Original Research Article

Knowledge, Attitude, and Practice of Nurses Toward the Initial Managements of Acute Poisoning in Public Hospitals of Bahir Dar City, Northwest Ethiopia 2022: Cross-Sectional Study

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Abstract

Introduction: Poisoning is a common cause of medical visits and hospitalizations around the world. The knowledge, attitude, and practice of nurses in the management of acute poisoning are very poor in developing countries, such as Ethiopia. According to the previous study, 75% and 45% of nurses had unsatisfactory knowledge and practice, respectively.

Objectives: This study aimed to assess the knowledge, attitude, and practice of nurses toward the initial management of acute poisoning.

Method: An institution-based cross-sectional study design was used to recruit 422 nurses from public hospitals of Bahir Dar city in Ethiopia. A systematic random sampling method and an English version of self-administered questionnaires were used to collect the data. The data were entered into Epi Data and analyzed using SPSS version 25.

Results: The study recruited 422 nurses, with a response rate of 100%; 248 (58.8%) and 264 (62.2%) of the nurses had good knowledge and practice, respectively. Slightly more than half (57.6%) of the nurses had a positive attitude. Nurses who worked in an emergency and intensive care unit had twice the odds of having more knowledge and practice than those who worked in an outpatient department (AOR = 2.1, CI: (1.019, 4.540), $p = 0.001$). Nurses who have MSc degree were twice (AOR = 2.1, CI: (1.019, 4.540), $p = 0.001$) and three times (AOR = 3.1, CI: (1.012, 7.140), $p = 0.002$) to have good knowledge and practice than those who have a diploma.

Conclusion: Slightly more than half of nurses had good knowledge, practice, and a positive attitude. Educational status, working in an emergency department, and having training in poison management have been significantly associated with the knowledge and practice of nurses. The authors recommended that there is a need to empower the attitude, knowledge, and practice of nurses through consistent training, accessing, and updating guidelines (poisoning management protocol). The author also suggested that the poison management protocol be incorporated into the Ethiopian nursing curriculum (certificates).

Keywords

knowledge, attitude, practice, acute poisoning management, nurses

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Introduction and Backgrounds

Poisoning is defined as a chemical substance that has a harmful effect on the body. It is caused by the administration of excessive agents like drugs, household products, industrial chemicals, and plant and animal derivatives (Cinà et al., 2022). In developed countries, acute poisoning is the leading cause of visit to the emergency department among

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patients aged 2 to 30 years. In developing countries, it is the second most common cause of death, following infectious disease (Goga et al., 2021; Mohammed et al., 2021). Owing to the improper management of health care workers, especially poor nursing care, the mortality rate is higher in developing countries (Magnuson et al., 2021; Memarian et al., 2021). According to previous studies, the main causes of poisoning are medications (49.8%), disinfectants (16.5%), carbon monoxide (12.3%), chemicals and petroleum (12.3%), and drugs (9.0%) (Disfani et al., 2019).

Review of Literature

In many countries, including Asia, Africa, and Latin America, nurses' knowledge, attitude, and practice (KAP) regarding the initial management of poisoned patients are ineffective (Goga et al., 2021). There is a lack of capacity to manage many cases of acute poisoning (Hui et al., 2021). As a result, many patients develop complications, and half of them die (Anderson, 2021; Hui et al., 2021). Based on the finding by Mohammed et al. (2021), 75% and 65% of nurses had unsatisfactory knowledge and practice, respectively, on the initial management of acute poisoning. These findings recommended the need for additional study, especially in developing countries like Ethiopia, to obtain better evidence for the KAP of nurses on the initial management of poisoned patients (Sayed et al., 2015).

Another study conducted by Hui et al. (2021) showed that 65.6% and 53% of nurses have inadequate knowledge and practices, respectively, to manage poisoned patients and fail to assess, diagnose, plan, and provide evidence-based interventions. The study conducted by Abebe et al. (2019) found that 65% of the nurses had a negative attitude. Nevertheless, the study did not establish the significance of the KAP gaps among nurses toward the initial management of patients suffering from poisoning (Ayisi et al., 2021). Tassew et al. (2021) revealed that more than half of nurses (75%), and 62.3%, had inadequate knowledge and practice in the initial management of acute poisoning, respectively.

