

RESEARCH ARTICLE

Evaluation Nurses' Practices During Intravenous Canulation for Children in the Emergency Units

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ABSTRACT

Background: Increasing risks and complications with IV cannulation making this issue a research focus of several authors around the world. In addition, it was reported that emerged complications with IV cannulation could be phlebitis, infiltration, extravasation, infection, and pain.

Aims of the study: This study aimed to evaluate nurses' practices during intravenous canulation for children in the emergency units.

Methodology: A mixed method research design was used in this study specifically (Convergent parallel: Quantitative and qualitative approach). The study was initiated from October 15th, 2021, through June 28th, 2022. A non-probability (Purposive) sample was selected of 25 nurses who work at Alzahraa teaching hospital. The data was collected using a previously prepared questionnaire and official agreement to use the study questionnaire was obtained from the original author. Descriptive statistics (frequencies, percentages, mean, and standard deviation) and inferential statistics (contingency coefficient) were used in the data analysis.

Results: Findings declared by most of nurses that they have practice deficit about pediatric cannulation, especially at the first time of their work. Participant 7 said that "even though we got knowledge about IV cannulation during our education journey in nursing college, but it is not enough to be proficient to perform this procedure as an expert. We have limited knowledge and practices about performing procedures in pediatric patients who are different from adult patients".

Conclusion: The study concluded that Several themes were emerged from nurses' responses to the main research question "What are the barriers that confronting nurses' practices during insertion of intravenous cannula to children in emergency room? The major themes were nurses' related barriers; organization's related barriers; patients' related barriers; and opportunities and solutions for barriers.

Recommendations: Efforts from the ministry of Health in Iraq should be targeted toward supplying pediatric emergency nurses with all facilities that assist their work focusing on availability of IV viewer.

Keywords: barriers, nurses, emergency, pediatric, intravenous cannulation.



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INTRODUCTION

Difficulties with IV cannulation could happen due to different factors including improper cannula size, drug types, presence of disease in patients, and absence of true aseptic technique (Ying et al., 2020). IV cannulation has been used since decades for diagnostic and treatment purposes. More than 25 million patients in the United States of America and Billions of patients around the world had IV-line cannulation. In addition, more than 70 percent of all admitted patients to healthcare settings require IV cannulation (Ravindra et al., 2020).

Cooke et al. (2018) reported that success IV cannulation should be achieved through the presence of safe environment, qualified and competent healthcare providers, and good communication with patients especially with pediatric patients and their relatives. Moreover, several barriers could lead to failure of IV cannulation including pain, improper IV puncture, infection, and obstruction and infiltration of the cannula (Cooke, 2018).

Miller et al. (2016) reported that pediatric patients' experience of pain is also considered as a barrier to perform IV cannulation in critical care unit. Moreover, it was reported in a previous study that nurses in several hospitals in Pakistan have appropriate knowledge about IV cannulation, but they do not have the required practice to apply this procedure. And efforts should be targeted toward improving nurses' practice through sharing in training sessions managed by professional healthcare personnel (Qamar et al., 2017).

Increasing risks and complications with IV cannulation making this issue a research focus of several authors around the world. In addition, it was reported that emerged complications with IV cannulation could be phlebitis, infiltration, extravasation, infection, and pain. There are still gaps in performing IV cannulation, and studies recommended to conduct further research projects to measure nurses' knowledge and practices about this procedure starting with nursing students in educational institutions (Indarwati & Primanda, 2021). Nurses' knowledge and practices about caring of IV cannulation for pediatric patients need to be studied especially in relation to the effect of educational training program on nurses' practices about this procedure (DIVYA et al., 2021; Soliman et al., 2019).

METHOD

Design of the Study

A mixed method research design was used in this study specifically (Convergent parallel: Quantitative and qualitative approach). The study was initiated from October 15th, 2021, through June 28th, 2022.

Setting of the Study

The study was carried-out at the emergency department at Alzahraa teaching hospital.

The Sample of the Study

A non-probability (purposive) sample of (25) nurses were selected from emergency department at al-Hussein teaching hospital.

Data collection

Data were collected through the use of a questionnaire by means direct interview with nurses from the January 20th, 2022, until the February 10th, 2022.

The Study Instrument

A previously prepared questionnaire was used after getting the permission from the original authors. The reliability of the questionnaire was .87 which was acceptable to be used in this research.

Rating and Scoring

The items of the questionnaire were scored as (One) for no and (two) for yes about applying the practice.

Statistical data analysis

Data were analyzed through the use of IBM-Statistical Package of Social Sciences (SPSS) which included descriptive statistics (Frequency (F) Percentage (%), Mean, and Standard Deviation; and Inferential statistics (contingency coefficient).

RESULTS

Table 1
Distribution of the Study Sample (Nurses) by their Demographic Characteristics.

