

THE ASSESSMENT OF KNOWLEDGE AMONG NURSING STUDENTS REGARDING ACUTE POISONING MANAGEMENT

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Abstract

Background: Emergencies management is a crucial step for saving life of a vulnerable. Poisoning is life threatening required immediate attention, especially nurses play a critical role in emergencies management and is consider first line responder. Therefore, proper knowledge of nursing students is mandatory for managing a case with acute poisoning.

Aim: The study aimed to assess the level of knowledge among nursing students regarding acute poisoning management.

Method: A descriptive study was conducted among nursing students by utilizing a convenient sampling technique. A questionnaire with general questions on poisoning and specific questions related to poisoning management was distributed among nursing students.

Results: The data collected was analyzed through SPSS version 21. As inference from statistics portion of the study, total nursing students was 150, out of which 80 were female and remaining 70 were male. Majority of the students (89) were from BSN 1st year. Most of the study participants had no knowledge about antidote for specific poison. Similarly, about the use and mechanism of charcoal (94) and gastric lavage (81), highest portion had no knowledge. somewhat their accuracy of answer was noted to general question on poisoning.

Conclusion: The present study concluded that majority of students had unsatisfactory level of knowledge regarding acute poisoning management. About the use of some antidote commonly used for poisoning management, majority of the subject had no knowledge. The study arises a need for proper guidance of students by their instructor regarding all emergency management.

INTRODUCTION

1.1: Background:

Poisoning is the serious medical emergent problem worldwide, which required medical attention to be solved (Alozi and Rawas-Qalaji 2020). Nurses are considered to be the first health care providers which come in contact with the people affected by acute poisoning (Awan, Diwan et al. 2022). So it required sufficient amount of knowledge for

nurses to manage acute poisoning, in to response appropriately what need to be done for specific types of poisoning. While in case of insufficient knowledge regarding poisoning management with nurses, may results into a serious medical consequences and even death of the patient (Allam, Mohammed et al. 2021). Poison is defined is any substance that when introduced into body, or come in contact with

body parts, or inhaled, either intentionally or unintentionally, causes harmful effects or even death (Adeola 2020). In another words high dose of any substances act as a poison, even medications that are used for therapeutic purposes. Consequences of poison on body varies, its dangerous impact depends on their type, the route through which it is taken, or the system they targeted (Chukwuka, Ayabazu et al. 2022). One of the study in South Africa that says accidental poisoning is approximately 59% (Zemedie, Sultan et al. 2021). Organophosphates, inhaled agriculture poison, organochlorine, zinc phosphide and aluminum phosphide are some of the common poisonous agents. Organophosphorus compounds are used as a suicidal or accidental poisoning in rural areas, even serine which is an organophosphates are is used in bioterrorism (Ranjan and Jindal 2022). Some of the classes of medication that when uses in high dose causes poisonous effect or toxicity are benzodiazepines, opioids, and tranquilizers is commonly misused drugs in developed countries (Chiappini, Mosca et al. 2022).

Human poisoning by pesticide is considered as a severe public health concern. A study by World health organization in 1990 estimated that approximately one million unintentional pesticides poisoning with severe complications occur annually, leading to approximately 20,000 deaths, cases expected with intentional self-harm is about 2 million (Ottinger and Geiselman 2023). While statistics from United States reported that each year 2 million cases of poisoning occur. It is stated that approximately 85 percent of unintentional poisonings take place in the home where medicines and harmful chemicals are stored (Joda, Ajetunmobi et al. 2021). Globally, the case of unintentionally poisoning decrease, but in developing countries like Pakistan, this condition was the 26th cause of mortality in 1990 but increased to the 22nd by 2010 (Safdar, Afzal et al. 2021). Thus poison may be used intentionally and unintentionally, both of their dimension must be recorder in order to obtain in accurate information (Ghimire, Utyasheva et al. 2022).

The knowledge of nurses regarding poisoning management is crucial for clinical outcomes of the patient. The purpose of this study is to assess the level of knowledge of those nurses already working in clinical setting managing critical condition, especially management of patient with acute poisoning, which may occur in response to actively use of poisonous substances or overdose of medication. The nurse has to manage these all situation, so that is why it is needed to research this critical issue among nurses.

1.2: Problem statement:

Poisoning is a serious medical concern worldwide, which required emergent medical attention. If it is not resolved timely it has a serious consequence, and may even leads to death of the affected person. Severity resulting from poison depends on the types of poisonous agent and its route of contact with body. The health care provider including nurses are the first line responder to the affected person. Knowledge of the nurses are of great importance to manage the condition of the person affected by poison.

1.3: Significance:

This study will be helpful for health care workers and nurses to gain basic knowledge regarding the management of poisoning and to timely response what need to be done.

1.4: Aim of the study:

The aim of this study is the assessment of knowledge among nursing students regarding management of acute poisoning.

1.5: Objectives:

To assess the knowledge regarding acute poisoning management among nursing students.

1.6: Research Question:

What is the level of knowledge regarding acute poisoning management among nursing students?

Operational definition:

Knowledge will be assessed through an adopted, modified, and translated questionnaire. The

questionnaire consists of items 16 items on nominal scale. The responses to questions are classified as true and false. A score of more than 75% means good knowledge, between 50% and 75% means acceptable knowledge, and less than 50% means insufficient knowledge or poor score.

CHAPTER NO: 2

LITERATURE REVIEW

Poisoning is the serious medical problem worldwide, which required medical attention to be solved (Mattiuzzi and Lippi 2020). Appropriate Management of poisoning is crucial for the life of an affected person, any negligence by the health care providers particularly nurse may lead to serious consequences for the patient and their family (Østervang, Geisler Johansen et al. 2022). Nurses are first line health care providers for all the critical situation. Therefore, the level of knowledge of nursing students regarding management of acute poisoning is of really important, I order to improve patient outcomes (Allam, Mohammed et al. 2021).

A study conducted at Rajendra Institute of Medical Sciences Ranchi, Jharkhand between the duration of July 2021 to December 2021. This is a cross sectional study approach. The purpose of which was to assess the knowledge and awareness regarding management of acute poisoning among nurses. Total subject of the study was 212. It was found that approximately one-third (43.8%) of the study subject had an insufficient level of knowledge. Rational behind which was lack of proper training, and clinical experience. The study concluded that about half of the nurses showed unsatisfactory knowledge, based on which the study recommend training and educational support for students, thus so to improve their knowledge regarding poisoning management (Kumari, Toppo et al. 2023).

Similarly, another study with a descriptive approach was done at poisoning center in Al-Mansura city, emergency department in Al-Manzala central hospital and El-Salam hospital. The aim of the study was to assess knowledge of nurses regarding toxicology emergencies care. Two tools for data collection process were utilized, one of them was knowledge

questionnaire, while the second one was practical observational skills assessment. As inference from their results portion more than half (54.3%) of participants had poor knowledge. The study emphasized on educational program arrangement for nurses to improve their knowledge (Saad Hassan, Abo El-Ata et al. 2021). A study conducted from August 1 to August 30, 2021. This was an institutional based cross sectional study. At Debre Tabor comprehensive specialized hospital, all nurses were interviewed. The objective of the study was to investigate the knowledge, attitude, and practice of nurses regarding the early management of acute poisoning in 2021. Total participants of the study were 149, with a response rate of 98%. The study revealed that, in general, 132 (88.5%) of the nurses and 79 (52.3%) of the nurses had good knowledge and practice in the initial management of acute poisoning (Tassew, Feleke et al. 2022).

