

# A Retrospective Study on Profile of Death due to Poison

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## ABSTRACT

Death due to poisoning is one of the commonest medico-legal cases encountered by forensic experts. Committing suicide by ingestion of poison is one of the common method adopted. So in order to know the burden of this, a retrospective study was carried out in Forensic Medicine and Toxicology Department, Shri M P Shah Government Medical College and Guru Gobindsingh Government Hospital, Jamnagar. Study was conducted for 1 year from December 2021 to January 2021. The data is collected by analysing various epidemiological parameters. According to this study, 168 people died due to poisoning out of 1062 autopsy performed in the Forensic Medicine and Toxicology Department, Jamnagar. Male predominance is seen in this study which includes 63.09% male and 36.91% female. Organophosphorus compound was main compound followed by Aluminium phosphide for death due to poison. And among this 88.09% was suicidal in nature. Death due poisoning is a major public health related issue. Death due the poisoning is a partially preventable situation. Therefore by proper identification and knowledge of trend of the poisoning, early management can be given to prevent morbidity and mortality.

**KEYWORDS:** Poison; Suicide; Male Predominance; Epidemiological parameters.

## INTRODUCTION

More than 2/3<sup>rd</sup> of the Indians are connected to agriculture field and there is widely use of pesticides, insecticide and rodenticide compound throughout the whole country and this components are cheaper in rates.<sup>1</sup> Therefore

due to easy availability and cheaper rates of this compounds people often use this compounds to commit suicide.

Poisoning is one of the most common method adopted to commit suicide worldwide and in the India only second to hanging. As per NCRB (National Crime Reports Bureau) report 2021, the incidence of the death due to poisoning is 25% in 2020 which is 38,336 in number of death. And 25.1% in 2021 which is 41,197 in number.<sup>2</sup> According WHO (World Health Organisation) approximately 20% of all suicide are the result of ingestion of pesticides, particularly in rural agriculture region of the world.<sup>3</sup>

Poisoning can be suicidal, accidental and homicidal. Suicidal nature is more common than the accidental and homicidal. There are various

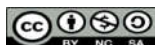
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factors affecting poisoning like age, sex, religion, culture, availability of substance, socio-economic status, education and mental status of particular person. Accidental poisoning commonly occurs in factory worker and farmers during their work in the field.

Mode of poisoning and the profile of poisoning is different in different regions of the world. Thus to know for the specific profile of the poisoning in specific region of the world is the demand of society for wellbeing of society and people. This problem of poisoning cannot be fully controlled by advanced medicine and awareness of people about it. However data of profile of poisoning of particular region can be useful for the strengthening of the health care system and infrastructure for administrative purpose to make preventive strategy and policies.

#### AIMS AND OBJECTIVES

This Retrospective Study on Profile of Death due to Poison is carried out with aim to find out the trend of poisoning and considering various factor affecting it. Proper identification of poison and knowledge of trend of poisoning is useful to give early management and to lower the morbidity and mortality by using proper administrative policies.

#### MATERIALS AND METHODS

This Retrospective study was conducted in the Forensic Medicine and Toxicology Department, Shri M P Shah Government Medical College and Guru Gobindsingh Government Hospital, Jamnagar. All the cases brought to the mortuary of Guru Gobindsingh Government Hospital, Jamnagar for the post mortem examination with alleged history of poisoning and post mortem finding suggestive of poisoning are included in this study. This study was conducted for 1 year period of December 2021 to January 2021.

All the data are obtained from the post mortem examination report, crime scene report, requesting letter of police for post mortem examination, marnottar letter and forensic science laboratory reports. All the data like age, sex, religion, culture, availability of substance, socio-economic status, education and mental status of particular person was studied, analysed and plotted in the table and figure to compare with the studies of the other authors.

#### RESULT AND OBSERVATIONS

Total no of 168 poisoning cases are studied in this study out of total 1062 autopsied performed in the Forensic Medicine and Toxicology Department, Shri MP Shah Government Medical College, Jamnagar during 1 year period from December 2021 to January 2021.

Out of 168 cases of poisoning 106 cases (63.09% of total cases) were male out of it 86 were married (Fig. 1).

Male female ratio was 1.71:1. Most commonly involved age group was 21- 30 years which is 25.60% of

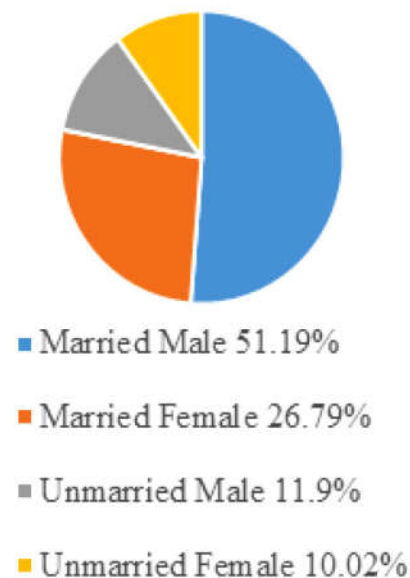


Fig. 1: Gender and Marital Status

total cases followed by 31-40 age group which is 22.62% of total cases (Table 1). Study shows out of total cases 139 cases were from Hindu religion (Fig 2).

