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Knowledge, attitude and practice of nurses working in South Gondar zone hospitals toward initial management of acute poisoning, 2021

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Abstract

Introduction: *poisoning is defined as injury or death caused by ingesting, breathing, touching, or injecting a variety of medications, chemicals, venoms, or gases. In many places of the world, it is a cause of both morbidity and mortality. Poisoning episodes are thought to cause more than one million diseases each year around the world. The goal of this study was to assess the knowledge, attitude, and practices of Debre Tabor Comprehensive Specialized Hospital nurses in regard to the early management of acute poisoning in 2021.* ***Methods:*** *from August 1 to August 30, 2021, an institution-based cross-sectional study was undertaken. During data collection, all nurses at Debre Tabor Comprehensive Specialized Hospital were interviewed. Epi-info version 7.2 and SPSS version 24 were used to enter and analyse data.* ***Results:*** *the study recruited the participation of 149 nurses, with a response rate of 98%. 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. Poison, as defined by 139 (93.3%) of them, is any substance capable of causing damage or dysfunction in the body through its chemical action. Patients coming with poisoning take more staff time, causing staff to be unavailable to patients in greater need of assistance, as according 58.9% of nurses, and 98.6% of nurses say that patients presenting with poisoning must be addressed with "strict" techniques to curtail the practice.* ***Conclusion:*** *despite the fact that the majority of nurses had good understanding of early poisoning therapy, their practice was insufficient.*

Introduction

Poison is defined as any chemical that has the ability to alter or degrade human physiology through general or local cell damage or death as a result of its chemical action. It's a global issue that takes up a lot of health-care resources and leads to a lot of fatalities that could have been avoided. The underdeveloped world bears the brunt of serious poisoning. Poisoning-related morbidity and mortality, on the other hand, is a major public health concern in the developed world [1]. Poisoning is a serious health issue that affects people all around the world. Poisoning is becoming more common; from 1999 to 2016, drug-poisoning fatality rates tripled, rising from 6.1 per 100,000 to 19.8 per 100,000. Drug poisoning claimed the lives of 63,632 people in 2016 [2,3]. Poisoning is a common cause of medical visits and hospitalisation around the world. In many regions of the world, it is a leading cause of morbidity and mortality. Poisoning episodes are thought to cause more than one million diseases each year around the world [4,5]. Treatment for poisoning should be started as soon as possible and appropriately. In most developed countries, knowledge of the typical pattern of poisoning in a given region would aid in early diagnosis and care of poisoning, reducing morbidity and mortality. However, in most developing countries, delayed initiation of resuscitative efforts results in preventable death [6,7].

Patients who appear with serious toxic consequences almost always require immediate treatment. As with any emergency patient, the initial step is to stabilise the airway, breathing, and circulation. Identifying the toxin via history, toxidrome, or laboratory tests may point the nurse in the right direction [8]. Nurses are typically the first health care providers to contact patients who have consumed poisons. When it comes to this early and critical judgement, they are frequently at the forefront. The knowledge, skills, and attitude of nurses are critical to their practice and have a

significant impact on the overall patient outcome. The agent eaten, the dose consumed, the time since ingestion, clinical aspects, patient variables, and geographic location must all be known to nurses. To ensure that problems are identified and treated appropriately, all nurses must be aware with the clinical priorities in initial poisoning management [9,10]. It is critical to assess nurses' knowledge and skills in order to improve nursing poisoning management and have a beneficial outcome for poisoned patients. As a result, the purpose of this study was to assess the knowledge, attitude, and practice of nurses working in Debre Tabor Comprehensive specialized hospital in regard to the initial management of acute poisoning in 2021 GC.

Methods

Study area and period: institution based cross sectional study was conducted from August 1-30/2021 in Debre Tabor Comprehensive Specialized Hospital. Debre Tabor comprehensive specialised hospital is located in Debre Tabor town, which is the administrative centre of the South Gondar zone. It's 765 kilometers from Addis Ababa and 102 kilometers from Bahir Dar. The hospital employs 152 nurses who work in a variety of inpatient and outpatient units.

Eligibility criteria: nurses working in Debre Tabor Comprehensive Specialized Hospital available during data collection period were included. Nurses on annual, maternity or sick leave during the data collection period were excluded from the study.

