Evaluation of Nurses` Practices toward Chemical Poisoning in Children

تقويم ممارسات الممرضين تجاه التسمم الكيميائي في الأطفال

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المستخلص

الاهداف: تقويم ممارسات الممرضين المقدمة للأطفال المشخصين بالتسمم الكيميائي، وايجاد علاقة بين الخصائص الديموغرافية - الاجتماعية للممرضين وبين ممارساتهم التمريضية للأطفال المشخصين بالتسمم الكيميائي.

المنهجية: لتحقيق غرض الدراسة تم استخدام تصميم وصفي ارتباطي، أجريت الدراسة في مستشفى البصرة للنسائية والاطفال خلال الفترة 12 من ايلول 2021 إلى 10 من تشرين الاول 2022. تم اختيار عينة غير احتمالية من (30) ممرض في قسم الطوارئ. تم بناء اداة البحث استنادا الى المصادر العلمية ذات العلاقة بموضوع البحث ، والتي تكونت من الخصائص الديموغرافية - الاجتماعية للممرضين و استبيان من مجموعة اسئلة لتقييم ممارسات الممرضين حول الأطفال المشخصين بالتسمم الكيميائي. جمعت بيانات الدراسة بطريقة الادخال المباشر وحللت البيانات باستخدام برنامج SPSS الاصدار 20.

النتائج: أظهرت نتائج الدراسة أن ممارسات الممرضين تجاه رعاية الأطفال المصابين بالتسمم الكيميائي تم تقويمها على مستوى منخفض (73.3٪)، وفيما يتعلق الخصائص الديموغرافية - الاجتماعية للممرضين كان هناك 56.7% لديهم دبلوم في التمريض، 86.7% لم يشاركوا في دورات تدريبية حول الاسعافات الاولية للأطفال المتسممين، وان أكثر من نصف الممرضين لديهم اقل من خمسة سنوات في العمل.

الاستنتاجات: استنتجت الدراسة أن ممارسات الممرضين للأطفال المشخصين بالتسمم الكيميائي كانت بمستوى منخفض، عدم وجود علاقة بين الخصائص الديموغرافية - الاجتماعية للممرضين وممارساتهم عدا سنوات العمل في المستشفى.

التوصيات: حث الممرضين حول تحديث معلوماتهم وممارساتهم فيما يتعلق بتدابير التسمم الكيميائي في الأطفال من خلال الدورات التدريبية، الاعتماد على دليل معتمد للاعتناء بالمتسمم.

الكلمات المفتاحية: تقويم، ممارسات الممرضين، التسمم الكيميائي.

Abstract

Objectives: To evaluate nurses` practices toward caring for children with chemical poisoning, and find out relationship between nurses` socio- demographic data and their practices for children with chemical poisoning.

Methodology: A descriptive evalutional design used to achieve the purpose of the study, the study was conducted at Al-Basrah Hospital for Maternal and Children throughout the period 12th of September 2021 to 10th of October 2022. A non- probability (purposive) sample of (30) nurse at emergency department was selected. The instrument of the study was constructed based on previous literature that are related to the current study, Validity and reliability were done to its applicability for date collection. The data was collected through a self-administered method and analyzed by SPSS program version 20.

Results: The study findings showed that nurses practices toward caring of children with chemical poisoning were evaluated at low level (73.3%), and related to nurses` socio-demographic data there was 56.7% of them has diploma in nursing, 86.7% with no training courses about poisoning first aids, and more than half of them have less than 5 years of experience.

Conclusions: Nurses`Practices for children with chemical poisoning were low, there was no relationship between nurses` socio-demographic data and their practices except their years of works at hospital.

Recommendations: Encourage nurses to update their knowledge and practice regarding management of chemical poisoning in children through training courses, use standardized guideline for poisoning care.

Keywords: **Evaluation, Nurses Practices, Chemical Poisoning**

Introduction

Poisoning is harmful substances entering the body through the mouth, blood vessels, food, or injections [(1)]. It could occur either on purpose or by accident [(2)].

Unintentional poisoning deaths are more frequent in low- and middle-income nations [(3)].

