

# Profile of suicidal poisoning in Puducherry area

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## Abstract

**Introduction:** Any substance irrespective of its quality or quantity when given with an intention to endanger, injure or kill a person, will be called poison. In India intentional, occupational and accidental poisoning is a major public health problem. Manner of poisoning is mainly suicidal and accidental, whereas even few cases of homicide are reported. In Puducherry region during 2013, the suicidal rate was 35.6 per one lakh populations and suicidal poisoning deaths were 12.3%. Knowing the pattern of poisoning cases in a region helps in suggesting proper earliest preventive measures and also in early management of cases. This study will aim at determining sociodemographic profile, pattern of poisoning and the outcome of cases reporting to Sri Manakula Vinayagar Medical College and Hospital during the study period. **Aims and Objectives:** To study the socio demographic profiles of the poisoned individuals and type of poisoning. **Materials and Methods:** This present study was conducted in the Department of Casualty and Forensic Medicine, Sri Manakula Vinayagar Medical College and Hospital, Puducherry for a period of one year from June 2013 to May 2014. All the cases who have consumed poisons reported to Casualty, during the study period were included. The victims profile like name, age, sex, marital status, education and occupational status are obtained and two identification marks are recorded. History about the poisoning regarding, time, date, type of poison were recorded in the proforma. Data collected will be entered in the computer database, analysis done. **Results:** A total of 322 cases reported to during the study period were recorded. Out of this the majority of the victims were female (55.60%), married (53.41%) and the most commonly affected age group was between 21-30 years. Most of the victims were unemployed (77.63%), illiterate (19.25%). Nuclear family (86%) and from low economic class (70.6%). Insecticides and Pesticides (41.92%) were the most common type of poison. **Conclusion:** Information gathered from this study can be used in formulating regulations which will help society from the hazardous effects of poisoning. Therefore the findings of this study will be helpful for the government authorities and planning bodies, to plan and implement strategies towards prevention of poisoning. **Key words:** Poisoning, Profile, Suicidal

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Received Date: 18/11/2014 Revised Date: 23/12/2014 Accepted Date: 25/01/2015

Access this article online	
Quick Response Code:	Website: <a href="http://www.statperson.com">www.statperson.com</a>
	Volume 5 Issue 1

## INTRODUCTION

Paracelsus the father of toxicology (1493-1541) wrote "All things are poisons and there is nothing that is harmless, the dose alone decides that something is no poison".<sup>1</sup> Any substance irrespective of its quality or quantity when given with an intention to endanger, injure or kill a person, will be called poison.<sup>2</sup> Poisoning and hanging are the two major modes of suicides in India.

National Crime Records Bureau 2013 states that, more than one lakh persons (1,34,799) lost their lives by committing suicide. Out of these 27.9% of the suicide were reported due to poisoning. The most common states for suicidal poisoning are Maharashtra and Tamilnadu (12.3%), In Puducherry region during 2013, the suicidal rate was 35.6 per one lakh populations and suicidal poisoning deaths were 12.3%.<sup>3</sup> In India most common poison consumed are pesticides, sedative drugs, plant toxins, chemicals and household poisons.<sup>4</sup> Among children kerosene, house hold chemicals, plant toxin, drugs and pesticide are more common.<sup>5</sup> As majority of the population is from rural area they largely depend on agriculture for their living. The pesticides used for agricultural purposes are easily available in market and hence it becomes the most common type of suicidal poison. Organophosphorous is the most common insecticide used for suicidal poisoning in southern parts of India. Pattern of poisoning in a region depends on

variety of factors like availability and accessibility of poison, socioeconomic status of the population and impact of culture.<sup>6</sup> It also varies from country to country and from one place to the other.<sup>7</sup> Knowing the pattern of poisoning cases in a region helps in suggesting proper earliest preventive measures and also in early management of cases.<sup>6</sup> Modern toxicology played a major role in early diagnosis, treatment and detection of poison. This study will aim at determining sociodemographic profile, pattern of poisoning reported to Sri ManakulaVinayagar Medical College and Hospital, Puducherry during the study period. Therefore the findings of this study will be helpful for the government authorities and planning bodies, to plan and implement strategies towards prevention of poisoning.

## MATERIALS AND METHODS

This present study was conducted in the Department of Casualty and Forensic Medicine, Sri ManakulaVinayagar Medical College and Hospital, Puducherry for a period of one year from June 2013 to May 2014.

