



**Communication**

# Trend of Poisoned Patients' in Emergency Department of a Tertiary Care Hospital of Eastern Nepal

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**Abstract:** Poisonings are the major emergency health issues of which many are acute as well as severe case are encountered in emergency ward of BP Koirala Institute of Health Sciences (BPKIHS) being located in the Eastern region of Nepal. A hospital based retrospective study was carried out where 57 poisoned patients admitted, 24 (42.1%) were males whereas 33 (57.9%) were females varied from 14-68 years. 27 (47.36%) patients belong to 20-40 years. 17 (29.82%) patients were more than 40 years and 13 (22.8%) were below 20 years. 77.2% were from Terai, 22.8% were from Hilly region of Nepal. 71.8% were Hindus, 22.8% were Buddhist and 5.4% were Christian and Islam religions. 71.9% cases were married couples while 28.1% unmarried ones. 14 (24.56%) of poisoning were organophosphates; 8 (14%) were zinc phosphide; 4 (0.07%) were sedatives/medications. 13 (22.8%) included kerosene, sulphuric acid, mixed metal, herbal and aluminum phosphide poisonings. 18 (31.57%) of ingested were unknown compounds. 21 (36.8%) of poisoning were in solid forms, 20 (35.1%) were liquid forms whereas, 16 (28.1%) were in other forms like powder, semisolid etc. 61.4% found suicidal, 21.5% were accidental and 17.1% unknown intention. The trends of poisoned patients' incident were highest among the adult female aged populations within marital relationship and constitute high consumption of solid form of organophosphates compounds and secondly zinc phosphide with suicidal intention.

**Keywords:** BPKIHS, Poisoned Patient, Trend

## 1. Introduction

Poisoning is a major problem all over the world, although its type and the associated morbidity and mortality vary from country to country and also is the major emergency health problem in Nepal. [1-4]

Although the incidence of poisoning is high, fortunately morbidity & mortality due to poisoning is low, especially in case of accidental poisoning because of low dose of the poison. [5]

The commonest cause of poisoning in India and other developing countries is pesticides, the reasons being agriculture based economics, poverty unsafe practices, illiteracy, ignorance and lack of protective clothing and easy availability of highly toxic pesticides and among pesticides. [6]

Unpromisingly Nepal is ranked 7th by suicide rate globally

by the 2015 World Health Organization report, and has an estimated 6,840 suicides annually, or 24.9 suicides per 100,000 people. [7]

Being a tertiary 700 bedded hospital located in the Terai of eastern Nepal, many cases of acute and severe poisonings are encountered in the emergency ward of BPKIHS.

This study was designed to abstract the information and its trends of poisoning.

## 2. Method

This was a hospital based retrospective study of all the patients during a calendar year 2015. All cases of poisoning were included in this study. Data regarding age, sex, occupation, types & causes of poisoning, outcome were collected from the hospital records and analysed. The

collected data were entered in Microsoft excel 2007 and converted it into Statistical Package for the Social Sciences (SPSS) 11.5 for statistical analysis.

### 3. Result

In this study a total of 57 acute poisoning cases, 24 (42.1%) were male and 33 (57.9%) were female with overall female to male ratio of 1.37: 1.

The age of the patients varied from 14 to 68 years. The

majority of them, 27 (47.36%) were 20 to 40 years higher than the ages more than 40 years 17 (29.82%) and below 20 years 13 (22.8%). The interpersonal marital relationship seemed to commonest factor among the population 71.9% than the unmarried population 28.1% figure 3.

Of the poisoned cases 71.8% in Hindu religion, 22.8% in Buddhist and 5.3% in Christianity and Islam.77.2% belonged to Terai region and 22.8% were from different hilly districts of Eastern and Central Nepal.