Poison is any substance that can hurt, incapacitate, or compromise a person's ability to perform their regular physiological functions, either globally or locally [(4)].

Children in their early years started to become more active and motivated to explore their surroundings. As a result, exposure to poisoning caused by the intentional or unintentional ingestion, injection, or inhalation of drugs or chemicals is a major cause of medical emergency [(3)].

The practice of emergency nursing is highly specialized. Critical modifications have just been made to emergency medical care. Crowding, flow, and throughput have been added to emergency nurses' everyday vocabularies as a result of the sharp increase in the number of patients visiting emergency rooms [(5)].

Multiple different synthetic chemicals are released into the environment each year, and some of these bio-accumulate in people before their toxicity and exposure potential can be completely recognized [(6)].

Finally, chemical poisoning is a common cause of death and illness around the world.in children, with several million incidences reported annually. In Iraq, by reviewing the statistical data of ministry health, in the year 2021 was11497 children less than 5-year age.

Methodology

Study Design

A descriptive correlational design used to achieve the purpose of the study, the study was conducted from the period of May11th, 2022 to 29th June, 2022. Carried out in the emergency department at Al-Basrah Hospital for Maternal and Children.

Study Sample

Purposive sample of (30) nurses out of (38) nurse who working at emergency department was participated in Al-Basrah Hospital for Maternal and Children.

Inclusion Criteria

1. Nurses who work at emergency department.
2. Nurses who have more than one year of experience.

Exclusion Criteria

1. Nurses who participate in the pilot study.
2. Nurses who less than one year of experience.

Ethical Considerations*:*

The ethical approval was obtained from the Scientific Research Ethical Committee at College of Nursing-University of Baghdad, and written consent form for the participant consent before data collection.

Instrument

The instrument of the study was constructed based on previous literature that related to study project, the instrument includes nurses` socio-demographic data and constructed questionnaire format to assess nurses` practices about children with chemical poisoning which consists of (23) closed-ended question, the answers were scored according to Likert Scale (Never, Sometimes, Always). Nurses` practices were evaluated regarding chemical poisoning as Low =1-1.66, Moderate = 1.67-2.33, High ≥2.34.

Validity of the Study

The content validity determined through a panel of (15) experts from faculty members of pediatric and adult nursing, and pediatric physicians at Iraqi Ministry of Health.

Pilot Study

The pilot study was conducted at Al-Basrah hospital for maternal and children from April 24th - 9th May 2022, five nurses were participated in the study. A test-retest method used to find out instrument reliability, time consumption, questionnaire clarity and any obstacles during data collection. This sample was excluded from the original sample of study.

Reliability of the Study

The reliability was achieved through computation Alpha Cronbach correlation coefficient (0. 87) by SPSS program.

Data Collection

The data was collected by self-administrated method through direct answering on questionnaire format of nurses at emergency department in Al-Basrah Hospital for Maternal and Children.

Results

Table (1): Distribution of Nurses` Socio-demographic Characteristics

	Classification	Frequency	%
Age (*M± SD= 27±4.45*)	21-25 year	12	40.0
	26-30 year	13	43.3
	31-35 year	3	10.0
	36 and above	2	6.7
Gender	Male	11	36.7
	Female	19	63.3
Education Level	High School Nursing	7	23.3
	Institute Nursing	17	56.7
	College Nursing	6	20.0
Years of Work in Hospital	<5 years	15	50.0
	5-10 years	11	36.7
	>10 years	4	13.3
Years of experience in Emergency Department	<5 years	23	76.7
	5-10 years	4	13.3
	>10 years	3	10.0
Training Courses	No	26	86.7
	Yeas	4	13.3

M= mean, SD=standard deviation

Table (1) showed (43.3%) of nurses at age group 26-30 years, the mean and the standard deviation was 27±4.45, (63.3%) of them were female, (56.7%) have diploma in nursing, (50%) of them with less than 5 years of work in hospital, (76.7%) have less than 5 years of experience in emergency department, and (86.7%) of nurses with no attended training sessions.