**Ethical Clearance** The Study was conducted after obtaining clearance from Institutional Research Committee and Ethical Committee.

**Study Setting** Department of Forensic Medicine and Casualty, Sri ManakulaVinayagar Medical College and Hospital, Puducherry.

**Study design** Hospital based Descriptive study.

**Sample and sample size** The number of suicidal poisoning cases reported to casualty during the study period were 322 and all these cases were taken up for study no sampling is involved.

**Data collection tools** Interview Questionnaire.

**Inclusion criteria** All the suicidal poisoning cases reported to Casualty, Sri ManakulaVinayagar Medical College and Hospital, Puducherry, during the study period were included.

**Exclusion criteria** Poisoning cases which have been treated elsewhere before reporting to Casualty, Sri ManakulaVinayagar Medical College and Hospital, Puducherry.

**Methods** When the person arrives to the casualty with the history of poisoning initial management will be done. Once the poisoned person is stabilized, the patient information sheet both in Tamil and English will be issued to the patient or relative's which contains all the information regarding the study.

Consent is then obtained from the patient himself or relatives. The victims profile like name, age, sex, marital status, education and occupational status are obtained and two identification marks are recorded. History about the poisoning regarding, time, date, type of poison were recorded in the proforma.

**Statistical analysis** Data collected will be entered in the computer database, analysis done using Epi\_info software version 3.4.3

## RESULTS

### 1. Gender wise distribution of total poisoning cases

In this present study of total 322 poisoning cases, 143 cases (44.40%) were males and 179 cases (55.60%) were females and the male female ratio is 0.79:1.

### 2. Age wise distribution of cases

In this study maximum number of cases were in age group of 21-30 years i.e. 103 cases (31.98%), followed by 11-20 years i.e. 101cases (31.36%) and least incidence was found in age group > 70 years i.e. 2 cases (0.62%).

### 3. Marital status

Most of the victims are married 172 cases (53.41%) when compared to unmarried 150 cases (46.59%).

### 4. Type of family

Incidence of suicidal poisoning is more in nuclear family 86% when compared to joint family 14%.

### 5. Occupational status of total poisoning cases

In this study maximum incidence of poisoning was found in unemployed (students, house wives, unemployed) 250 cases (77.63%), followed by unskilled (clerk, farmer, fisherman, watchman, labourer) 35 cases (10.86%) and least observed in professionals 4 cases (1.24%).

### 6. Educational status of total poisoning cases

Suicidal poisoning were more among Graduates 82 cases (25.46%) followed by Illiterates 62 cases (19.25%) and least among diploma candidates 10 cases (3.1%).

### 7. Socioeconomic status of total poisoning cases

Maximum cases i.e. 70.6% were from lower economic class followed 24.1% from middle class and the least number of cases 5.4% were from upper class.

### 8. Type of poison

Most common poison was insecticides and pesticides 135 cases (41.92%), followed by poisonous plants 59 cases (18.32%) and drug overdose 38 cases (11.8%).

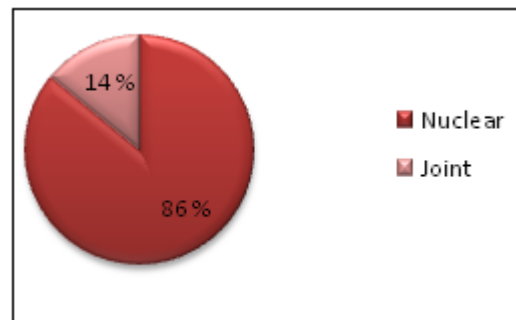


Figure 1: Type of Family

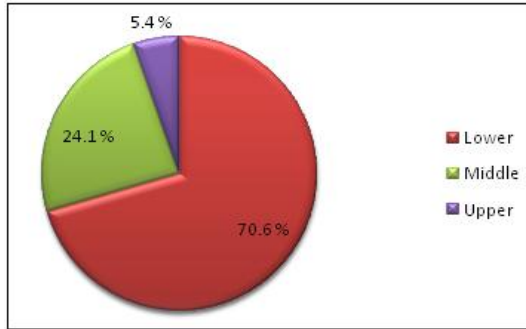


Figure 2: Socio economics status

Table 1: Age wise distribution of cases

Age group	Cases	Percentage
0-10	40	12.42
11-20	101	31.36
21-30	103	31.98
31-40	43	13.35
41-50	18	5.59
51-60	9	2.79
61-70	6	1.86
>70	2	0.62
<b>Total</b>	<b>322</b>	<b>100</b>

