explosive population, the cases of suicides, accidents and homicide increases and these are more common in males than female.

With urbanization, rural areas are also not left aloof and this can be seen from the increasing incidence of this areas.<sup>(6)</sup>

### Material and Methods

The autopsies conducted at Department of FMT, MGM MC Jamshedpur, between the years 2012 to 2016 were considered for this retrospective study. The data were collected from police Inquest report, challan, Postmortem reports and FSL reports. The cases were studied to know the incidence of asphyxial deaths at industrial town Jamshedpur, Jharkhand with respect to age groups, Sex and type and manner of asphyxial deaths.

### Results

The total numbers of autopsies conducted during the study period were 7144, of which 1422 cases were of asphyxial deaths. The incidence of asphyxial deaths among male were 942 (66.24%) deaths and in females were 480 (33.75%) (Table-1). The asphyxial deaths were more in age group of 21-30 yrs (34.38%) followed by 11-20 yrs (22.57%) and 31-40 yrs (18.21%) respectively (Table-2).

Hanging 1007 (70.81%) were more common forms of asphyxial death followed by Drowning 330 (23.20%), Traumatic asphyxia 44 (3.09%), Strangulation 35(2.46%) and smothering and asphyxial death due to gas are 3 each (0.21%) respectively (Table-3).

Among 1422 cases of asphyxial deaths 100 (7.03%) dead body were brought unknown; having cause of death drowning 70 (70%), followed by hanging 25 (25%), Strangulation 4 (4%) and Traumatic asphyxia 1 (1%) respectively. (Table-4)

Suicidal deaths 1007 (70.81%) were more common mode followed by accidental 377 (26.51%) and homicidal 38 (2.67%) respectively (Table-5).

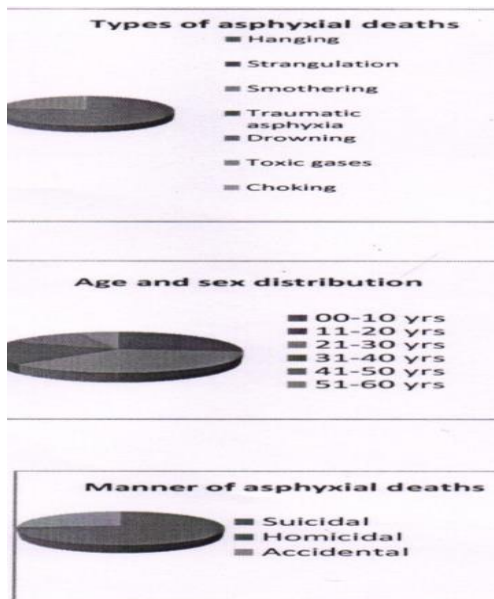


Fig.1

Table 1: Type of asphyxial deaths in Male and Female

S.N.	Type of asphyxial deaths	Male	Female	Total (%)
1	Hanging	611	396	1007 (70.81%)
2	Strangulation	13	22	35 (2.46%)
3	Smothering	1	2	3 (0.21%)
4	Traumatic asphyxia	37	7	44 (3.09%)
5	Drowning	277	53	330 (23.20%)
6	Toxie Gas	3	0	3 (0.21%)
7	Choking	0	0	0 (00%)
8	Total	942	480	100%

Table 2: Age and sex wise distribution of asphyxial deaths

Age groups	Male	Female	Total	Percentage (%)
0-10 yrs.	26	19	45	3.16%
11-20 yrs.	164	157	321	22.57%
21-30 yrs.	303	186	489	34.38%
31-40 yrs.	205	54	259	18.21%
41-50 yrs.	134	35	169	11.88%
51-60 yrs.	64	17	81	5.69%
61-70 yrs.	28	10	38	2.67%
71-80 yrs.	16	00	16	1.12%
81-90 yrs.	02	01	03	0.21%
>91 yrs.	00	01	01	0.07%
Total	942	480	1422	100%