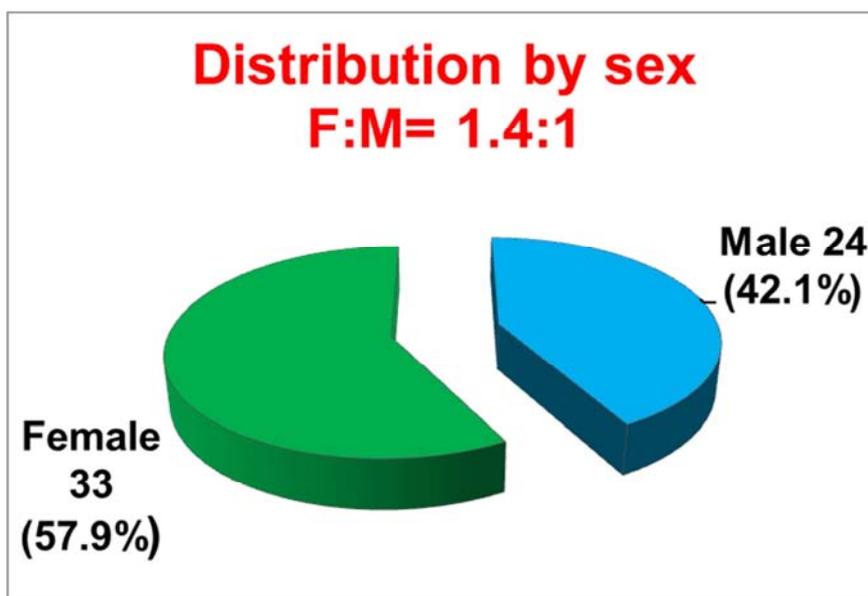


Figure 1. Distribution of cases according to sex.

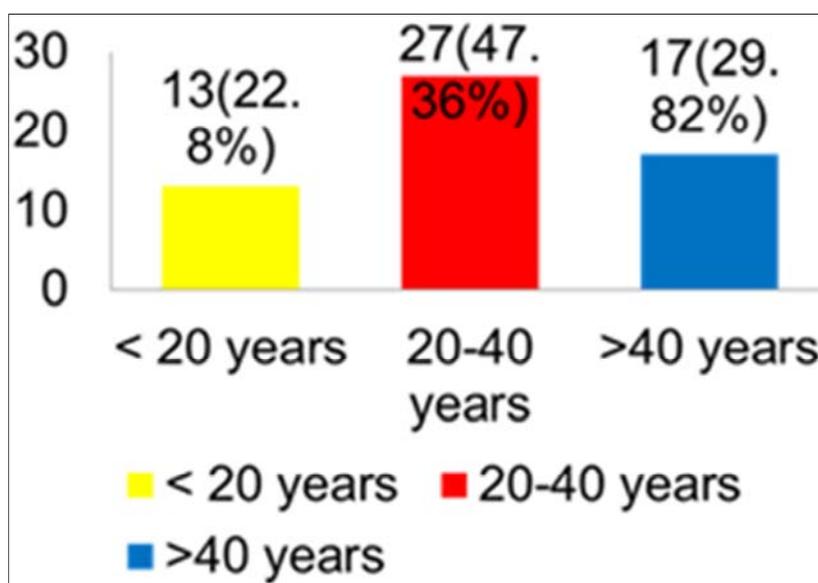


Figure 2. Distribution of cases according to age.

The organophosphate poisoning was most common 24.6% among adults population. Zinc Phosphate was observed to be 14% and Medications and sedatives 7%. It was also been noticed that patients taking other types of poisons than the commonly used poison in together was highest, i.e. Kerosene, Sulphuric acid, mixed metal, herbal, Aluminium Phosphate

22.8% in Figure 3. And in most of the cases, the exact poison ingested was not known or not described. As per availability the most common form of poison was in solid 36.8% states than in liquid forms 35.1% or any other forms such as Powder; semisolid, etc. Figure 4