From Ethiopia, where an institution-based cross-sectional study design was used to recruit 422 nurses from public hospitals of Bahir Dar city. This study aimed to assess the knowledge of nurses toward the initial management of acute poisoning. Total study subject was 422 nurses, with a response rate of 100%; 248 (58.8%) and 264 (62.2%) of the nurses had good knowledge and practice, respectively. The study results had contradiction to the above study mentioned, possible reason may include good educational background, training, and professional interest in managing poisoning case (Adal, Hiamanot et al. 2023).

A cross-sectional study from Ismailia University hospitals was done on nurses in the emergency department. The aim of the study was to assess the emergency nurses' level of knowledge in caring for a specific poisoning management (carbon monoxide poisoning). The findings of this study revealed that extra than of two third (68%) of the studied nurses had unsatisfactory knowledge's level. The poor knowledge of the study subject arise the need for the conduction of educational framework and training session on poisoning management (Shehata, Elbqry et al. 2023).

Hence the above mentioned study confirmed that approximately half (50%) or in some studies up to 60% of the nurses had poor or lower level of knowledge regarding the management of poisoning. It was also concluded that those nurses who has excellent level of knowledge regarding the management of poisoning has greater experience profile and best academic background. Those nurses whose knowledge is unsatisfactory had poor clinical experience. So it is important to increase the level of knowledge of nurses regarding the management of acute poisoning, so that the nurses will be able to provide efficient care to the patient.

**CHPATER NO 3
METHODOLOGY**

3.1: Study Design:

A descriptive cross sectional research study is used.

3.2: Setting:

The study setting is the superior university department of nursing Lahore.

3.3: Sampling techniques:

Convenient sampling techniques is used for data collection.

3.4: Sample size:

The simple size was calculated through slovin’s formula.

$$n = \frac{N}{1+N(e)^2}$$

Where;

n= Sample size

3.9: Population of study:

Our population of study is nursing students of superior university department of nursing Lahore.

3.10: Duration of the study:

The study were taken approximately in 9 months.

CHAPTER NO: 4

RESULTS

Sociodemographic characteristic of study participant

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	80	53.3	53.3	53.3

N= population size

e= level of precision/margin of error

3.5: Eligibility criteria:

3.5.1: Inclusion criteria:

Our study includes nursing students from superior university department of nursing Lahore.

3.5.2: Exclusion criteria:

Our study excluded graduated nurses, Post RN students, and other health care workers and physicians.

3.6: Ethical Consideration:

The ethical consideration was followed by which is set by committee of nursing department, superior university. Participants was ensure for data privacy and they are not forced to participate in this study. Participants will be given enough information regarding study and their participation in this study. There is no harm. Therefore, confidentiality were maintained.

3.7: Data collection tool:

Data was gathered by using an adapted version of tool to assess the level of knowledge regarding acute poisoning management among nursing students.

3.8: Data collection procedure:

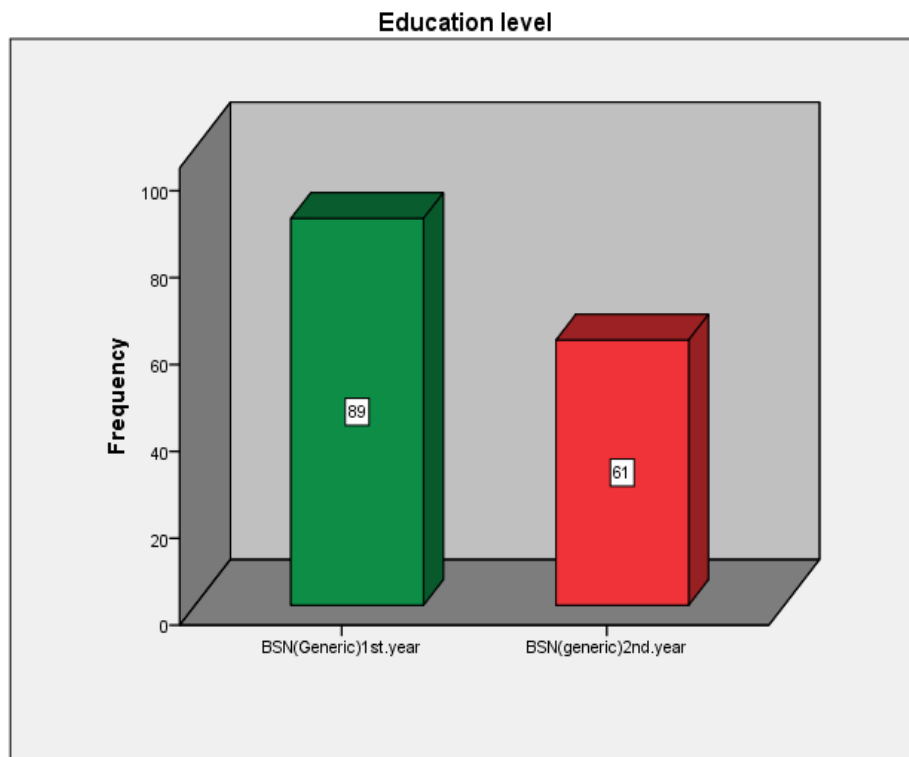
Data was gathered from nursing students of superior university department of nursing Lahore.

Education level of study participant

	Frequency	Percent	Valid Percent	Cumulative Percent
BSN(Generic)1st.year	89	59.3	59.3	59.3
BSN(generic)2nd.year	61	40.7	40.7	100.0
Total	150	100.0	100.0	
Male	70	46.7	46.7	100.0
Total	150	100.0	100.0	