Table 3: Type of asphyxia deaths in all cases

S.N	Type of asphyxial deaths	No. cases	Percentage (%)
1	Hanging	1007	70.81%
2	Strangulation	35	2.46%
3	Smothering	03	0.21%
4	Traumatic asphyxia	44	3.09%
5	Drowning	330	23.20%
6	Toxie Gas	03	0.21%
7	Choking	00	00%
8	Total	1422	100%

Table 4: Type of asphyxial deaths in unknown case

S.N	Type of asphyxial deaths	Male	Total (%)
1	Hanging	25	25%
2	Strangulation	04	04%
3	Smothering	00	00%
4	Traumatic asphyxia	01	01%
5	Drowning	70	70%
6	Toxie Gas	00	00%
7	Choking	00	00%
8	Total	100	100%

Table 5: Manner of asphyxial deaths

S.N	Manner of asphyxia deaths	Cases	Percentage (%)
1	Suicidal	1007	70.81%
2	Homicidal	38	2.67%
3	Accidental	377	26.51%
4	Total	1422	100%

Discussion

The total numbers of autopsies conducted during the study period (2012-2016) were 7144 of which 1422 cases were of asphyxial deaths. Table no-1 shows the incidence of asphyxial death based on sex distribution.

Among males 942 (66.24%) deaths in comparison to female 480 (33.75%) in ratio of 1.96:1. This is in accordance with other studies which shows about 68% in males with male female ratio 2:1.<sup>(7)</sup> and 59.14% in males with male female ratio 1.4:1.<sup>(7)</sup>

Table 2 shows the incidence of asphyxial deaths was more in the age group of 21-30yrs 489 (34.38%) followed by 11-20yrs 321 (22.57%) and 31-40 yrs 259 (18.21%) respectively.<sup>(7)</sup>

Among all these suicides cases hanging was the commonest mode used to commit suicide,<sup>(8)</sup> which is found to be more prevalent among males in comparison to females in 21-30yrs of age group followed by age group 11-20yrs and 31-40yrs respectively. This was nearly similar to the study of Sharma et al.<sup>(10)</sup> and Srinivasa Reddy et al.<sup>(14)</sup> Study has shown that people belong to these age groups were also common victims of hanging in other countries.<sup>(13)</sup>

After Hanging Drowning was found to be commonest with male (277) and female (53) ratio of 5.22:1. In this studies it's clear that incidence of suicide is more in male (611) than female (396) with male female ratio of 1.54:1.<sup>(11,14)</sup>

In this studies male predominate in all types of asphyxial deaths except Strangulation in which Male (13) and female (22) with male female ratio of 0.59:1 followed by smothering in male female ratio of 1:2.

In this study Table 3 shows that the total cases of traumatic asphyxia are 44 among which male (37) and female (07) with male female ratio of 5.28:1. The reason behind this is injury caused by elephants during rainy season.<sup>(1,4)</sup> Table 3 also shows that due to exposure of toxic gases in accidents of factories also causes asphyxial deaths. In this study total of 3 cases are brought in 2016 and all are male.

Table 4 shows that, among 1422 cases of asphyxial deaths 100 (7.03%) dead body were brought unknown with male (83) and female (17) ratio of 4.88:1. And causes of asphyxial death in unknown bodies are drowning 70 (70%), followed by hanging 25 (25%), Strangulation 4 (4%) and Traumatic asphyxia 1 (1%) respectively.

## Conclusion

The cases of suicidal hanging increases day by day in both male and female; main reason behind this are poverty, lack of job, lack of patience, failure in exams/love, lack of conversation among family

members and most grave one is -what people say about him/her.

Asphyxial deaths due to hanging affects the productive age mainly 15-35 yrs. ultimately it affects whole family. Drowning is the second cause of asphyxial deaths at Jamsshedpur; and is due to Rocky River bed. Cases of traumatic asphyxia are more due to injuries caused by Elephants mainly in rainy season. Leaking of gases at factories causes asphyxial deaths.

A well designed and comprehensive program is needed to identify the cases causative factors and prevention of suicidal behavior, by appropriate education, outdoor game, skill development, employment based education, counseling of student at school, influencing the media in their portrayal of suicidal news reporting methods. Last but not least is consultation of psychiatrist or psychologist with any change in behavior certainly reduces the incidence.

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