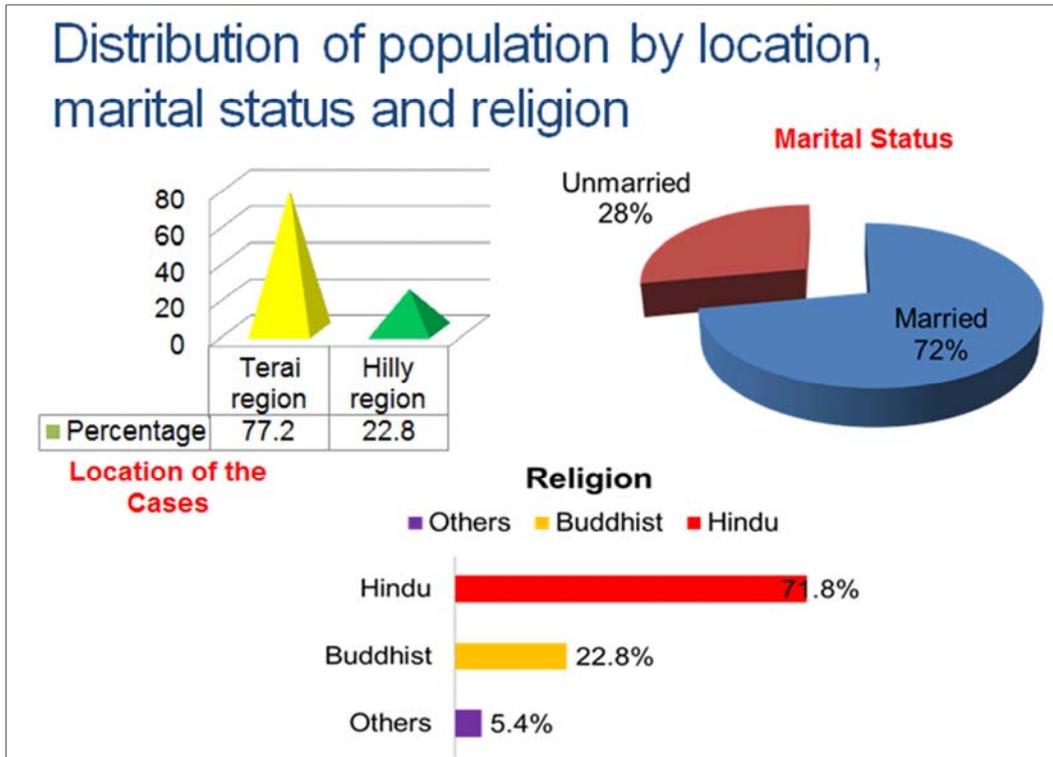


Figure 3. Distribution of population by location, marital status and religion.