The commonest manner of death observe was suicidal in nature which were 148 cases (88.10% of total cases) followed by accidental which were 19 cases (11.31% of

Table 1: Age wise distribution

Age	No. of cases
1- 20 years	21
21-30 years	43
31-40 years	38
41-50 years	23
51-60 years	21
Above 60 years	22
<b>Total no. of cases</b>	<b>168</b>

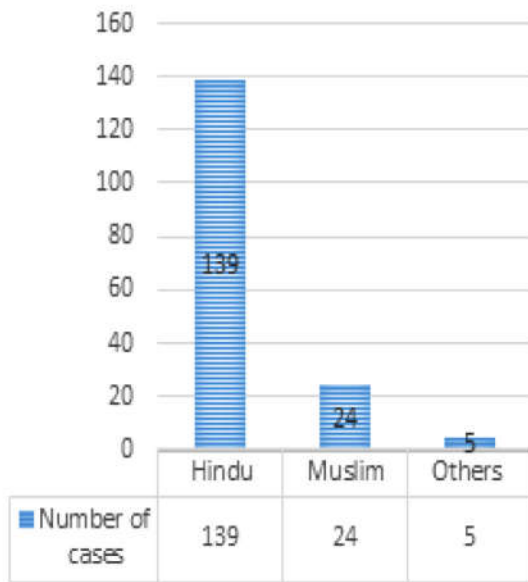


Fig 2: Religion wise distribution

total cases). Among accidental cases 11 deaths was due to snake venom, rest 8 cases was due to accidental exposure or consumption of poisonous compound. There was one case of alleged homicide (Fig. 3).

This study with help of the forensic science laboratory report revealed organophosphorus compound is most common poison involved for death due to poisoning

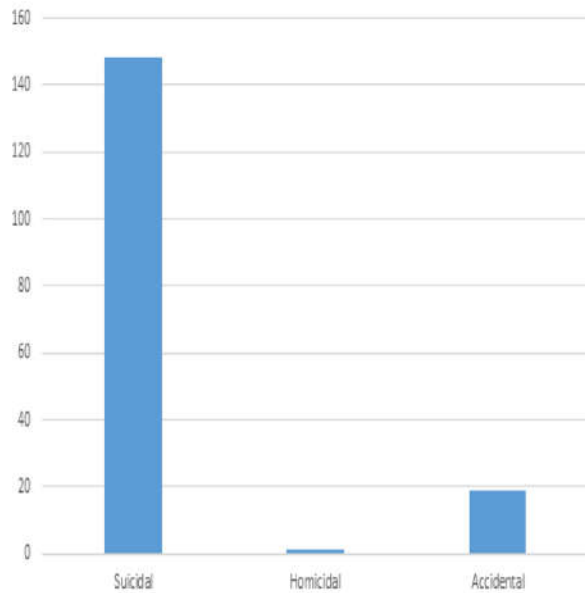


Fig 3: Manner of Death

which accounted for 91 cases (54.17% of total cases). Followed by aluminium phosphide – 20 cases (11.90% of total cases) then acid poisoning which is 19 cases

(11.31% of total cases) (Table 2).

Table 2: Type of Poison used

Poisonous compound	No. of cases
Organophosphorus	91
Aluminium Phosphide	20
Organochloride	7
Acid	19
Snake Venom	11
Sleeping Pill	1
Alcohol	1
Phenol	2
Others	4
Undetected	12
<b>Total No. Cases</b>	<b>168</b>

Among 148 suicide cases 43 cases (25.60% of total suicide cases) were due to financial crisis followed by marital or family conflict which is 39 case (23.21% of total suicide cases). Reasons for committing suicide for 27 case (18.24% of total suicide cases) was not known (Table 3).

Table 3: Reasons for Suicide

Reasons	No. of Suicide
Financial	43
Marital/Family Conflict	39
Health Issues	25
Love Failure	9
Educational Issues	5
Not Known	27
<b>Total No. of Suicide</b>	<b>148</b>

### DISCUSSION

This study was carried out with aim to know profile of poisoning which include; chemical compounds responsible for death due to poisoning, common age group involved, reason for committing suicide and manner of death due to poisoning.

Present study shows male predominance as 63.09% of total cases of death due to poisoning involves male. Male predominance found in this study shows similarity with other study done by other authors.<sup>4-8</sup>

Most common age group involve in this study was

21-30 years followed by 31-40 years which is similar with other studies.<sup>4-9</sup> 131 victim out of total cases were married which is similar with other author's study.<sup>9,10</sup>

Maximum cases showed suicidal manner of poisoning which is 88.01% of total cases which is similar with other study.<sup>4,5,7,9,10</sup> Financial issues were most common reason for the suicide was observed in this study which is similar with study of author K. S. Lad *et al.*<sup>7</sup> In this study there was 19 accidental cases which includes 11 cases of snake bite.

The forensic science laboratory report revealed most commonly used compound was organophosphorus which is accounted for death of 91 victims. This result shows similarity with other study.<sup>4,7,9,10</sup>

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#### CONCLUSION

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Jamnagar region has a large rural area and as many of people are doing agriculture works. There is widely

use of insecticides, fungicides and pesticides which commonly has organophosphorus compound. Due to easily availability, cheaper in rate, lower literacy and stressful life people uses this chemical compound to commit suicide. Young adults and married are commonly victims of the suicide maybe because of financial crisis, commitments, familial conflict and career stress. Poisoning is preventable health related issue. Patient with history of suicide attempt should undergo counselling and psychiatrist therapy to prevent future attempt.

Therefore proper guidance, proper awareness and precaution about the usage of pesticides, use of safety kit and personal hygiene can minimize the risk of accidental poisoning. Specific trend of poisoning in specific area should be used to strengthen the health services which will help to give early management and minimize the morbidity and mortality due to effect of poisoning.

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