Table 2: Occupational status

Occupation	Cases	Percentage
Professional	4	1.24
Skilled	13	4.03
Semiskilled	20	6.21
Unskilled	35	10.86
Unemployed	250	77.63
<b>Total</b>	<b>322</b>	<b>100</b>

Table 3: Educational status

Education	Cases	Percentage
Primary	31	9.62
High school	58	18.01
Higher secondary	59	18.32
Diploma	10	3.1
Graduate	82	25.46
Post graduate	20	6.21
Illiterate	62	19.25
<b>Total</b>	<b>322</b>	<b>100</b>

Table 4: Type of poison

Type of poison	Cases	Percentage
Insecticides and Pesticides	135	41.92
Acids and corrosives	82	25.46
Poisonous plants	59	18.32
Drug overdose	38	11.8
Unknown poisons	8	2.48
<b>Total</b>	<b>322</b>	<b>100</b>

## DISCUSSION

This is a hospital based descriptive study of poisoning cases reported to casualty of Sri Manakula Vinayagar

Medical College and Hospital during the study period of one year. 322 cases with history of suicidal poisoning were analysed. The present study when compared with previous studies is useful in understanding the epidemiology of poisoning in this area. In the present study of 322 cases, 179 cases (55.6%) were females and 143 cases (44.4%) were males. Females outnumbered males with male female ratio 0.79:1. Female gender predominance of this study correlates with the studies conducted by Padmakumar K *et al*<sup>8</sup> and Pokhrel D *et al*<sup>9</sup> but in contrast male predominance is noted in most of the other studies.<sup>7, 10,11</sup> The most commonly affected age group was 21-30 years (31.98%). It was observed that this age group was affected in most of the studies.<sup>1,8,12</sup> The least affected were of age more than 70 years (0.62%). This finding correlates with study conducted by Santhosh CS *et al*<sup>1</sup>, Kumar NH *et al*<sup>12</sup>, Padmakumar K *et al*<sup>8</sup>. This may be due to stress, failure in love or examinations, family problems, modified life style and peer pressure at this age group. Majority of victims are married which is similar to other studies.<sup>1,8,11,13</sup> The high incidence of poisoning in married people may be due to quarrel because of cultural differences, low income, frustration, unemployment etc. The incidence of poisoning is more in nuclear family 86% than joint family 14%. This study correlates with similar studies conducted by NavinkumarM *et al*<sup>14</sup> which is contradictory to the study conducted by BharathKet *al* and Tapse S *et al*.<sup>15, 16</sup> The incidence of poisoning is more common among unemployed 77.63%, followed by unskilled 10.86% which is contradictory and reverse in most studies in which unskilled are more common followed by unemployed.<sup>13, 14</sup> Maximum victims are from lower economic class 70.6%, followed by middle 24.1%, and upper class 5.4%. This study correlates with most studies<sup>13,14,17</sup> and it contradictory to the study carried by Kumar S *et al* in which middle class victims are common followed by lower class.<sup>18</sup> This may be due to financial stress because of low income. The most common poisoning is Insecticides and pesticides 135 cases (41.92%). Most studies reported similar results.<sup>1,16,19,20,21,22</sup> . Ropmay AD conducted a study in which drug overdose is the most common poisoning which is contradictory to this study.<sup>23</sup>

## CONCLUSION

The present study was done with an aim to understand the pattern of poisoning cases in the state of Puducherry. A total of 322 suicidal cases reported to Sri Manakula Vinayagar Medical College and Hospital casualty during the study period were recorded and taken up for study. Additional relevant information was received from the victim or relatives.

The conclusions derived from this current study are as follows:

The majority of poisoning victims were female. The age group commonly involved in both the sexes was 21-30 years. The most preferred poison for suicide was Insecticides and Pesticides. Incidence of poisoning is more among nuclear families. Maximum number of victims belongs to lower socioeconomic class. Most of the victims were unemployed and illiterate.

## SUGGESTIONS

To conclude few steps can be suggested in order to reduce the incidence of poisoning. Awareness regarding poisons handling and poisonous substances to the general public through various means. Education about poisonous substances to all sectors of population. Proper psychiatric guidance to vulnerable group of people such as people with psychosocial, financial and social problems.