Sample size determination and sampling technique: all nurses who were working in different units of the hospital during the data collection period were included in the study. In addition, six head nurses were involved for the interview. Simple random sampling technique was used to select the study participants.

Data collection instrument and procedure: the data were collected using structured interviewer administered questionnaire adopted from previous study [10]. A pretest was conducted among five percent of the total sample size that was not included in the study. Data were collected to 2 BSC nurses, a two-day training was given before data collection.

Study variables: the variables of this study were knowledge, attitude and practices of nurses toward initial management of poisoning.

Data processing and analysis: the collected data were entered, coded and cleaned into Epi-info manager version 7.2 and then exported to SPSS window version 25 for analysis. Descriptive statistics were used to describe participants knowledge, attitude and practices.

Data quality control: to assure the quality of data, questionnaires were pretested prior to the actual in Tibeb Gion specialized Hospitals. Based on the pretested result, correction of unclear and vague issues was carried out. At the time of data collection, all data collectors were rechecked for completeness of the questionnaire, then the investigators and supervisors made spot-checking and reviewing of completed questionnaires.

Operational definitions

Poison: substance capable of producing damage or dysfunction to the body by its chemical activity. In this study, it is a substance that has been ingested through the oral cavity, injected to bloodstream, absorbed via skin and produces damage or dysfunction to the body by its chemical activity.

Acute poisoning: when the body is exposed to a toxic substance in a high dose, on one occasion and during a short period of time. Symptoms develop in close relation to the exposure.

Initial assessment: management and care given by nurses to poisoned patient on arrival at hospital. The care ends when the patient´s physiological

parameters are within normal and patient is out of life-threatening situations.

Knowledge: familiarity with acute poisoning management among emergency nurses. It includes; information, facts and skills acquired through experience and education on poisoning.

Good knowledge: knowledge level from 75-100% scores for the given general knowledge and initial management of acute poisoning items.

Poor knowledge: knowledge level below 75%.

Nursing practice: actual provision of nursing care using the nursing process to poisoned casualties.

Positive attitude: attitude level from 75-100% scores for the given acutely poisoned casualty management items.

Negative attitude: attitude score of level below 75%.

Good practice: practice level from 75-100% score for the given acutely poisoned casualty management items of practice.

Poor practice: practice score of level below 75%.

Results

Socio-demographic characteristics of nurses: a total of 149 nurses were involved in this study with a response rate of 98%. About, 87 (58.4%) of the nurses were males and 66 (44.3%) of them were in the age range of 25-34 years. Majority, 98 (65.8%) of the nurses were BSc nurses and 68 (45.6%) of them had 4-10 years of working experience.

Knowledge of Nurses towards initial management of acute poisoning: the knowledge of nurses on initial managements of poisoning was assessed using the 17 items. Majority, 132 of nurses defined poison as a substance that produce damage or dysfunction in the body. 102 (68.5%) of nurses believed that considering the dose and time of ingestion of poison is important in managing poisoned patients. The item for which nurses displayed the lowest knowledge level was administration of atropine during organophosphate poisoning, 55 (36.9%) of the Nurse stated that Atropine should be administered in any circumstance during organophosphate poisoning. Generally, based on the given 17 items to assess the general knowledge of nurses on poisoning, the score ranges from 4 to 16 with the range of 10 with the mean score of 10.23 (SD-0. 0.78) for the entire respondents (Table 1).

Attitude of nurses towards initial management of acute poisoning: from the nurses involved in this study, 38.9% of the nurses strongly agreed that patients presenting with poisoning occupy more staff time, so staff are unavailable to patients who are in greater need of help, while 20.8% of participants disagreed with this. Of these nurses, 30.2% strongly agreed that sometime they feel nervous and uncomfortable when they have to care for a poisoned patient, especially those with deliberate poisoning. More than half, 51% of participants are happy to care for poisoned patients, and they feel sympathy as they care for other patients (Table 2).

Practice of nurses towards initial management of acute poisoning: less than half 57 (38.3%) of nurses always maintaining adequate airway, respiration and circulation as a priority measure in case of acute poisoning management. Majority, 142 (95.3) of nurses administered Atropine always in any circumstance of organophosphate poisoning. 112 (75.2%) of nurses always decide to perform Gastrointestinal (GI) decontamination based upon the specific poison(s) ingested, time from ingestion to presentation, and the predicted severity of the poison. Generally, 78 (52.3%) of nurses had good practice toward initial managements of acute poisoning (Table 3).