According to a study conducted by Degu et al. (2021), the main contributing factor to nurses' poor attitude toward the initial management of acute poisoning was not working in emergency and intensive care units, having insufficient knowledge, having less than 5 years of work experience, and old age over the age of 50. Professional qualification, a lack of training in the facility, a lack of updated guidelines in the hospital, and a lack of time to update themselves due to patient overcrowding and not working in the emergency ward were the main contributing factors for nurses to have insufficient knowledge and practice to provide nursing care for patients suffering from acute poisoning (Degu et al., 2021; T, 2017). According to a study conducted by Tassew et al. (2021), 75% of the participants had a negative attitude toward patients who were intentionally poisoned.

According to the previous study, paying adequate (satisfactory) wages to nurses and improving their understanding of the effects and characteristics of poison substances in the human body were the best solutions for improving nurses' attitudes toward the management of patients suffering from acute poisoning (Memarian et al., 2021). For instance, 65% of nurses who had a good understanding of the effect and characteristics of poison substances in the human body had a positive attitude toward the initial management of acute poisoning (Anderson, 2021). The past study, also showed that providing consistent training and accessing updated guidelines (poisoning management protocol) improved the knowledge and practice of nurses on the initial management of acute poising (Mohammed et al., 2021; Rayisyan et al., 2021).

The previous study had a general limitation in that it was conducted in a single institution and used a non-random sampling (convenience) method and small sample size, whereas this study incorporated more than one institution with a systematic random sampling method and an adequate sample size (422), thus allowing it to be generalized to the source population. In addition, the KAP of nurses toward the initial management of acute poisoning are not well studied in Ethiopia.

Significance of the Study

The study will help to improve the quality of service delivery in the management of poisoned patients through the application of the recommendations in this study. It will also be used as baseline information for hospital administrators and health professionals for the formulation of strategies and to provide training for nurses. Furthermore, it will be used as baseline information for the researchers conducting action-based studies.

Objectives

This study was aimed at investigating the nurses' KAP toward the initial management of acute poisoning in the public hospitals of Bahir Dar City.

Methods

Design

An institutional-based cross-sectional study design was conducted in Bahir Dar city public hospitals among nurses from October 24, 2022, to October 30, 2022. Bahir Dar is the capital of the Amhara region, located 565 kilometers (northwest) from Addis Ababa (Adal & Abebe, 2022). There are two referral hospitals in Bahir Dar city; the Tibebe Gion and Felege Hiwot specialized hospitals. Tibebe Gion specialized hospital is one of the biggest teaching hospitals in Amhara region and the country at large. It serves more

than 2,000 people per day, and it has 500 beds and 400 nursing staff. Felege Hiwot Comprehensive Specialized Hospital serves a catchment population of about 5 million people. It has 273 beds and 389 nursing staff. In Both hospitals, a total of 789 nurses were serving at the time of this study (Biru et al., 2019; Ferede et al., 2021).

Research Questions

What is the knowledge level of nurses during the initial management of poised patients?

What is the attitude of nurses toward the management of poisoned patients?

What is the practice of nurses toward the initial management of patients suffering from acute poisoning?

What are the factors that are associated with the knowledge, attitude, and practice of nurses toward the initial management of acute poising?

Sample

The actual sample size for the study was determined using a single population proportion formula: $\{n = [(z\alpha/2)^2 p(1 - p)]/d^2\}$, $n =$ sample size, $z\alpha/2 = 95\%$ confidence level, $p =$ the proportion (52.3%) (Atlaw, 2013), and $d =$ margin of error (0.05). By considering 10% of non-response rate, the final sample size of the study was 422. The sample size for each hospital was proportionally allocated based on the number of nurses in each hospital. Individuals who fulfilled the inclusion criteria were selected using systematic random sampling at two intervals from their list.

Inclusion and Exclusion Criteria

Inclusion Criteria. All nurses who worked at Bahir Dar's specialized public hospitals and those directly involved in patient care were included.

Exclusion Criteria. Nurses who did not directly care for patients (nurse managers) were excluded.