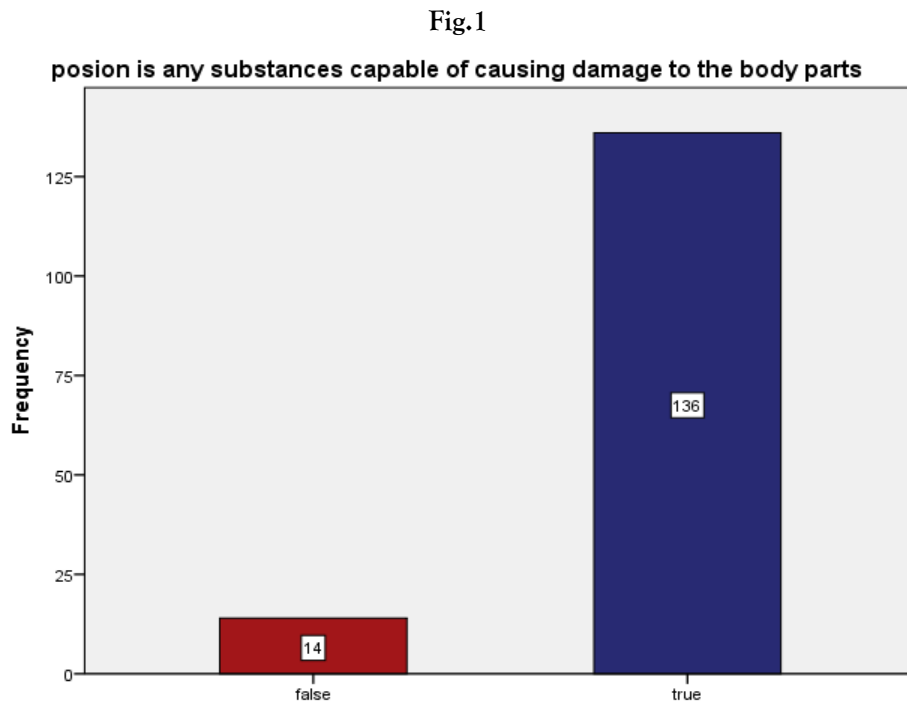
This Table & Bar Chart shows the frequency & percentage of male & female(gender) included in the study. The frequency of male participant is 70(46.7%), while the frequency of female participant is 80(53.3%) out of 150 study participant.



This table & Bar Chart show the frequency & percentage of educational level of study participant. The frequency of BSN(generic) 1st year students is 89(59.3%), while the frequency of BSN(generic) 2nd year students is 61(40.7%) out of 150 students.

Table.1: Nursing Students Knowledge level on acute poisoning management

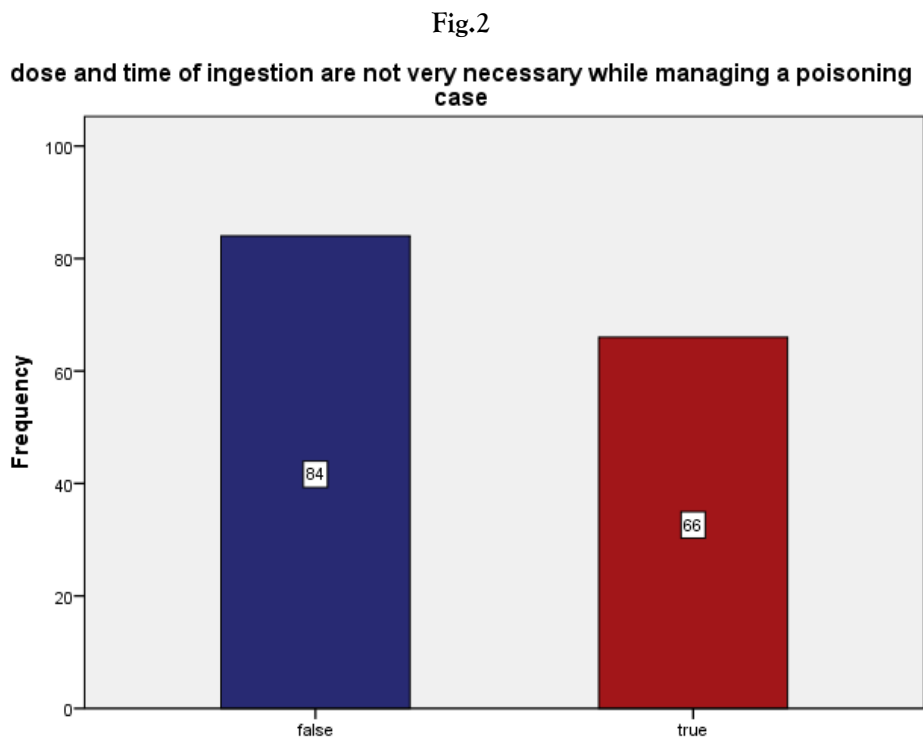
	Frequency	Percent	Valid Percent	Cumulative Percent
False	14	9.3	9.3	9.3
True	136	90.7	90.7	100.0
Total	150	100.0	100.0	



The above Table#1 show participant response to question (1) related to knowledge (poison is any substance capable of causing damage to the body parts).The number of subjects who responds correctly (true) is 136(90.7%) out of 150, while the number of participant who responds wrong answer(false) is 14(9.3%).

Table.2:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	14	9.3	9.3	9.3
True	136	90.7	90.7	100.0
Total	150	100.0	100.0	

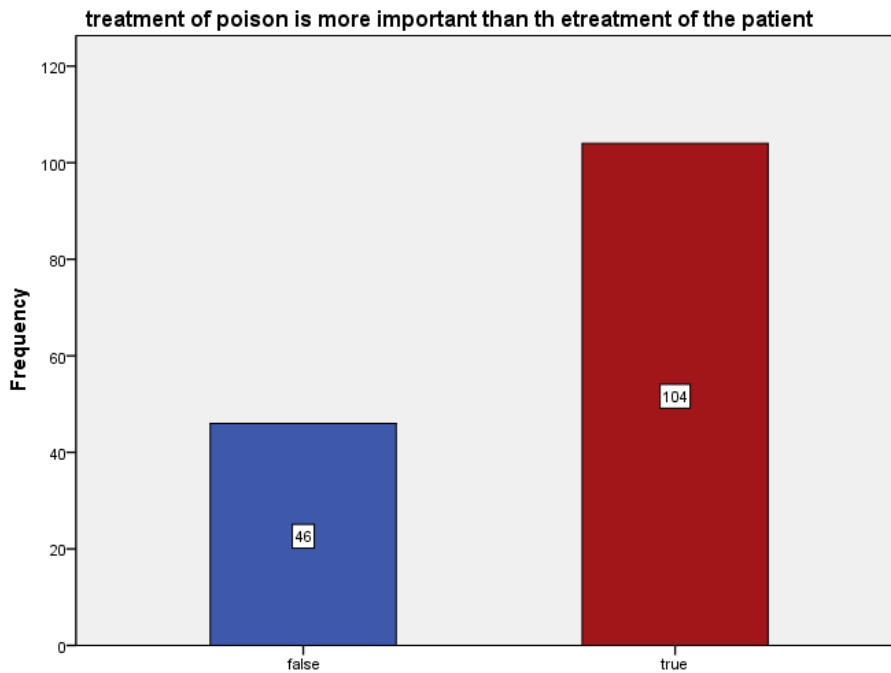


As show in the above table and Fig#2 participant response to question 2 “Dose and time of ingestion are not very necessary while managing a poisoning case”. The number of participant who responds correctly (false) is 84(56%) out of 150, while those who responds incorrectly (true) is 66(44%).

Table.3:

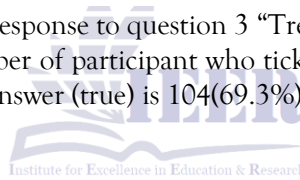
	Frequency	Percent	Valid Percent	Cumulative Percent
False	46	30.7	30.7	30.7
True	104	69.3	69.3	100.0
Total	150	100.0	100.0	

Fig.3



As shown in the above table#3 subjects response to question 3 “Treatment of poison is more important than the treatment of the patient”. The number of participant who tick on right answer (false) is 46(30.7%). out of 150, while those who tick on wrong answer (true) is 104(69.3%).