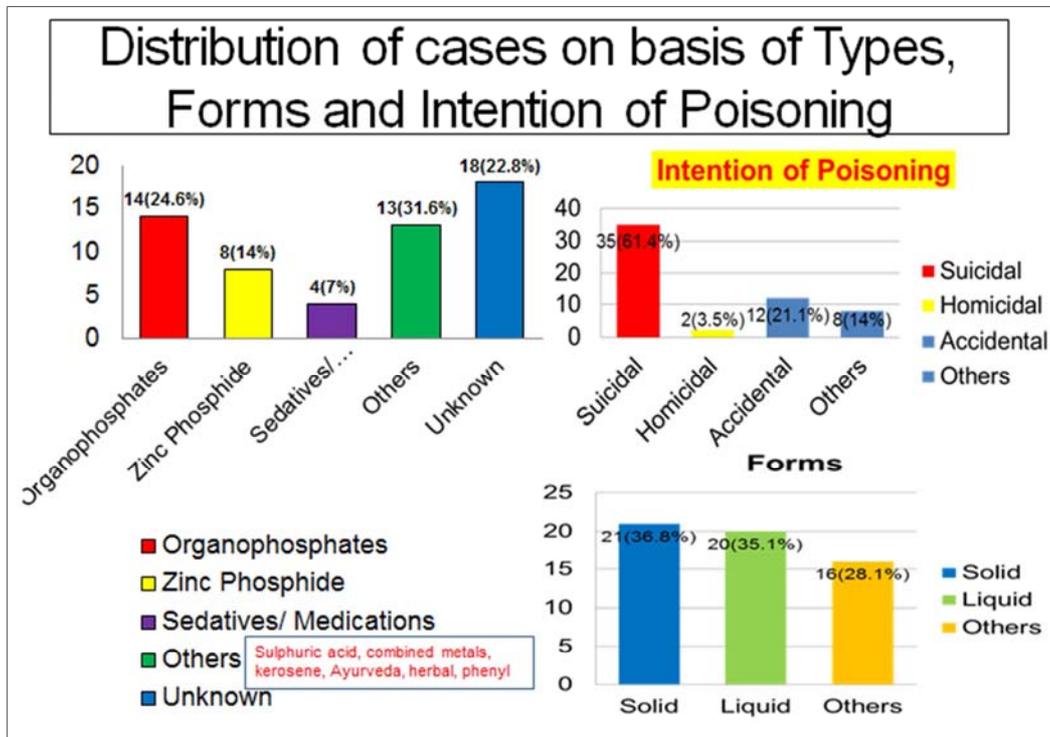


Figure 4. Distribution of cases on the basis of types, forms and Intention.

Intentional poisoning was found to be (61.4%) whereas accidental (21.1%) and in 14% of the cases intention was not known.

Of 57 patients, 36 (63%) patients were brought to emergency ward within 6 hours of ingestion while 19 (33.3%)

patients were brought after 6 hours.

22.8% of poisoned cases received primary treatment in the nearest health posts, primary health centres / district hospitals or private clinics before arrival to BPKIHS. Figure5.

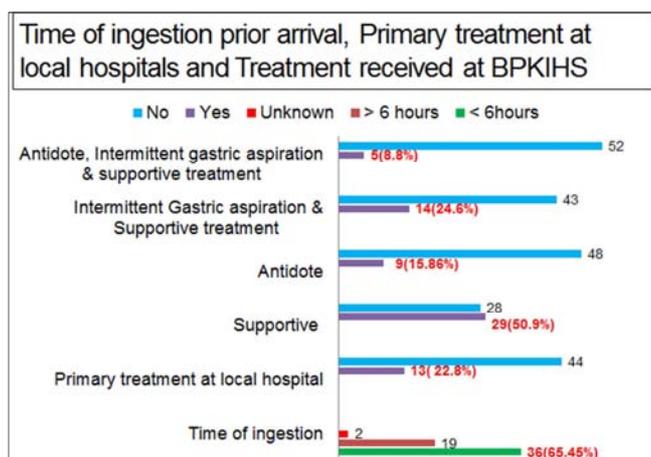


Figure 5. Distribution of population on time of ingestion prior arrival, primary treatment at local hospital and treatment received at BPKIHS.

The majority 50.9% of the patients received supportive treatment while 15.86 % of the patients received antidote. 24.6 % received intermittent gastric aspiration along with the supportive treatment and overall 8.8% of the patients received antidote, intermittent gastric aspiration and supportive treatment.

#### Outcome of treatment:

Of 57 patients, 80% patients were admitted in medical ward, 7% cases were referred to the higher centre for further management and for the unavailability of the vacant Intensive Care Unit (ICU) beds. 5.26% cases Left against Medical advice (LAMA) on patients request, for their restrictions that may be due to the financial obligations or the obvious incoming death of the patient; while 8.7% of the patients expired in the emergency ward. 20% of patients were discharged from the Emergency ward after treatment due to poison ingested was quite small in amount and less lethality.

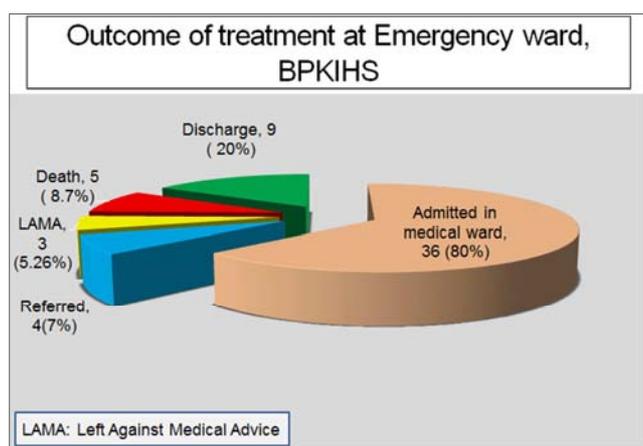


Figure 6. Outcome of treatment at Emergency Ward, BPKIHS.