Data Collection Tools

The English version of a self-administered questionnaire was used to collect the data, which was adapted from the study conducted in Addis Ababa City (Atlaw, 2013). The tools were divided into four sections: Sociodemographic characteristics (7 items), questions that measure knowledge of nurses (11 items), practice questions (9 items), and 10 items of Likert scale questions that measure the attitude of nurses. The scale has a five-item Likert scale (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, and 5 = strongly disagree). Strongly agree and agree are computed as positive attitudes (good), while neutral, disagree, and strongly disagree are computed as negative attitudes (poor). Two professional experts (one from the English language and one from the medical field) validated the tool and confirmed its reliability (Cronbach alpha of 0.92) from the pre-tested questionnaires before two weeks of data collection.

Data Quality Control

Training was provided to data collectors, and appropriate supervision was provided. A pre-test was conducted 2 weeks before the actual data collection period on 5% of the sample size.

Operational Definitions

Poisoning: A substance that, when ingested, injected into the bloodstream, or contacted through the skin, causes damage or dysfunction in the body due to its chemical activity (Cinà et al., 2022).

Good knowledge: Nurses who scored 75% to 100% on the given knowledge question about the initial management of poised patients (Sayed et al., 2015).

Positive attitude: Nurses who scored 75% to 100% on the given attitude question about the initial management of poised patients (Sayed et al., 2015).

Good practice: Nurses who scored 75% to 100% on the given practice question about the initial management of poised patients (Sayed et al., 2015).

Statistical Analysis

Data was entered into EPI-Data version 4.6.0.4. Then, it was exported to SPSS version 25 for further analysis. The results were presented in narration, graphs, and tabulations. A binary logistic regression analysis model was used to identify factors that determine exposure to the knowledge, attitude, and practice of nurses in the acute management of poisoning. The goodness of fitness of the variable was tested using Hosmer and Lemeshow test. The variables associated with nurses' knowledge, attitude, and practice in the management of acute poisoning were identified using OR with a 95% CI and a p-value of <0.05.

Results

Sample/Sociodemographic/Characteristics/

Of the 422 nurses with a response rate of 100%, 250 (59.2%) of them were male, and 248 (58.8%) of them were in the age range of 20–29 years. The mean age of the participants was 30.09 ± 6.419 years. In terms of marital status and level of education, 170 (41.5%) and 396 (93.8%) nurses were married and BSc nurses, respectively. Most (47.4%) of them had 1 to 5 years of total working experience. Following their basic nursing qualifications, almost half

207 (49.1%) of nurses were formally trained in the management of acute poisoning (Table 1).

Research Question Results

Knowledge of Nurses Toward Initial Management of Acute Poisoning. The majority of nurses (392 [92.9%]) defined poison as any substance capable of producing damage or dysfunction in the body through its chemical activity. Most of the participants (73.5%) said that taking into account the dose and time of ingestion is critical in managing poisoning cases in an emergency (Table 2). In general, 248 (58.8%) of the nurses had good knowledge, while 174 (41.2%) had poor knowledge in the initial management of acute poisoning.

Factor Associated With the Knowledge of Nurses on the Management of Acute Poisoning. In a binary logistic regression analysis educational status, sex, current working department, and having training in poison management have been significantly associated with the knowledge of nurses. Nurses who have MSc degree were twice more likely knowledgeable to be than nurses who have diploma (AOR = 2.1, CI: (1.019, 4.540), $p = 0.001$). Nurses who had training on poison management had three times better knowledge compared with those who had not (AOR = 3.1, CI: (1.46, 5.37),

Table 1. Socio-Demographic Characteristics of Study Participants' Public Hospitals in Bahir Dar City 2022.

