

## Trends of Suicidal Poisoning in Southern part of Assam

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### Abstract

Suicide is a leading cause of mortality among young people in many countries, making it a serious global public health problem. It is estimated that around 20% of global suicides are due to pesticide poisoning. This study was conducted with an objective to find out the commonest suicidal poison and its demographic distribution. This study was designed on victims of suicidal poisoning brought for medicolegal autopsy at Silchar Medical College and Hospital, Silchar, Assam between 15th October 2017 and 14th October 2022. Required information for the study was gathered from inquest reports, autopsy reports, chemical examiner's analysis report of viscera and available documents in the departmental records. The collected information was statistically analysed using Microsoft excel version 2019. Out of 64 cases, poison was detected in 33 Cases. Male victims surpassed females with highest number of victims from age group 21-30 years. Most common poisoning agent was organophosphorus compounds. Educational and awareness programs regarding usage and storage of pesticides can become an important step for the prevention of deaths due to poisoning. However more research is needed to better understand suicides involving pesticides in their cultural contexts.

**Keywords:** Organophosphorus, Pesticide, Suicide, Post-mortem, Assam

### Introduction

Suicide is a leading cause of mortality among young people in many countries, making it a serious global public health problem.<sup>[8]</sup> It is estimated that around 20% of global suicides are due to pesticide poisoning, most of which occur in rural agricultural areas in low- and middle-income countries.<sup>[7]</sup> According to study, the vast majority of alarming number of poisoning deaths

were due to intentional pesticide poisoning, indicating the importance of regulating highly hazardous pesticides to prevent deaths as recommended by the WHO and FAO.<sup>[11]</sup> Most pesticides are generally toxic to many non-target species, including humans. Insecticides are mostly not species-selective with regard to targets of toxicity, and mammals, including humans, are highly sensitive to their toxicity.<sup>[2]</sup>

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**Aims and Objectives:**

- To know the trends of suicidal poisoning deaths.
- To know the different aspects of poisoning as per age, gender, religion and demographic distribution.
- To know the most common type of poison used for suicide.

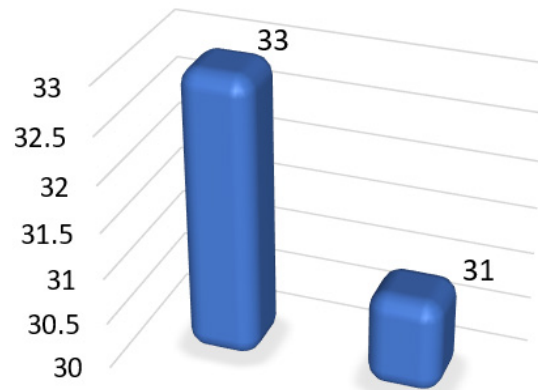
**Materials and Methods**

The materials for the present study were cases brought for medico legal autopsy from various police stations from southern part of Assam in the Department of Forensic Medicine and Toxicology, Silchar Medical College and Hospital, Silchar between 15<sup>th</sup> October 2017 and 14<sup>th</sup> October 2022. A total of 64 cases of suspected death due to poison were autopsied, out of which 33 cases were associated with deaths due to poisoning. Required information for the study was gathered from available documents in the departmental records through proper channel. The poisoning agent was identified by screening the autopsy report and the chemical analysis report. The information thus collected and was statistically analysed using Microsoft excel version 2019. Cases where the results of final chemical analysis were not received has been excluded from the study.

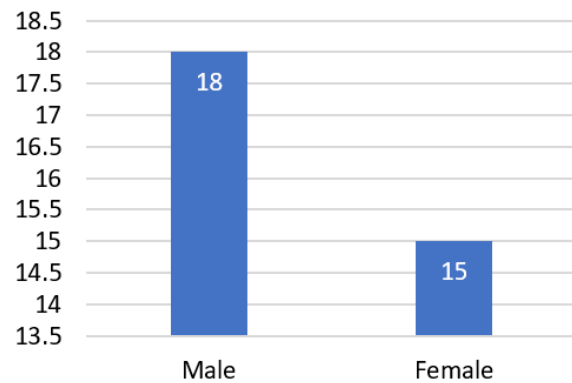
**Results**

Total four thousand and ninety-seven cases were autopsied in the Department of Forensic Medicine, Silchar Medical College, Silchar, Assam, during the period of five years (15<sup>th</sup> October 2017 and 14<sup>th</sup> October 2022). Out of these, 64 cases were suspected deaths due to poisoning, amongst those, poison was detected in 33 cases and 31 came out to be negative, which was confirmed from the chemical analysis report provided by Forensic Science Laboratory, Guwahati (Fig. 1). Out of these 33 confirmed cases of suicidal poisoning deaths, victims of male (n=18) surpass females (n= 15) (Fig. 2) and highest number of cases (n= 12) were found in the age group 21-30 years (Fig.3). Most of the cases were from a rural area (n= 26) as compared to urban area (n= 7) (Fig. 4). Victims of Hindu (n= 22) community were twice the number of Muslim (11) (Fig. 5). The most common poisoning agent used by the victims was