Discussion

The purpose of this study was to assess nurses´ knowledge, attitude and practice on initial management acute poisoning. According to this study, 88.5% of the nurses had good knowledge of initial management of acute poisoning. This is similar with the findings reported in Kenya [10]. While this result is higher than the study finding in Dessie referral hospital, which stated that 75% of nurses had good knowledge [11]. This variation in level of knowledge of nurses might be related to lack of training, absence of continuous supervision and evaluation. Regarding attitudes of Nurses 30.2% of nurse strongly agreed that sometime they feel nervous and uncomfortable when they have to care for a poisoned patient especially those with deliberate poisoning, this result is comparable with a study from Kenya which reported that 38.3% are frustrated when they provide a care for poisoned patient [10].

Concerning nursing practice of nurses towards initial management of acute poisoning, nearly 53.8% of them assured that there was no standard guideline in their facility for the management of acute poisoning. This result is better when compared with the result of the study conducted in Dessie which found that 68.9% of participants underlined there was no standard guideline in their facility for the management of acute poisoning [11]. This difference may be due to nurses who worked in Dessie had gotten more less training on management of poisoned cases. But this result is higher when compared with a study conducted in Hawassa which showed the availability of guideline was only 16% [9]. This difference may be due to nurses who worked in Hawassa had gotten less training on management of poisoned cases. Concerning necessary availability of standard guideline, this study showed that 83.2% of the nurses agreed on its necessity. This result is higher than the result of the study conducted in Dessie which showed that 62% of the study participants agreed on its necessity. But this result is higher than the result of the study conducted in Hawassa which revealed that its necessity was reported from 43% of the study participants [7].

Limitation: this study was a cross-sectional study which conducted at a single point of time, it was better if it was cohort study.

Conclusion

In conclusion, even though majority of Nurses had good knowledge toward initial managements of poisoning, their practice is insufficient.

What is known about this topic

- *Nurses´ knowledge, skills and attitude toward initial managements of poisoning are fundamental to their practice and influence the overall patient outcome.*

What this study adds

- *Nurses had good knowledge toward initial managements of poisoning;*
- *Nurses´ practice toward initial managements of poisoning was insufficient.*

Competing interests

The authors declare no competing interests.

Authors' contributions

All authors have developed the proposal, were involved in the analysis and the write up of the research. They equally read and approved the manuscript.

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Tables

Table 1: knowledge towards initial management of acute poising among nurses in Debre Tabor Hospital, South Gondar, Ethiopia, 2021 GC

Table 2: attitude towards initial management of acute poising among nurses in Debre Tabor Hospital, South Gondar zone, Ethiopia, 2021 GC

Table 3: practice of Nurse towards initial management of acute poising among in General Debre Tabor comprehensives hospital, 2021 GC

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Table 1: knowledge towards initial management of acute poising among Nurses in Debre Tabor Hospital, South Gondar, Ethiopia, 2021 GC		
General knowledge about poisoning	**Yes**	**No**
Poison is the substances that produce damage or dysfunction in the body	132(88.5%)	17(11.9%)
Considering the dose and time of ingestion is important in managing the poisoning cases in ED	102(68.5%)	47(31.5%)
It is important to treat the poison not the patient	66(44.3%)	83(55.7%)
Knowledge about early stages of acute poisoning		
Dry mouth, abdominal pain and salivation (T)	72(48.3%)	77(51.7%)
Nausea, vomiting, hallucinations and convulsions (F)	65(43.6%)	84(56.4%)
Coughing, cyanosis, hyperventilation and salivation (F)	79(53%)	70(47%)
Tachycardia, hypotension, diarrhea and breathlessness (F)	85(57%)	64(43%)
Initial management of poisoning:		
Maintaining ABC are the priority during severe acute poisoning (T).	82(55%)	67(45%)
Atropine should be administered in any circumstance during OP (T)	55(36.9%)	94(63%)
Most of the poisoning types have their specific antidote(F)	81(54.4%)	68(45.6%)
Gastrointestinal (GI) decontamination is based on the type, time and severity of poison ingestion of poison(s) ingested (T)	76(51%)	73(49%)
Vomiting is an alert, conscious patient who has ingested a substantial amount of a toxic substance within 60minutes of presentation (T)	90(60.4%)	59(39.6%)
Activated charcoal is used for absorption of poisons from the GIT (T)	88(59.1%)	61(40.9%)
Gastric lavage is indicated for all cases of poisoning except for ingested kerosene or corrosive substances (T)	91(61.1%)	58(38.9%)
The gastric lavage effectiveness would increase as the time between ingestion and treatment increases (F)	93(62.4%)	56(37.6%)
Aspirated lavage fluid should be approximate to the Volume of the given fluid (T).	93(62.4%)	56(37.6%)
Assessing & monitoring NS functions are important during admission	111(74.5%)	38(25.5%)
Over all knowledge level; good knowledge; poor knowledge	132(88.5%)	17(11.5%)