	Category	Frequency	Percentage
Sex	Male	250	59.2%
	Female	172	40.8%
Age	20–29	248	58.8%
	30–39	133	31.5%
	40–49	33	7.8%
	>50	8	1.9%
Marital status	Single	224	53.1%
	Married	175	41.5%
	Divorced	23	5.5%
Educational status	Diploma	19	1.7%
	BSc degree	384	93.8%
	MSc degree	19	4.5%
Current working department	OPD	59	14.0%
	Medical ward	250	59.5%
	Emergency and ICU	113	26.8%
Work experience	<5	200	47.4%
	5–10	165	39.1%
	>10	57	13.5%
Have you had any formal training in the management of acute poisoning since you first qualified as a nurse?	Yes	207	49.1%
	No	215	50.9%

$p = 0.007$). Being male had twice higher odds of good knowledge than female (AOR = 2.3, CI: (1.237, 4.735), $p = 0.02$). The odds of knowledge among nurses who worked in an emergency and intensive care unit were twice higher than those who worked in an outpatient department (AOR = 2.1, CI: (1.019, 4.540), $p = 0.001$ (Table 3).

Practice of Nurses Toward Initial Management of Acute Poisoning. Most of the 386 (91.5%) nurses said that in severe acute poisoning, maintaining adequate airway respiration, and circulation is always a priority. When we look at the overall practice of study participants, 264 (62.6%) of them had good practices for acute poisoning management, with a mean of 7.4929 (+1.64662 SD). Those nurses who scored above 75% (score 6.75 from nine practice questions) had good practice based on the operational definition. However, in this study, 158 (37.3%) of the participants had unsatisfactory practice, which is below the 75% (62.2%) threshold (Table 4).

Factors Associated With Practice of Nurses in the Initial Management of Acute Poisoning. In a binary logistic regression analysis, educational status, current working department, and having training in poison management were significantly associated with the practice of nurses. Nurses who have an MSc degree were three times more knowledgeable than nurses who have a diploma (AOR = 3.1, CI: (1.012, 7.140), $p = 0.002$. Nurses who had training on poison management had three times better knowledge compared with those who had not (AOR = 2.3, CI: (1.43, 4.38), $p = 0.002$. The odds of knowledge among nurses who worked in an emergency and intensive care unit were twice higher as compared to those who worked in an outpatient department (AOR = 2.1, CI: (1.019, 4.540), $p = 0.001$ (Table 5).

Attitude of Nurses Toward Initial Management of Acute Poisoning. More than half (72.2%) of the participants were happy to care for poisoned patients, and they feel sympathy as they care for other patients. When we see the overall attitude of study participants, 243 (57.6%) respondents had a positive attitude about acute poisoning management, with a mean of 7.94 (+4.03 SD) from 10 Likert scale attitude questions. The maximum and minimum attitude scores that were correctly answered were 43 and 22, respectively. Those nurses who scored above 75% (score 7.5 from 10n attitude questions) had a positive attitude based on the operational definition. In this study, 179 (42.4%) of the participants had a negative attitude, which is above the 75% threshold (Table 6).

Discussion

In developing countries, such as Ethiopia, 12% of emergency room patients suffered from intentional ingestions of poisonous substances; however, the knowledge and practice of nurses in managing those poisoned patients are not well

Table 2. Knowledge of Nurses on Initial Management of Acute Poisoning, Public Hospitals in Bahir Dar City 2022.

No.	Knowledge questionnaire items	Yes	No
1.	Poison is any substance capable of producing damage or dysfunction in the body by its chemical activity.	392 (92.9%)	30 (7.1%)
2.	Dose ingested and time of ingestion are not very necessary consideration when managing poisoning cases in emergency department.	112 (26.5%)	310 (73.5%)
3.	As a nurse, it is always very important to treat the poison not the patient.	167 (39.6%)	255 (60.4%)
4.	The commonest cause of poisoning in developing countries is pesticide poisoning.	287 (68%)	135 (32%)
5.	Women are more likely to take deliberate poison in general population to commit suicide than men.	354 (83.9%)	68 (16.1%)
6.	Considering the dose and time of ingestion is important in managing the poisoning cases in Emergency.	380 (90%)	42 (10%)
7.	Maintaining ABC is the priority during severe acute poisoning.	392 (92.9%)	30 (7.1%)
8.	Atropine should be administered in any circumstance during organophosphate poisoning.	142 (33.2%)	282 (66.8%)
9.	Gastrointestinal (GI) decontamination is dependent on the type, time and severity of poison ingested.	342 (80.8%)	81 (19.2%)
10.	Gastric lavage is indicated for all cases of poisoning except for ingested kerosene or corrosive substances.	300 (71.1%)	122 (28.9%)
11.	Vomiting is an alert for conscious patient who has ingested a substantial amount of a toxic substance within 60 minutes of presentation.	334 (79.1%)	88 (20.9%)

Table 3. Factor Associated With the Knowledge of Nurses on the Initial Management of Acute Poisoning Public Hospital in Bahir Dar City 2022.