Table (2): Mean of Scores on Items of Nurses` Practices toward Children with Chemical Poisoning

	Nurses` Practices items	M ± SD	Evaluation
1	I ask about child history and main complaint	1.27±0.639	Low
2	I wash my hand before and after any nursing procedure.	1.07±0.253	Low
3	I measure child's vital signs frequently	1.33±0.606	Low
4	I wear personal protective equipment before nursing procedure.	1.47±0.860	Low
5	I used sterile and clean equipment for any nursing procedure.	1.50±0.861	Low
6	I preserve the privacy of the child during the examination.	1.10±0.305	Low
7	I place the child's on the one side to maintain patent airway	1.17±0.461	Low
8	I observe the quantity, stains, and color of the substance on child`s clothes once arrival	1.13±0.507	Low
9	I observe an ulcer or inflammation in the children mouth.	1.47±0.819	Low
10	I do not give the child anything orally as doctor instruction.	1.50±0.861	Low
11	I start CPR for the child if breathing stops or the pulse decrease	1.33±0.606	Low
12	I keep child's head-tilt and chin-lift during CPR	1.50±0.861	Low
13	I give two slow breaths (to 1 to 1 1/2 seconds/breath) and pausing between each during CPR if the child is not breathing.	1.27±0.520	Low

14	I use the palm of one or both hands during CPR to push the chest down 2.5 to 3.5 cm at a rate of 100 pressure /minute.	1.27±0.520	Low
15	I assess the level of consciousness by Glasgow Coma Scale.	1.33±0.606	Low
16	I use anti-emetics for the child for vomiting	1.47±0.860	Low
17	I take off child's clothes and wash contaminated skin with soap and water in case of kerosene and chlorine poisoning.	1.20±0.550	Low
18	I rinse the child's eyes with running water for at least 15 to 20 minutes in case of gasoline and chlorine poisoning	1.03±0.182	Low
19	I note the bleeding from the child's digestive system in case of chlorine poisoning	1.47±0.819	Low
20	I store all contaminated child's clothes in a plastic bag in case of insecticides and pesticides poisoning.	1.10±0.402	Low
21	I educate the parent about keeping all chemicals substances locked up to prevent poisoning in children.	1.33±0.660	Low
22	I educate the parent that the child must be directly transferred to hospital when the child ingested chemical substance.	1.30±0.595	Low
23	I document the date and time of the nursing procedure.	1.53±0.899	Low

M= mean, SD=standard deviation "Level of practices: Low =1-1.66, Moderate =1.67-2.33, High ≥2.34"

The findings in table (2) demonstrated all nurses` practices were evaluated at low level of practices with statistics mean (M.s≤1.66).

Table (3): Overall Evaluation of Nurses Practices toward Care of Children with Chemical Poisoning

Nurses' Practices	***Evaluation Nurses' Practices***		
	Freq.	%	*M ± SD*
Low (*M=23-38*.33)	22	**73.3**	***30.14 ± 12.09*** **Low**
Moderate (*M=38.34-53*.67)	7	23.3	
High (*M=53.68-69*)	1	3.4	
Total	30	100.0	
	df=30		

The Findings in table (3) illustrated that (73.3%) of nurses practices toward care of children with chemical poisoning were evaluated at low level *M* (±*SD)= 30.14 (±12.09),at (p < 0.05).*

Table (4): The Relationship between Nurses` Practices and their Socio-demographic Data

ANOVA						
Nurses Practices	Source of variance	Sum of Squares	d.f	Mean Square	F-statistic	*P-value*
Age	Between Groups	.280	3	.093	.313	.816
	Within Groups	7.738	26	.298		
	Total	8.018	29			
Education Level	Between Groups	.076	2	.038	.129	.880

	Within Groups	7.942	27	.294		
	Total	8.018	29			
Years of Work in Hospital	Between Groups	4.061	2	2.031	13.858	.000
	Within Groups	3.957	27	.147		
	Total	8.018	29			
Years of experience in ED	Between Groups	1.010	2	.505	1.946	.162
	Within Groups	7.008	27	.260		
	Total	8.018	29			

d.f= degree of freedom, p: Probability value

The analysis of variance depict there was no significant relationship between nurses` practices for children with chemical poisoning and their sociodemographic data at (*p=0.05*), except their years of work in hospital (*p=0.000*).