Table.4:



	Frequency	Percent	Valid Percent	Cumulative Percent
False	53	35.3	35.3	35.3
True	97	64.7	64.7	100.0
Total	150	100.0	100.0	

Fig.4

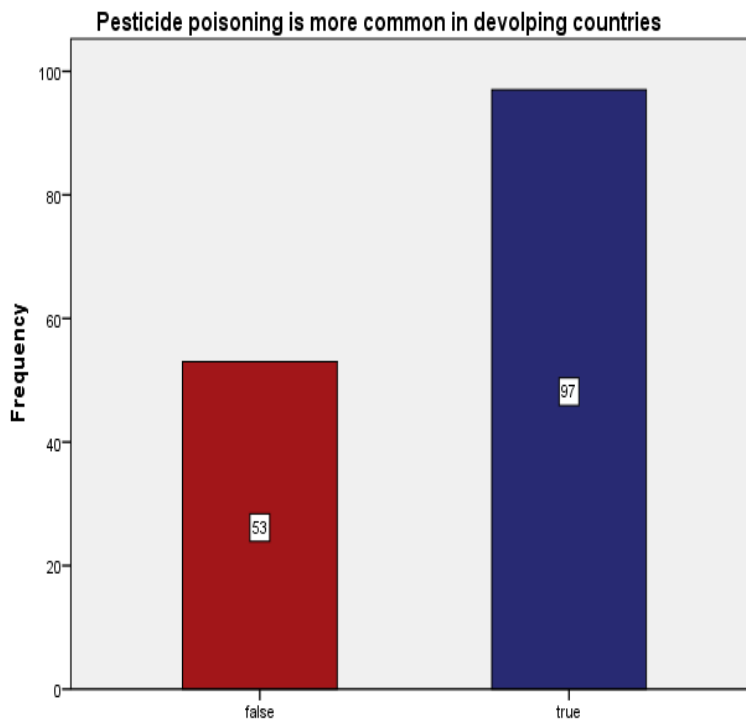


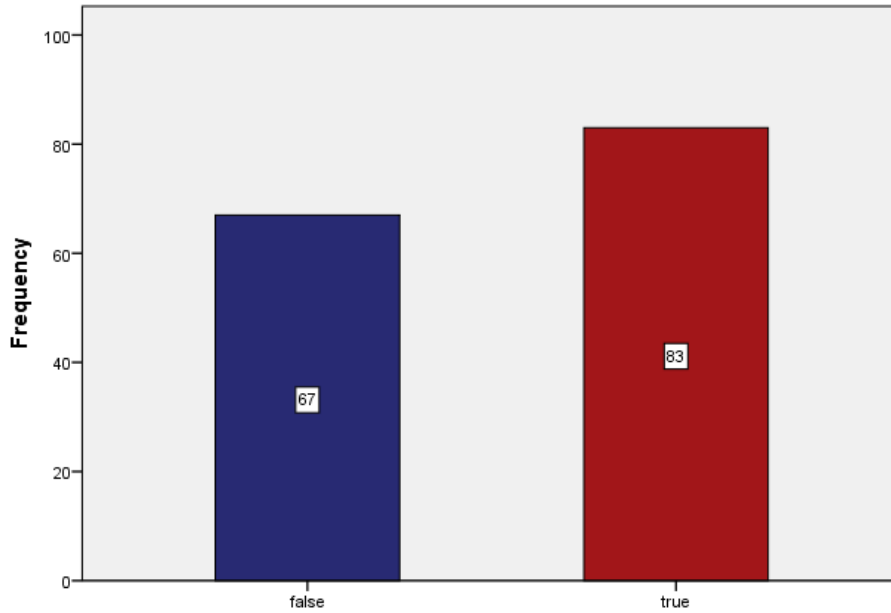
Table & Fig#4 show participant response to question 4 “Pesticide poisoning is more common in developing countries”. Which indicates that the number of participant who responds correctly (true) is 97(64.7%), while those responds incorrectly (false) is 53(35.3%).

Table.5:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	67	44.7	44.7	44.7
True	83	55.3	55.3	100.0
Total	150	100.0	100.0	

Fig.5

Personal details of the poisoned patients like address and identification marks are not important



The above table#5 shows participant response to question 5 “Personal detail of the poisoned patients like address and identification marks are not important”. The number of participant who responds correctly (false) is 67(44.7%), while those who responds incorrectly(true) is 83(55.3%).

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Table.6:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	65	43.3	43.3	43.3
True	85	56.7	56.7	100.0
Total	150	100.0	100.0	

Fig.6

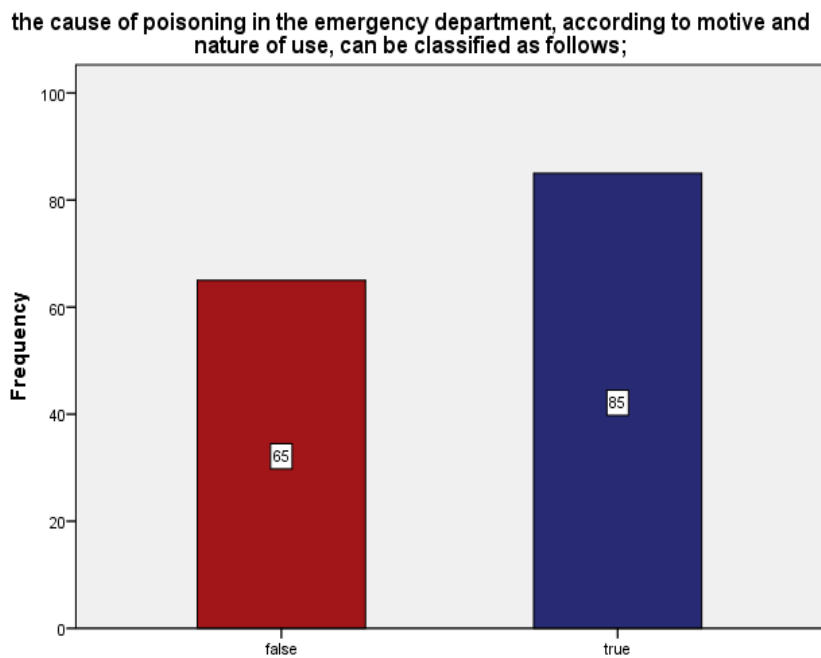
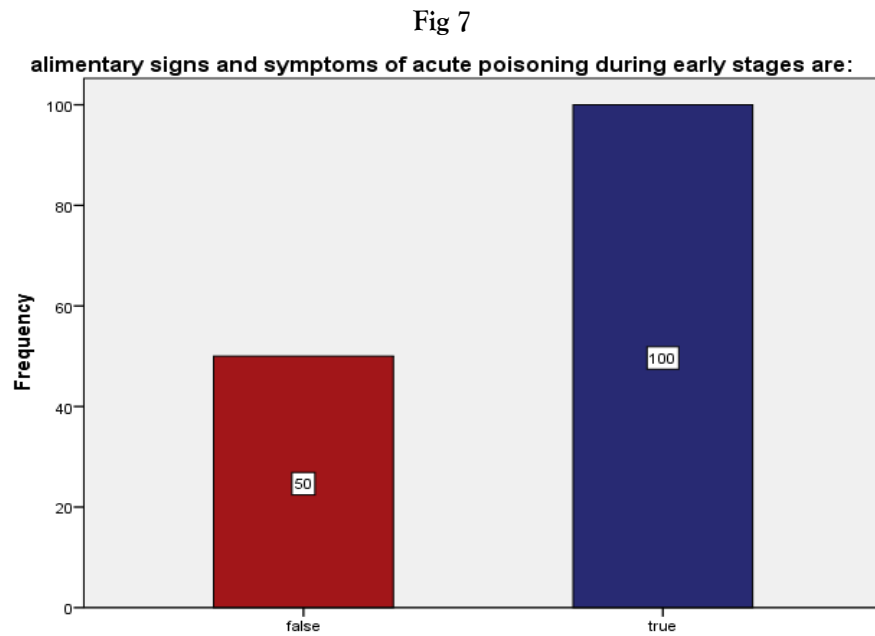