Age	F	%
19 - 28	8	32
29 - 38	7	28
39 - 48	5	20
49 and more	5	20
Total	25	100
<i>Mean ± SD</i>	36 ± 11.32	
Gender	F	%
Male	11	44
Female	14	56
Total	25	100
Marital Status	F	%
Single	5	20
Married	19	76
Divorced	1	4
Widowed	0	0
Total	25	100
Education Level	F	%
Nursing School Graduate	6	24
Nursing Institute Graduate	10	40
Nursing College graduate	9	36
Higher Degree (post-graduate) in Nursing	0	0
Total	25	100
Years of Experience in Nursing	F	%
1 - 5 years	10	40
6 - 10 years	9	36
11 - 15 years	3	12
16 - 20 years and more	3	12
Total	25	100
Years of Experience in Emergency Unit	F	%
1 - 5 years	11	44
6 - 10 years	7	28
11 - 15 years	3	12
16 - 20	3	12
21 years and more	1	4
Total	25	100

Table (1) presented that 32 percent of the study sample were nurses within age group (19- 28) years old, and most of them 56 percent were female. In regard to marital status, the majority of nurses were married, and they accounted for (76 %) of the whole sample. Relative to nurses' education level, most of them were nursing institute graduates with diploma degree in nursing and they accounted for (40 %). Concerning years of experience, 40 percent of them having 1 - 5 years of experience in nursing and 44 percent of the sample have 1 - 5 years of experience in Emergency Units.

Knowledge and practice deficit about Cannulation. It was declared by most of nurses that they have knowledge and practice deficit about pediatric cannulation, especially at the first time of their work. Participant 7 said that "even though we got knowledge about IV cannulation during our education journey in nursing college, but it is not enough to be proficient to perform this procedure as an expert. We have limited knowledge and practices about performing procedures in pediatric patients who are different from adult patients".

Using PPE can interfere and interrupt with success of IV cannulation. Participants two, five, and six were presented that even with the importance of using PPE during nursing procedures, but it interferes with IV cannulation of children, and they could not fix the cannula. While, participant one said that "dressing gloves did not interfere with IV cannulation of pediatric patients, and I can use the tape to fix the cannula. But the absence of special IV tape can make it difficult to fix pediatric cannula".

Nursing shortage with crowded emergency unit. All study participants ensured that nursing shortage in emergency unit with crowded patients is the major barrier that can interfere with their work, specifically performing IV cannulation. For instance, participant three said that "the most important challenge in emergency unit is the crowdedness of the area with pediatric patients which can affect our work and performing IV cannulation".

Absence of IV viewer infrared. Some participant declared that it is difficult sometimes to see the veins of the pediatric patients in which they could not perform the IV cannulation. Participant five said that "the most obstacles at emergency unit to conduct IV cannulation for pediatric patient are the crowdedness of emergency unit and absence of IV viewer device, especially when they cannot see the veins of patients".

Age of nurses can interfere with IV cannulation. Additionally, to the previous perceptions of nurses about challenges or barriers to perform IV cannulation, participant six added another concept and said that "the most barriers to perform IV cannulation for children are nursing shortage and age of nurses that can affect their sense of vision and cannot view patients' veins, and as a result, they cannot perform IV cannulation".

Opportunities and Solutions for the Barriers

All study participant suggested solutions for barriers that they face during IV cannulation for pediatrics at emergency. Opportunities and solutions for barriers was the fourth theme that was emerged from participants perceptions, and this theme has four subthemes, including:

Availability of appropriate supplies and resources such as hand sensitizer, PPE, and different sized cannula. Most of the study participants presented that the availability of supplies and resources such as hand sensitizer, PPE, and different sized cannula, and cannula tape can assist in performing IV cannula successfully. Participant five said "barriers can be solved through preparing the emergency units with all required supplies such as cannula, PPE, and sensitizers".

Sharing in training sessions about pediatric cannulation. Most of the study participants declared that they have to improve their competencies frequently. Participant eight said "nurses should share educational and practical training sessions to improve their experience and capabilities to perform IV cannulation successfully within the first time".

Availability of IV viewer infrared. Most of the study participant agreed that availability of IV viewer is essential to perform IV cannulation. Participant nine said "it is difficult to perform IV cannulation for pediatric patients, especially for dehydrated or obese children. So, availability of IV viewer can assist in finding veins and perform IV cannulation successfully".

DISCUSSION

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CONCLUSIONS

Several themes were emerged from nurses' responses to the main research question "What are the barriers that confronting nurses' practices during insertion of intravenous cannula to children in emergency room? The major themes were nurses' related barriers; organization's related barriers; patients' related barriers; and opportunities and solutions for barriers.

Even with the presence of challenges, nurses' responses revealed solutions for barriers including availability of resources and supplies for cannulation, sharing in training sessions, and availability of IV viewer.

RECOMMENDATIONS

Efforts from the ministry of Health in Iraq should be targeted toward supplying pediatric emergency nurses with all facilities that assist their work focusing on availability of IV viewer.

ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

This study was completed following obtaining consent from the University of Baghdad.

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AUTHOR'S CONTRIBUTIONS

Study concept, Writing, Reviewing the final edition by all authors.

DISCLOSURE STATEMENT:

The authors report no conflict of interest.

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