## 4. Discussion

Acute poisoning is an important clinical emergency and contributor to morbidity and mortality. Early diagnosis, treatment and prevention are crucial in reducing the burden of poisoning related injury in any country. Baseline

epidemiological data depicting the susceptible groups in the community, high - risk circumstances, psychosocial aspects of poisoning, evolve strategies for strengthening poisoning prevention and management at all health care levels.

The trends of poisoning among the patients attending the emergency ward of BPKIHS have described the demographic profile of the patients, types of the poison ingested, intention and the outcome of treatment received. The age of the patients varied from 14 to 68 years. Females predominance found more than males with male: female ratio of 1:1.37, which was consistent with the similar study conducted by DP Singh [8] in which case the age range was found to be from 16 to 65 years of age and the male: female ratio was 1:1.3. 71.9% were married which was agreeable to the similar study done by Gargi J [9] found 69.1% and by Mishra A [10] reported in 70.76% to be marital relationship. The reason would be similar with the study done by Kar SM [11] that females are main group working indoor and outdoor field and easily vulnerable for stressors. The other factors would be increasing trends of Male working abroad hence leaving females more prone to stress.

The study also showed that 24.6% of the poisoning cases were of Organophosphate poisoning, 14% were of Zinc Phosphate, 7% cases were of sedatives/medications poisoning and 31.6% consumed other types like sulphuric acid, combined metal poisoning, kerosene, ayurvedic drugs, herbal poisoning, phenyl, Aluminium phosphide, acetone etc. 22.8% cases were of unknown which is quite comparable to the study conducted by Rai BK, organophosphate poisoning cases were 40.3%, Zinc sulphide was 10.5%, Sedatives 5% and unknown 25.5%. [12]

Intentional poisoning comprised 61.4%, 21.1% were accidental, while 3.5% were homicidal which are quite consistent with other study done by Pathak UN [13]

The study showed that 63.2% of the cases were brought to the emergency ward in less than 6 hours of ingestion while 33.3 % of the patients were brought after 6 hours of ingestion and in 3.5 % of cases time of ingestion of poison was not available.

Among the 57 poisoning cases it is striking that only 22.8% had received primary treatment in any form mostly the supportive treatment in Health posts, Primary Health centres, District Hospitals or private clinics.

Supportive treatment was provided to all the patients in the form of airway management or resuscitation, hemodynamic support, treatment of arrhythmias. Similarly 16% of the patients had received antidote for the poisoning. 24% of the patients had received treatment for the prevention of further poison absorption in the form of frequent gastric aspiration.

## 5. Conclusion

The study was aimed to evaluate the trends of poisoning in the patients and its demographic profile in the emergency ward of BPKIHS, Dharan. Poisoning is one of the common causes of emergency admissions in emergency setting. The cases of poisoning were most prevalent in the age group 20–40

years and within the marital relationship are most susceptible for the intentional poisoning. As the most commonly available form of poison is the organophosphates in the form of pesticides, it is the most common cause of poisoning too. The socioeconomic status of the country, frustration, increase trends of males working abroad, family conflict, and job problem, easy availability of the pesticides, drugs, and easy approachable placement of household chemicals / pesticides at home are the mainstay of cause of poisoning either intentional or accidental.

## Recommendations

A national protocol for poison case management should be implemented in all sub health posts, health posts, health centers, district hospitals, zonal hospitals, regional hospitals, tertiary hospitals, teaching institutes and private health sectors as well as early referral system to higher centers would definitely reduce the morbidity and mortality.

Strict National laws are emphasized regarding the sale of pesticides as well as psychotropic medicines prescription with registered physician or chemist.

The male citizens who are in marital relationship need to reconsider of working within state to minimize stress and frustration on their spouse may prevent the future burden to the circle of relatives and the country.

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