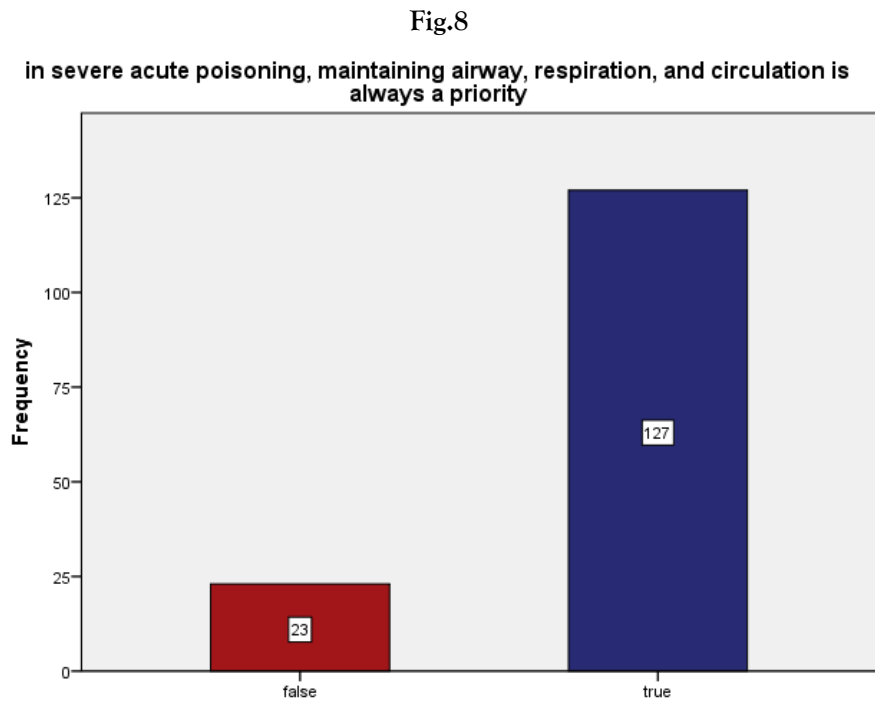
Table & Fig#6 shows participant response to question 6 “The cause of poisoning in the emergency department, according to motive and nature of use, can be classified as follows” ;(option is not mention here). The number of participant who tick on right answer is 85(56.7%), while those who tick on wrong answer is 65(43.3%). Correct option for this question is not mention here, however participant response are then either considered as true or false.



As show in above Table & Fig#7, participant response to question 7 “Alimentary signs and symptoms of acute poisoning during early stages are:(MCQs; options are not mention here)”. The participants who responds correctly (true) is 100(66.7%), while those responds incorrectly (false) is 50(33.3%). Correct option for this question is not mention here, however participant response are then either considered as true or false.

Table.8:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	23	15.3	15.3	15.3
True	127	84.7	84.7	100.0
Total	150	100.0	100.0	



As shown in above table#8 participants response to question 8 “In severe acute poisoning, maintaining airway, respiration, and circulation is always a priority”. The number of participant who responds correctly (true) is 127(84.7%) out of 150, while those who tick on wrong answer (false) is 23(15.3%).

Table.9:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	23	15.3	15.3	15.3
True	127	84.7	84.7	100.0
Total	150	100.0	100.0	