S. No.	Variables	Category	Knowledge Good	Knowledge Poor	COR (95%) CI	AOR (95%) CI	*p*-Value
1	Sex	Female	108	64	3.4 (1.753, 6.24) *	2.3(1.237, 4.735) *	0.02
		Male	140	110	1.00	1.00	
2	Work experience	<5 years	135	89	4.03 (0.231, 5.450)	7.1(0.13, 34.341)	0.51
		5–10 years	105	70	0.6 (0.291, 4.64)	2.1(0.521, 91.45)	0.23
		>10 years	8	15	1.00	1.00	
3	Educational status	MSc nurse	14	5	8.1(2.019, 11.5) *	2.1(1.019, 4.540) *	0.001
		BSC nurse	234	150	5.1(0.421, 34)	0.9(0.331, 810)	0.14
		Diploma	9	10	1.00	1.00	
4	Current working department	Emergency and ICU	82	31	12.1(6.019, 17.5) *	2.1(1.019, 4.540) *	0.001
		Ward	143	107	2.7(0.461, 280)	0.7(0.431, 310)	0.14
		OPD	28	31	1.00	1.00	
5	Training	Yes	123	84	3.4 (2.46, 7.37) *	3.1 (1.46, 5.37) *	0.007
		No	120	95	1.00	1.00	

Note. 1:00: reference, *Significant at *p*-value < 0.05, CI: Confidence interval, COR: crude odd ratio, AOR: adjusted odd ratio.

Table 4. Practice of Nurses Toward the Initial Management of Acute Poising in Bahir Dar Public Hospitals 2022.

No.	Practice questionnaire	Yes	No
1	In severe acute poisoning, maintaining an adequate airway, respiration, and circulation is always a priority.	386 (91.5%)	36 (8.5%)
2	In cases of organophosphate poisoning, atropine should not be administered under any circumstances.	129 (69.4%)	293 (30.6%)
3	Nearly all poisonings encountered in accident and emergency departments have a specific antidote.	276 (65.4%)	146 (34.6%)
4	The decision to perform gastrointestinal (GI) decontamination should be based upon the specific poison(s) ingested, the time from ingestion to presentation, and the predicted severity of the poison.	355 (84.1%)	67 (15.9%)
5	Emesis is to be considered in an alert for when a conscious patient has ingested a substantial amount of a toxic substance within 60 minutes of presentation.	323 (76.5%)	99 (23.5%)
6	Activated charcoal can increase the absorption of a wide range of poisons from the gastrointestinal tract into the entire human system.	96 (22.7%)	326 (77.3%)
7	Gastric lavage is indicated for patients who have ingested kerosene or corrosive substances within an hour of presentation.	108 (25.6%)	314 (74.4%)
8	The effectiveness of gastric lavage increases as the time between ingestion and treatment increases.	99 (23.5%)	323 (76.5%)
9	Patients presenting following the ingestion of controlled or slow-release substances may benefit from decontamination even after a longer delay (e.g., more than 2–4 hours).	252 (59.7%)	170 (40.3%)

Table 5. Factors Associated with Practice of Nurses on the Initial Management of Acute Poisoning Public Hospitals in Bahir Dar City 2022.