Table (5): The Relationship between Nurses` Practices toward Children with Chemical Poisoning and their Gender and Training Courses

Independent Sample t-test						
Variables	Class	Mean	S.D	t-value	d.f	*p-value*
Gender	Male	1.42	.59267	.891	28	0.381
	Female	1.24	.48787			
Training Courses	No	1.2718	.26055	.906	28	0.373
	Yes	1.1500	.17533			

SD: Standard deviation, t: t-test, df: Degree of freedom, p: Probability value

The independent sample t-test show there was no significant relationship between nurse` practices and their gender and training courses at (p=0.05).

Discussion

Discussion of Nurses` Socio-Demographic Data.

The statistic showed the highest percentage of nurses at age group between twenty-six and thirty years, (table 1). This finding consisted with a study in Khartoum state to assess the nurses' knowledge regarding initial management of poisoning among children under 5 years which revealed that less than half of the studied nurses at twenty to twenty-five years with mean age twenty eight [7]. Regarding nurses gender, the finding depicts that most nurses were female. This result comparable with study in Iraq which showed most of the nurses 63.3% were females and at age 20-29 years [8].

With respect to educational Level, the finding revealed that most nurses graduated from nursing institute. This result agreed with a study in Egypt to improve nursing staff knowledge regarding adverse health effects of chemical insecticides which reported that majority of nurses have diploma in nursing [9].

With terms of years of work in hospital and experience in emergency department, the present study showed highest percentage of nurses have less than five years of work in hospital and experience in emergency department. This result consisted with study in Iraq which reflected that majority of the nurses were have less than five years of experience in hospital [10 & 11].

With regard to the training courses toward nursing management of poison children, the findings showed majority of nurses have no attended training sessions. This result consisted with a study aimed to assess the knowledge and the attitudes of first aid among the health care workers in China which presented majority of the sample has no training sessions about first aids [12].

The researcher point of view regarding nurses` sociodemographic data, working at emergency department mostly require young and health nursing staff, Iraq country compliance from nursing shortage and the new post graduated nurses employed at critical department in order to bridge the gap of shortage.

Discussion Nurses` Practices toward Children with Chemical Poisoning

The present finding reflected that nurses had low practices about management of children with chemical poisoning, (table 2 and 3). This finding supported by a study in southern Ethiopia to assess nurses' practices for the early management of acute poisoning which revealed majority of nurses had unsatisfactory practice levels [13]. Another study aimed to evaluate nurses' performance about patient with phosphate poisoning which documented that more than half of the nurses had incompetent practice during care poison patients [14]. Also, this finding consisted with a study finding in Egypt, to assess the knowledge, practice and identify the factors associated with assessment of the Glasgow Coma Scale among nurses which revealed the entire studied sample had unsatisfactory practice 5.7% and lack of training 5.1% [15]. This result agreed with a study in Addis Ababa to assess the knowledge, practice, and factors affecting GCS assessment among nurses which reported that nurses had low levels of knowledge and clinical practice about the Glasgow coma scale [16]. In researcher point of view the crowded patients and nursing shortage at emergency department may related to inadequate nurses practices. In addition to the less training session about first aids for nurses at the setting of the study and most nurses had a similar duration of experience and educational level that reflect the level of practice.

Regarding to the relationship between nurses` socio-demographic data and their practices about children with chemical poisoning, (table 4 and 5), the finding showed there was no significant relationship with nurses` gender and training courses except with the years of work in hospital at (p=0.000). This finding approved with study in Jordan which showed that was significant correlation (positive) between nurses practices and their years of work. It means that the nurses' practice is significantly improved by more years of experience [17]. From the researcher point of view the working years in hospital could help nurses staff to acquire new skills and information when care of patient at hospital.

Conclusion

Nurses' practices for children with chemical poisoning were low, nurses` years of works at hospital can increase their practices toward care of children with chemical poisoning.

Recommendations

1. Encouraging nurses to be enrolled in training sessions to improve their practice about care of children with chemical poisoning.
2. Provided posters contain main steps first aid about care of children with chemical poisoning.
3. Further researches to evaluate nursing care about different type of poisoning among nurses' practices.

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