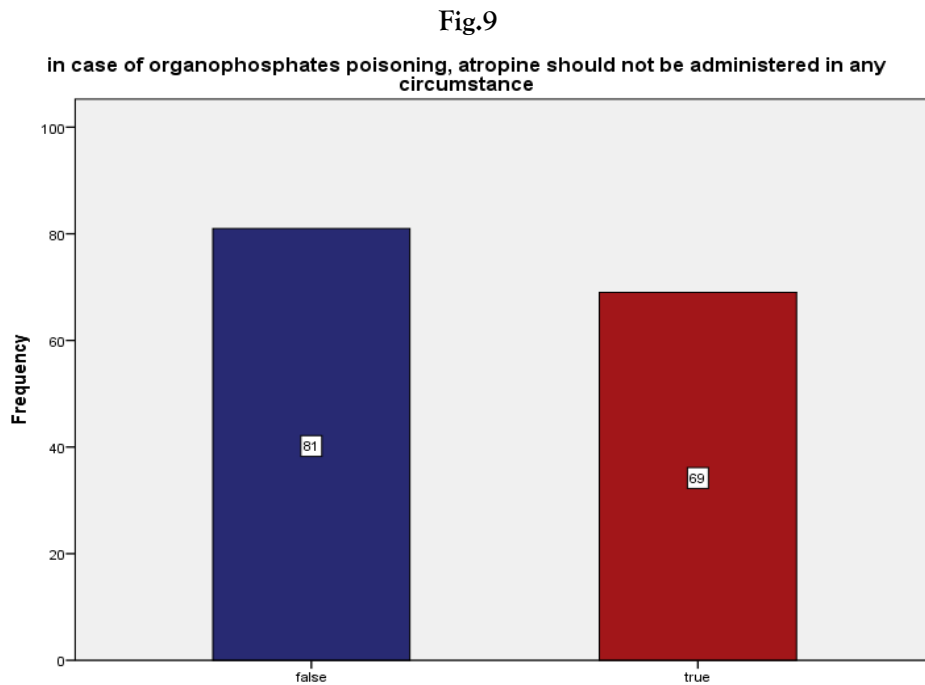


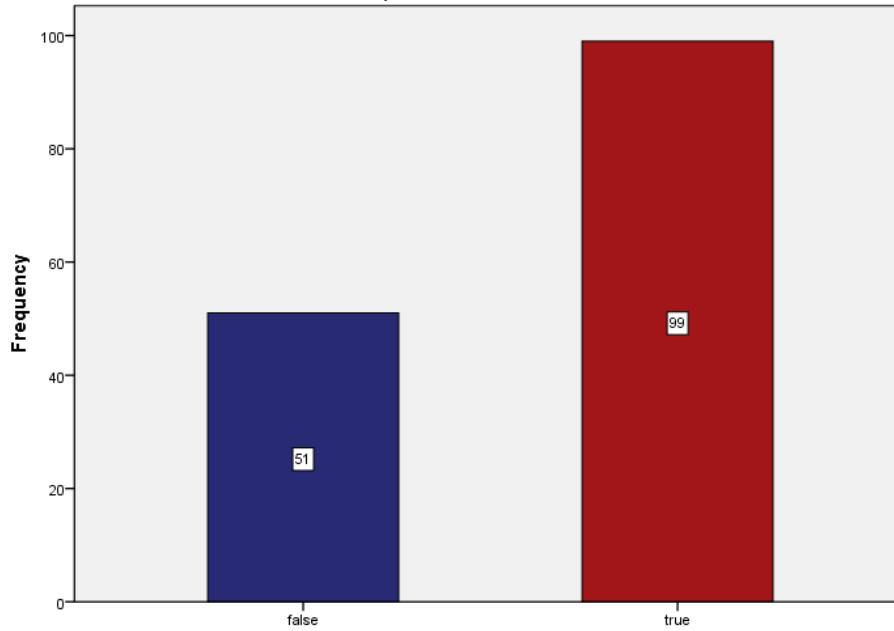
Table & Graph (9) show participant response to question 9 “In case of organophosphates poisoning, atropine should not be administered in any circumstance”. The number of participant who responds correctly (false) is 81(54%).out of 150, while those who responds incorrectly (true) is 69(46%).

Table.10:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	51	34.0	34.0	34.0
True	99	66.0	66.0	100.0
Total	150	100.0	100.0	

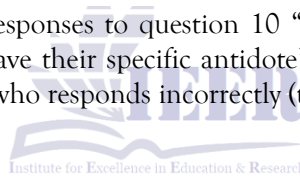
Fig.10

nearly all poisoning encountered in the accident and emergency departments have their specific antidote



As shown in above table#10 subjects responses to question 10 “Nearly all poisoning encountered in the accident and emergency departments have their specific antidote”. The number of subjects who responds correctly (false) is 51(34%), while those who responds incorrectly (true) is 99(66%).

Table.11:



	Frequency	Percent	Valid Percent	Cumulative Percent
False	64	42.7	42.7	42.7
True	86	57.3	57.3	100.0
Total	150	100.0	100.0	

Fig.11

the decision to perform gastrointestinal decontamination should be based upon the specific poison ingested, time from ingestion to presentation, and the predicted severity of the poison

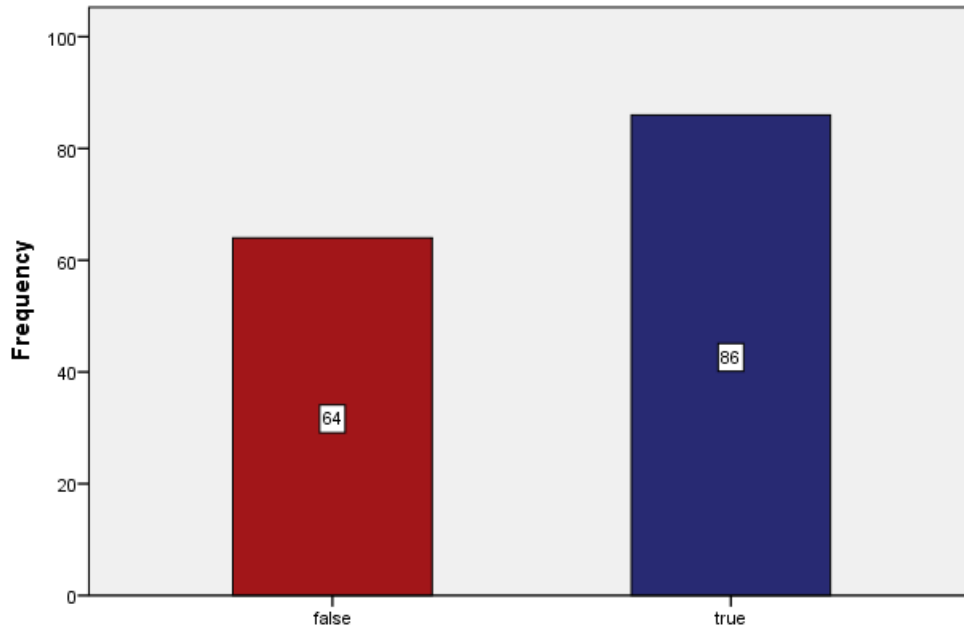


Table & Fig#11 show participant response to question (11) related to knowledge. the number of participant who tick on right answer (true) is 86(57.3%), while those who tick on wrong answer (false) is 64(42.7%).

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Table.12:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	56	37.3	37.3	37.3
True	94	62.7	62.7	100.0
Total	150	100.0	100.0	