S. No.	Variables	Category	Practice Good	Poor	COR (95%) CI	AOR (95%) CI	p-Value
1	Sex	Male	155	95	1.4 (0.153, 8.24)1	0.3 (0.237, 2.735)	0.102
		Female	63	109	1.00	1.00	
2	Work experience	<5 years	117	83	4.03 (0.231, 5.450)	7.1 (0.13, 34.341)	0.51
		5–10 years	106	59	0.6 (0.291, 4.64)	2.1 (0.521, 9.145)	0.151
		>10 years	41	16	1.00	1.00	
3	Educational status	MSc nurse	14	5	6.1 (3.115, 11.51) *	3.1 (1.012, 7.140) *	0.002
		BSC nurse	246	140	6.3 (0.351, 10.45)	0.10 (0.451, 3.100)	0.13
		Diploma	8	11	1.00	1.00	
4	Current working department	Emergency and ICU	78	35	5.1 (3.019, 7.51) *	2.1 (1.019, 4.540) *	0.001
		Ward	153	97	0.73 (0.461, 2.31)	1.5 (0.431, 3.10)	0.23
		OPD	43	16	1.00	1.00	
5	Training	Yes	129	78	6.2 (3.46, 11.37) *	2.3 (1.43, 4.38) *	0.002
		No	135	80	1.00	1.00	

Note. 1:00: reference, *Significant at *p*-value < 0.05, CI: Confidence interval, COR: crude odd ratio, AOR: adjusted odd ratio.

Table 6. Attitude of Nurses Toward the Initial Management of Acute Poisoning, Public Hospitals of Bahir Dar City, 2022.

No.	Attitude questionnaire	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.	Patients presenting with poisoning consume more staff time, making staff unavailable to patients in greater need of assistance.	76 (18%)	177 (41.9%)	37 (8.8%)	91 (21.6%)	41 (9.7%)
2.	When I have to care for a poisoned patient, especially one who has been deliberately poisoned, I get nervous and uneasy.	36 (9.2%)	148 (35.1)	67 (15.9%)	49 (11.6%)	119 (28.2%)
3.	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.	155 (36.7%)	198 (46.9%)	40 (9.5%)	22 (5.2%)	7 (1.7%)
4.	I am happy to care for poisoned patients, and I feel the same sympathy as I do for other patients in the accident and emergency department.	142 (33.6%)	163 (38.6%)	37 (8.8%)	79 (18.7%)	1 (0.2)
5.	It is frustrating to treat patients who have taken poison each time they present themselves in the emergency room.	38 (9.0%)	122 (28.9%)	52 (12.3%)	65 (15.4%)	145 (34.4%)
6.	Regardless of how supportive health care professionals were to them, hospitalized intentionally poisoned patients will try again.	74 (17.5%)	173 (41%)	48 (11.4%)	63 (14.9%)	64 (15.2%)
7.	Patients presenting with poisoning must be treated using "strict" methods to curb the practice.	66 (15.6%)	201 (47.6%)	49 (11.6%)	44 (10.4%)	62 (14.7%)
8.	Poisoned patients are not responsible for their actions but are victims of their environment, and they need understanding and the utmost care.	60 (14.2%)	176 (41.7%)	59 (14%)	92 (21.8%)	35 (8.3%)
9.	Nurses consider it less important to treat self-poisoning patients compared to accidental poisoning victims, to whom they can give more attention.	50 (11.8%)	136 (32.2%)	35 (8.3%)	127 (30.1%)	74 (17.5%)
10.	The availability of standard guidelines is necessary.	229 (54.3%)	142 (33.6%)	32 (7.6%)	12 (2.8%)	7 (1.7%)

studied (Anderson, 2021; Memarian et al., 2021). This study also supports the previous literature which showed that 248 nurses (58.8%) with a 95% CI of (54.0%, 63.5%) had good knowledge of acute poisoning management. Slightly more than half of nurses had insufficient knowledge to manage patients with acute poisoning, thus needing intervention to empower their knowledge. The knowledge level of nurses in this study on the initial management of acute poisoning is lower than that of studies conducted by Tesfaye et al. (2014) (68.5%) and Hui et al. (2021) (65.6%). The difference

might be due to the different study setting, and low training in this study population (Tesfaye et al., 2014). For example, in this study setting, nearly 51% of nurses were not trained in the management of patients with acute poisoning, whereas Goswami et al. (2021) study found that 65% of nurses were trained.

However, the knowledge level of nurses in this study was in line with the study conducted by Abebe et al. (2019) of 57.5%. This study's finding showed that the knowledge of nurses was higher than the study conducted by Mohammed et al. (2021), given that 75% of nurses had unsatisfactory knowledge. The disparity might be due to the differences in sampling methods and settings. For example, in this study, two large institutions (specialized comprehensive hospitals) were sampled using the systematic random sampling method, whereas, in Mohammed et al.'s study, a single institution was sampled using the convenience sampling method, which may have resulted in response bias (Mohammed et al., 2021).