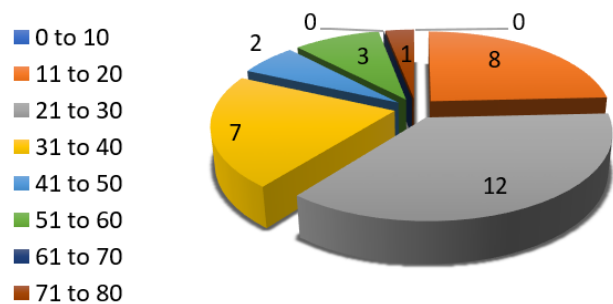
organophosphates (n= 26) followed by carbamates (n= 5) which is depleted in Fig. 6.



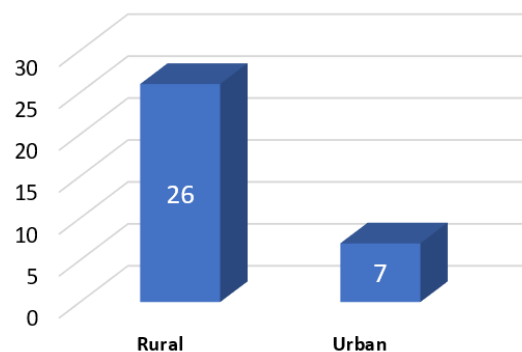
**Fig 1. Total Poison detected**



**Fig 2. Gender wise Victims**



**Fig 3. Age-wise distribution of victims**



**Fig 4. Location wise distribution of victims**

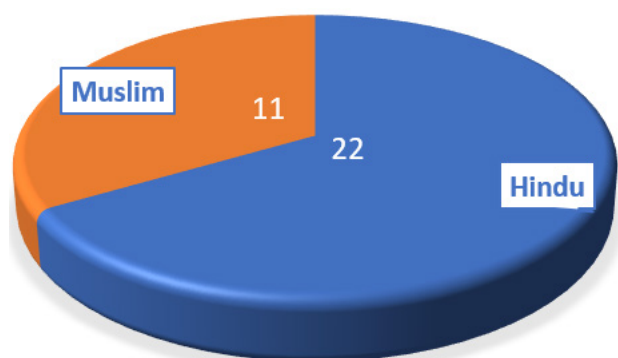


Fig 5. Religion wise distribution of victims

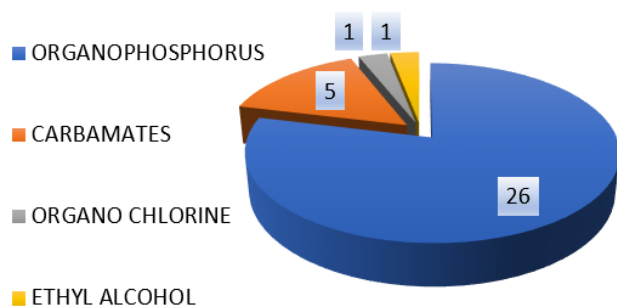


Fig 6. Distribution of victims on the basis of type of Poison

### Discussion

Pesticide poisoning is a major public health problem in developing world.<sup>[1]</sup> Intentional self-poisoning has been the major cause of death due to poisoning.<sup>[4,14]</sup> Organophosphate pesticide poisoning is common in developing world <sup>[9]</sup> and the highest incidence is seen in India.<sup>[13]</sup> This study revealed that, maximum cases of suspected deaths due to poisoning was found in the age group 21-30 years. Similar results were found in other studies carried out by Khadka and Khadka<sup>[5]</sup>. Males (18) surpassed the victims of female (15). The male to female ratio in this study was 1.2:1. However male to female ratio given by Khadka and Khadka<sup>[5]</sup> was 1:1.09, which is quite different from the present study. Maximum number of victims belonged to Hindu (22) community. The most common poison used for suicide was organophosphorus (79%) followed by carbamates (15%). Current study findings are similar to that of other studies <sup>[3,5,6]</sup>, where the most common poison was organophosphorus.

### Conclusion

Suicide is often an impulsive act resulting from the failure to adjust with their surroundings and cope with the stress they are exposed to. The maximum cases of poisoning were confined to young males belonging to rural areas of Southern part of Assam. For easy availability and access to household Organophosphorus compounds, these have become one of the major products amounting to suicidal poisoning. Educational and awareness programs regarding usage and storage of pesticides can become an important step for the prevention of deaths due to poisoning. However more research is needed to better understand suicides involving pesticides in their cultural contexts. We believe that national pesticide regulation and improved medical management will produce a rapid decline in the devastating deaths due to pesticide poisoning.

**Conflict of Interest:** Nil

**Source of Funding:** Self

**Ethical Clearance:** Taken from institutional ethics committee at Silchar Medical college, Silchar, Assam

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