Fig.12

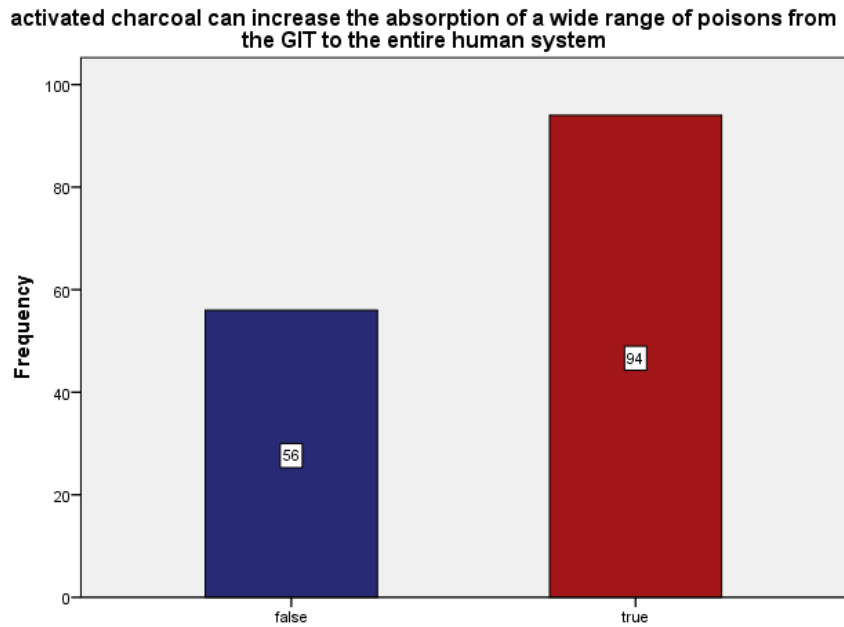


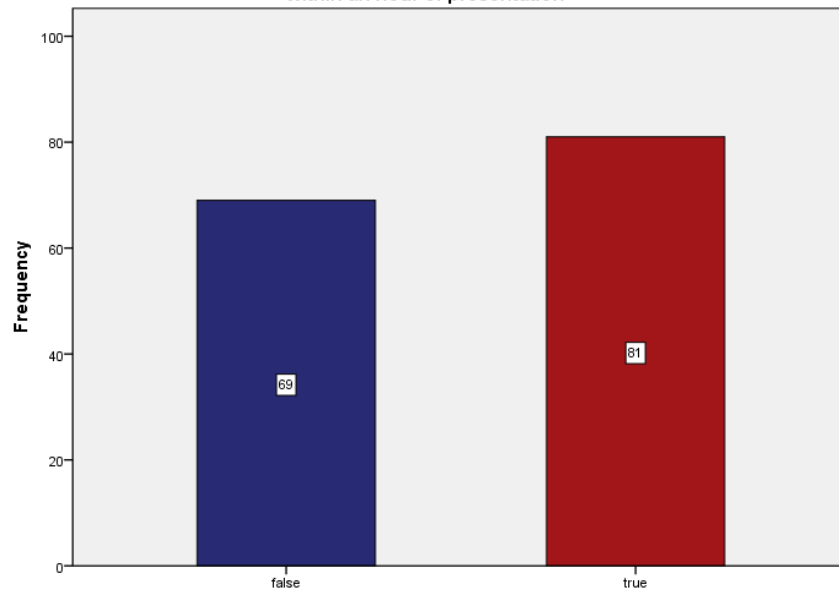
Table & Graph (12) show participant response to question12 “Activated charcoal can increase the absorption of a wide range of poisons from the GIT to the entire human system”. The number of participant who responds correctly (false) is 56(37.3%), while those responds incorrectly (true) is 94(62.7%).

Table.13:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	69	46.0	46.0	46.0
True	81	54.0	54.0	100.0
Total	150	100.0	100.0	

Fig.13

gastric lavage is indicated for patients who have ingested kerosene or corrosive substances within an hour of presentation



As shown in the above table#13 participant response to question (13) related to knowledge. The number of participant who tick on right option (false) is 69(46%) out of 150, while those who tick on wrong answer (true) is 81(54%).

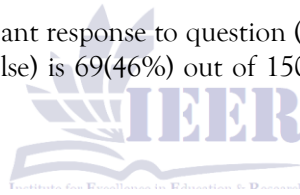
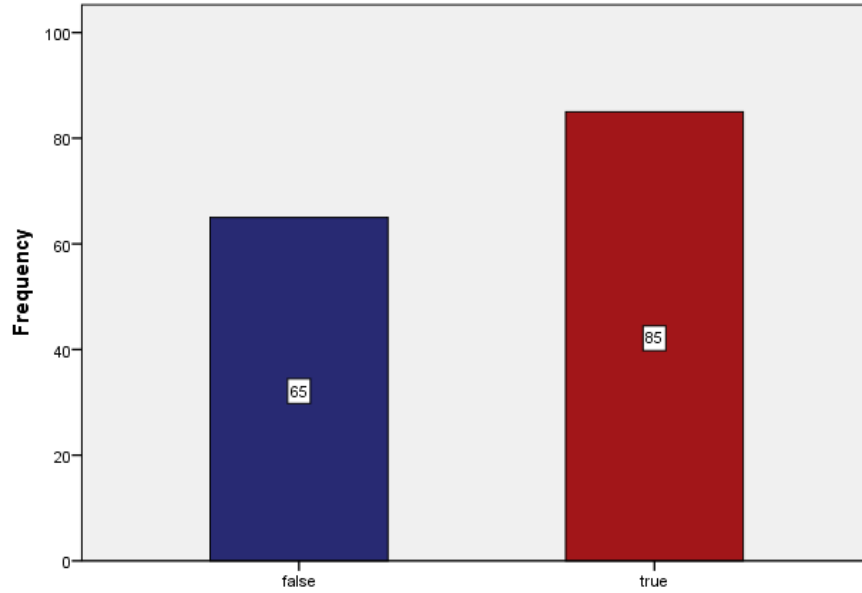


Table.14:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	65	43.3	43.3	43.3
True	85	56.7	56.7	100.0
Total	150	100.0	100.0	

Fig.14

the effectiveness of gastric lavage increases as the time between ingestion and treatment increases



Table#14 shows participant response to question 14 “The effectiveness of gastric lavage increases as the time between ingestion and treatment increases”. The number of participant who responds correctly (false) is 65(43.3%), while those who responds incorrectly (true) is 85(56.7%).

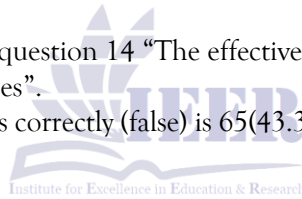
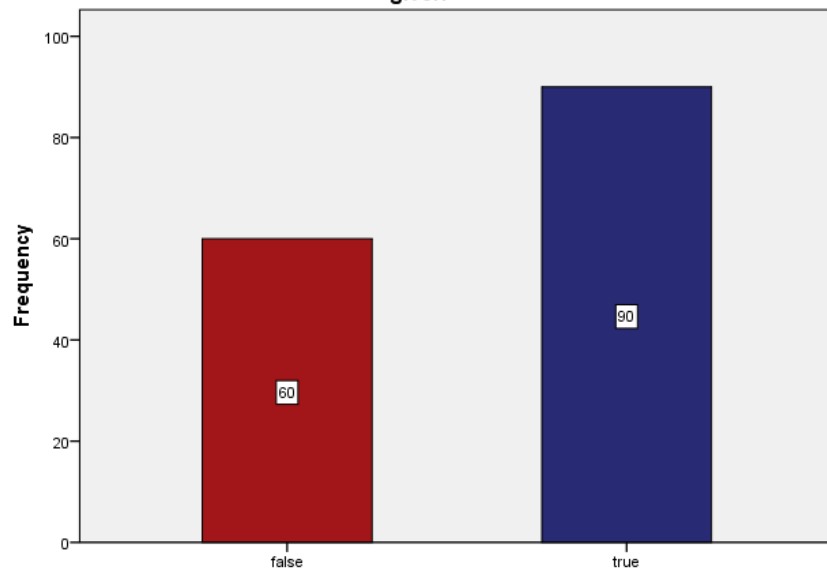


Table.15:

	Frequency	Percent	Valid Percent	Cumulative Percent
False	60	40.0	40.0	40.0
True	90	60.0	60.0	100.0
Total	150	100.0	100.0	

Fig.15

the volume of lavage fluid aspirated should approximately to the amount of fluid given