In this study, 264 (62.6%) nurses had good practices, which is in line with the study conducted by Tesfaye et al. (2014), and Tassew et al. (2021), given that 61.5% and 62.3% of the nurses had a good practice, respectively on the initial management of acute poisoning. Conversely, the practice of nurses in this study was higher than the study conducted by Abebe et al. (2019) (45%). This disparity could be explained by nurses at Tibebe Gion and FelegeHiwot specialized hospitals had relatively received more training (49%) on the management of poisoned patients, while the study conducted by Tassew et al. (2021) showed that 32% of nurses had received training on the management of poisoned patients.

This study found that approximately 243 (57.6%) of nurses had a positive attitude toward the initial management of poisoned patients. This result is comparable with the study conducted by Rayisyan et al. (2021) and Al-Jelaify and AlHomidah (2021), allowing that 55.7% and 56.3% of nurses had positive attitudes, respectively, toward the management of poisoned patients.

The study showed that nurses who have an MSc degree have twice the odds of being knowledgeable than nurses who have a diploma. Nurses who have received training on poison management and are male have three times and two times higher odds of having good knowledge than those who were not trained and are female, respectively. Nurses who worked in an emergency and intensive care unit were twice higher in knowledge compared with those who worked in an outpatient department.

Nurses who have an MSc degree have three times the odds of good practice compared with nurses who have a diploma. Nurses who have received poison management training have twice the better practice than those who had not. Nurses who were working in emergency and intensive care units have twice the odds of good practice than those who were

working in outpatient departments. This is in line with the previous study conducted by Degu et al. (2021), Rayisyan et al. (2021), and Tassew et al. (2021).

Strengths and Limitations of the Study

This study was conducted at two large institutions and an adequate sample size, thus could be generalized to the source population. This study shared the limitations of a cross-sectional study design. Hence, it is difficult to determine the causal relationships between variables. This study did not involve private hospitals and due to the restricted time and budget, the study did not use an observational checklist.

Implications of the Study

This study will assist policymakers, the ministry of health, health facility managers, and governmental and non-governmental organizations in becoming aware of the current knowledge, attitude, and practice of nurses in the initial management of acute poisoning. Thus, the result of this study can be used as a baseline to develop strategies for improving the knowledge, attitude, and practice of nurses in the management of patients with acute poisoning. It can also be used as the baseline information for other researchers who want to conduct a review or original article.

Conclusion

Slightly more than half of the nurses had good knowledge, practice, and a positive attitude. However, nearly half of them demonstrated a lack of knowledge, lack of practice, and a negative attitude. Educational status, working in an emergency department and having training in poison management have been significantly associated with the knowledge and practice of nurses. The authors recommended that there is a need to empower the attitude, knowledge, and practice of nurses through giving consistent training, and accessing and updating guidelines (poisoning management protocol). The author also suggested that the poison management protocol be incorporated into Ethiopian nursing curricula (certificates).

Abbreviation

ED	Emergency Department
ICU	Intensive Care Unit
KAP	Knowledge, Attitude, and Practice
NPDS	National Poison Data System
OPD	Outpatient Department

Authors Contribution

RR: Conceptualization and draft of the proposal.
AZ: Developed the proposal, analyzed the data, and interpreted the results.
OA: Drafted the manuscript, revised the proposal, checked the data, and revised the manuscript.
YH: Summarized and revised the results.
AG: Revised the manuscript
All authors are critically reviewed and approved the final manuscript, and are responsible for the content and similarity of the manuscript.

Availability of Data and Materials

The data that support the findings of this study are available upon reasonable request from the corresponding authors.

Declaration of Conflicting Interests

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Ethical Approval and Consent for Participants

The ethical review board of the College of Health Sciences, Bahir Dar University approved this study. No. CHM 1239 edu.net for ethical approval).Certify that, the study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendment or comparable ethical standards. All nurses/study participants provided written informed consent prior to enrollment in the study. Finally, the authors approved the relevance of the manuscript.

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