## REFERENCES

1. Santhosh CS, Kumar S, Nawaz B. Profile of poisoning cases autopsied at district government hospital, Davangere. *IJFMT* 2012Jan-June;6(1):104-6.
2. Karmakar RN. Forensic medicine and toxicology. *Toxicology* 2011;3:57-128.
3. Accidents and accidental deaths in Tamil Nadu. [www.tnpolice.gov.in/pdfs/cit2012/writeup14\\_12.pdf](http://www.tnpolice.gov.in/pdfs/cit2012/writeup14_12.pdf). Accessed on 11 March 2014.
4. Pillay VV. Comprehensive medical toxicology. 14<sup>th</sup> edition. Hyderabad: Paras publications; 2004.
5. Vaswani V, Patil VD. Spectrum of childhood poisoning: A Belgaum experience. *JFMT* 1998;15:50-2.
6. Kumar A, Vij K. Trends of poisoning in Chandigarh-A six year autopsy study. *JFMT* 2001Jan-June;18(1):8-10.
7. Patil D. Deaths due to poisoning at district hospital- a retrospective study. *IJFMT* 2013Jul-Dec;7(2):221-2.
8. Padmakumar K, Maheshkrishna BG, Jaghadheeswararaj J, Natarajan A. Incidence of poisoning reported at a tertiary care hospital. *J-SIMLA* 2013 Sep;5(2):58-62.
9. Pokhrel D, Pant S, Pradhan A, Mansoor S. "A comparative retrospective study of poisoning cases in central, zonal and district hospitals". Kathmandu university journal of science, engineering and technology 2008Sep;1(5):40-48.
10. Dhatarwal SK, Singh H. Profile of deaths due to poisoning in Rohtak, Haryana. *JFMT* 2001;18(2):28-9.
11. Harish D, Sharma BR, ChavaliKH, Sharma.A. Poisoning mortality in Chandigarh:Anoverview. *JIAFM* 2006;28(3):110-3.
12. Kumar NH, Reddy PS. A study of poisoning cases at Harsha hospital Nelamangala, Bangalore Rural. *Medicolegal update* 2013Jan-Jun;13(1):168-70.
13. Ahmad MDZ, Hussain T, Kumar M. Pattern of poisoning reported at BC Roy hospital, HaldiaPurbaMidnapur, West Bengal. *Medicolegal update* 2012Jul-Dec;12(2):228-30.
14. Navinkumar M, Kalele. Study of profile of deaths due to poisoning in Bhavnagar. *JIAFM* 2011Oct-Dec;33(4):311-6.
15. Bharath KG, Pal US. The pattern of poisoning in Khammam. *JIAFM* 2011Oct-Dec;33(4):296-300.
16. Tapse SP, Shetty VB, Jinturkar AD. Profile of fatal poisoning in and around Bidar, Karnataka. *IJFMT* 2012Jan-Jun;6(1):127-9.
17. Haloi M, Haloi MD, Patowary A. Death due to poisoning in district of Kamrup, Assam a Medicolegal study. *IJAFM* 2013Jan-Mar;35(1):17-20.
18. Sanjeev K, Mangal HM, Akhilesh P. Trends of fatal poisoning in Saurashtra region of Gujarat a prospective study. *JIAFM* 2011Jul-Sep;33(3):197-9.
19. Singh S, Singh B, Latika, Kumar V, Chauhan A. A study of sociodemographic profile and outcome of poisoning cases reported at tertiary care teaching hospital of northern India. *Medicolegal update* 2014Jan-Jun;14(1):216-9.
20. Ramesha KN, Rao KBH, Kumar GS. Indian J Critical Care Med 2009Jul-Sep;13(3):152-5.
21. Siddapur KR, Pawar GS, Mestri SC. Trends of poisoning and gross stomach mucosal appearance in fatal poisoning cases: An autopsy study. *JIAFM* 2011Apr-Jun;33(2):106-11.
22. Navinkumar M, Kalele. Study of profile of deaths due to poisoning in Bhavnagar. *JIAFM* 2011Oct-Dec;33(4):311-6.
23. Ropmay AD, Slong D, Gogoi SJ, Tesia SS. Profile of poisoning at a teaching hospital in Shillong. *Medicolegal update* 2014Jan-Jun;14(1):193-7.

Source of Support: None Declared  
Conflict of Interest: None Declared