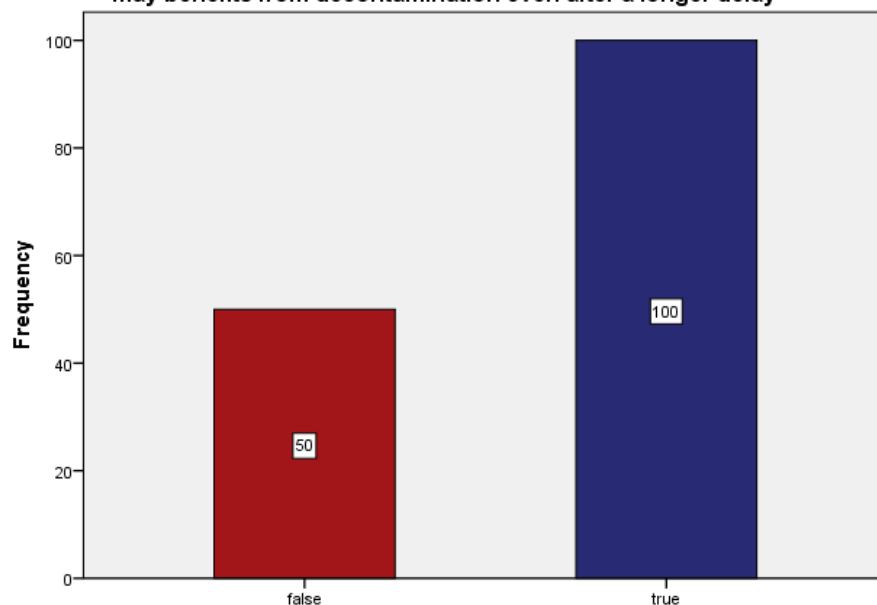
As shown in the above table & Fig#15 subjects response to question 15 “The volume of lavage fluid aspirated should be approximately to the amount of fluid given”. The number of participant who respond correctly (true) is 90(60%) out of 150, while those who responds incorrectly (false) is 60(40%).

table.16

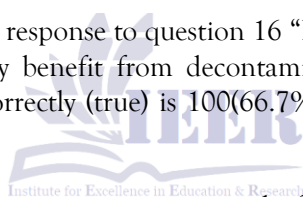
	Frequency	Percent	Valid Percent	Cumulative Percent
False	50	33.3	33.3	33.3
True	100	66.7	66.7	100.0
Total	150	100.0	100.0	

Fig.16

patients presenting following ingestion of controlled/slow-released substances may benefits from decontamination even after a longer delay



As shown in the above table#16 subjects response to question 16 “Patients presenting following ingestion of controlled/slow-released substances may benefit from decontamination even after a longer delay”. The number of participant who responds correctly (true) is 100(66.7%), while those who responds incorrectly (false) is 50(33.3%).



CHAPTER NO: 5

DISCUSSION

The purpose of this study was to assess the knowledge level of nursing students regarding the management of acute poisoning. Out of 150 Nursing students, 80 (53.3%)were female and 70(46.7%) were male. Majority of nursing students 89(59.3%)were from BSN(Generic) 1st year class, while the remaining 61(40.7%) students were from BSN(Generic) 2nd years class. In regard to questionnaire component of this study, most of the students had insufficient knowledge regarding poisoning management. When asked about antidote for poisoning that is “Nearly all poisoning encountered in the accident and emergency departments have their specific antidote” most of the students (99) had no knowledge about it. Similarly, majority of the students (94) had no knowledge about the use of charcoal and their mechanism. Gastric lavage related question which asked that gastric lavage is

used for kerosene or corrosive substances ingestion, most of them (81) had responds wrong answer. However, the highest proportion of students responds correctly 136(90.7%) to a question related to general knowledge on poisoning “Poison is any substances capable of causing damage to the body parts”. Similarly Followed by 127(84.7%) towards a question related to management of acute poisoning that “In severe acute poisoning, maintaining airway, respiration, and circulation is always a priority”. While a previous studies conducted on assessment of knowledge level among nurses has contradiction or to some extent similarity to our study findings.

In comparison to previous study conducted among 212 nurses at Rajendra Institute of Medical Sciences, Ranchi, Jharkhand from July 2021 to December 2021. More than one-third (43.8%) of the study participants had an unsatisfactory level of knowledge, which might be

because of a lack of proper training and experience, but still, 42.4% and 13.6% of the study participants had satisfactory and good knowledge, respectively. That means, about half of the nurses have poor knowledge regarding poisoning management and only 12.73% have good knowledge, which is not acceptable. This is similar to the findings reported in the studies done in Kenya and Ethiopia (Kumari, Toppo et al. 2023).

Besides of them, from January 2018 to June 2018 a cross sectional study was conducted in Dessie referral hospital, Amhara region, Ethiopia. The objective of the study was to investigate the knowledge, and practice of nurses on the initial management of acute poisoning. Where it was statistically noted that scores range from 2 to 9 with 7 means score for the overall respondents that were 57.5% for the given items that, and the knowledge level in this study was less than 75% which was unsatisfactory level of knowledge. Similar findings were reported in many international and local studies. Poor knowledge of nurses were associated with many factors like lack of training, absence of continuous supervision and evaluation (Abebe, Kassaw et al. 2019).

Another study conducted on nurses from public hospitals of Bahir Dar city in Ethiopia. The study examines the knowledge, attitude, and practice of nurses about the initial management of acute poisoning. This was cross sectional study, where 422 nurses were participated from hospitals of Bahir city in Ethiopia. Total response rate was 100%; it was resulted that 248 (58.8%) and 264 (62.2%) of the nurses had good knowledge and practice, respectively. Other than that the study generalize that approximately more than half of nurses had good knowledge, practice, and a positive attitude, suggesting a best reflection of poisoning management (Adal, Hiemanot et al. 2023). In opposite to this study findings, another study conducted on Nurses knowledge and practices regarding detection and management of acute poisoning at Cairo University hospitals in August 2015. A descriptive exploratory design was utilized. The study clearly stated that all the participants had insufficient knowledge (100%)

and practice level (75%) regarding detection and management of acute drug poisoning. Even not only that it was concluded that those nurses working in critical care and emergency departments had inadequate knowledge and practice regarding detection and management of acute drug poisoning (Mohamed, Alshekhepy et al. 2015).

The current study revealed that overall knowledge level of subjects was good about general knowledge on poisoning, signs and symptoms of poisoning and even for the initial management of poisoning. However, knowledge deficit was found in areas related to specific antidote for poisoning, indication of specific guideline for poisoning, activated charcoal uses and gastric lavage related questions. This study findings is similar to the study conducted among 212 nurses at Rajendra Institute of Medical Sciences, Ranchi, Jharkhand from July 2021 to December 2021 by (Kumari, Toppo et al. 2023).

Conclusion:

The present study revealed that majority of the study participants had insufficient knowledge regarding management of acute poisoning. Whether, general knowledge and or management of acute poisoning their knowledge was unsatisfactory. It was found that those who had lower literacy level BSN generic 1st year had poor knowledge level. The study arises a need for proper guidance of students by their instructor regarding all emergency management.

Limitations of the study:

Most of the study subject were not interested in our study due to privacy closure. The findings of this study must not be generalized to all of the students, because poor level knowledge in this study may be associated with their low literacy level.

Recommendations:

As inference from the study findings it is recommended that; There must be proper guidance by instructor to their students on acute poisoning management.

Induction of formalized educational framework to consider the management of all type of emergencies management

Conduct a simulation based management, to improve hand on practice on emergencies.

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