Table 2: attitude towards initial management of acute poising among Nurses in Debre Tabor Hospital, South Gondar zone, Ethiopia, 2021 GC		
Variables	**Frequency**	**Percentage (%)**
Patients presenting with poisoning occupy more staff time, so staff are unavailable to patients who are in greater need of help		
Strongly agree	58	38.9
Agree	18	12
Neutral	42	28.2
Disagree	31	20.8
Sometime I feel nervous and uncomfortable when I have to care for a poisoned patient especially those with deliberate poisoning.		
Strongly agree	45	30.2
Agree	23	15.4
Neutral	32	21.5
Disagree	49	32.9
A person who has made numerous suicide attempts by taking poison is at high risk of succeeding in the future and needs help and understanding		
Strongly agree	45	30
Agree	59	40
Neutral	17	11.4
Disagree	28	18.8
I am happy to care for poisoned patients and I feel the same sympathy as I care for other patients in accident and emergency department		
Strongly agree	76	51
Agree	34	22.8
Neutral	22	14.8
Disagree	16	10.7
It is frustrating to treat patients who have taken poison each time they present themselves in casualty.		
Strongly agree	31	20.8
Agree	22	14.8
Neutral	61	40.9
Disagree	35	23.5
Hospitalized intentional poisoned patients will make future attempts regardless of how supportive health care professionals were to them.		
Strongly agree	68	45.6
Agree	49	32.9
Neutral	23	15.4
Disagree	9	6
Patients presenting with poisoning must be treated using "strict" methods to curb the practice'		
Strongly agree	90	59.2
Agree	11	7.4
Neutral	43	28.9
Disagree	5	3.3
Poisoned patients are not responsible for their actions but are victims of their environment and they need understanding and utmost care.		
Strongly agree	76	51
Agree	16	10.7
Neutral	27	18.1
Disagree	20	13.4
Nurses consider it less important to treat self-poisoning patients compared to accidental poisoning whom they can give more attention to.		
Strongly agree	15	10
Agree	19	12.8
Neutral	63	42.3
Disagree	52	34.9
Availability of standard guideline is necessary		
Strongly agree	47	31.5
Agree	45	30.2
Neutral	32	21.5
Disagree	25	16.8
Overall attitude		
Positive	117	78.5
Negative	11	21.5

Table 3: practice of nurse towards initial management of acute poising among in General Debre Tabor comprehensives hospital, 2021 GC		
Variables	**Frequency**	**Percentage (%)**
In severe acute poisoning, I always maintaining adequate airway, respiration and circulation as a priority		
Yes	57	38.3
No	92	61.7
In case of organophosphate poisoning, I always administer atropine in any circumstance		
Yes	142	95.3
No	7	4.7
We always decide to perform Gastrointestinal (GI) decontamination based upon the specific poison(s) ingested, time from ingestion to presentation, and the predicted severity of the poison		
Yes	112	75.2
No	37	24.8
Activated charcoal can increase absorption of a wide range of poisons from the gastro-intestinal tract to the entire human system		
Yes	57	38.3
No	92	61.7
Gastric lavage is indicated for patients who have ingested kerosene or corrosive substances within an hour of presentation		
Yes	77	51.7
No	72	48.3
The effectiveness of gastric lavage increases as the time between ingestion and treatment increases		
Yes	41	27.5
No	108	72.5
Patients presenting following ingestion of controlled/slow released substances may benefit from decontamination even after a longer delay (e.g. more than 24 h)		
Yes	84	56.4
No	65	43.6
In our hospital we have standard guideline for poisoning management		
Yes	62	41.6
No	87	58.4
Overall practices		
Good	78	52.3
Poor	71	47.7