

Effect of Educational Program Regarding Care of Children with Intussusception on Nurses' Knowledge and Practice

Hanan Gomaa Elsayed Gomaa ^{1,2}, Abdel motaleb Effat Ebeid ³, Nagafa Hafez Farag ⁴, Enas Mohammed Elmelegy ⁵

¹ Master student of Pediatric Nursing, Faculty of nursing, Tanta University ,Egypt

² Speech Consultant in Arab British Academy

³ Professor of Pediatric Medicine, Faculty of Medicine, Tanta University ,Egypt

⁴ Assistant Professor of Pediatric Nursing, Faculty of nursing, Tanta University ,Egypt

⁵ Lecturer of Pediatric Nursing, Faculty of nursing, Tanta University ,Egypt

Corresponding author: adhamalprns076@gmail.com

Abstract

Background Intussusception is a serious condition that occurs when one segment of the intestine invaginates leading to bowel obstruction. Nursing management involves comprehensive care, including pain management, fluid and electrolyte balance. Developing an educational program for nurses my help to improve children's outcomes and enhance nurses' performance. **Aim:** The current study was aimed to evaluate the effect of educational program regarding care of children with intussusception on nurses' knowledge and practice. **Subjects and Method:** A quasi experimental research design was used. Subjects: convenience sampling (60) nurses distributed as 30 nurses from Pediatric Surgical Department of Tanta University Hospital and 30 nurses from Pediatric Surgical Department of Elshatbi University Hospital. **Tools:** Two tools were used to collect data: Nurses' knowledge about intussusception structured questionnaire sheets and nurses' practices regarding intussusception observational checklist. **Results:** Most of the studied nurses had low level of knowledge about intussusception pre the educational program which was enhanced to high level level of knowledge after one month. A high percentage of nurses had unsatisfactory practice regarding care of children with intussusception before educational program, compared to the majority of them who had satisfactory practice immediately and one month after implementing the educational program. **Conclusion:** Implementing educational program for nurses had a significant effect on nurses knowledge and practice immediately and one month after education. There was statistically significant positive correlation between nurses' total knowledge and total practice. **Recommendations:** in-service training programs should be conducted periodically for all nurses caring for children with intussusception.

Key words: Children, Educational program, intussusception, Nurses' Knowledge & practice.

Introduction

Intussusception is a serious condition that occurs when one segment of the intestine telescopes or invaginates into another segment, leading to bowel obstruction. It primarily affects infants and young children, usually between the ages of

3 months and 3 years. (Cheikhrouhou T. et al, 2022). The exact cause of intussusception is often unknown, but certain factors can increase the risk. Gastrointestinal infections caused by viruses like rotavirus or adenovirus, have

been associated with intussusception. Structural abnormalities in the intestine, such as Meckel's diverticulum or polyps, can also act as lead points for intussusception. Additionally, previous abdominal surgeries and certain medical conditions, like lymphoid hyperplasia or immune-deficiency disorders, may increase the risk. **(Ting X. et al 2022)**

Clinical manifestations of intussusception typically include severe, intermittent abdominal pain, vomiting (sometimes with bile-stained vomit), and bloody stools described as "currant jelly" stools. However, not all children present with this classic triad of symptoms, and the presentation can be atypical or incomplete. Other signs may include lethargy, irritability, abdominal distension, and a palpable abdominal mass. **(Gumerov AA. et al, 2022)** Nursing management of a child with intussusception involves comprehensive care, including pain management, fluid and electrolyte balance, emotional support for the child and family, monitoring the child's condition, and providing education about intussusception and its management. Nursing interventions aim to promote optimal child outcomes. **(Kelley-Quon LI. Et al, 2021)**

The educational program should be designed to the learning needs of the nurses, with interactive sessions and hands-on training. The program can be delivered through various methods such as lectures, case studies, videos, and simulations. Nurses should be evaluated to assess the effectiveness of the program. **(Kelley-Quon LI. Et al, 2021)**

Providing educational program for nurses help to promote early detection and

quick care of intussusception by enhancing nurses' knowledge and practice, which will eventually improve child outcomes. Prompt actions can avoid the need for more invasive procedures, prevent serious consequences, and shorten hospital stays. **(Issa K. et al, 2021)**. Providing nurses with more up dated information allows them to handle child care with more expertise, confidence, and clinical skills, which improves the efficiency and effectiveness of healthcare delivery. **(Ghritlaharey RK. et al, 2021)**

Significance of the study

Intussusception is invagination of one segment into a distal segment of a bowel. It is the commonest cause of abdominal surgical emergencies in infants and children. The estimated global rate of intussusception is 74 cases per 100,000 children under one year of age, ranging between 9 and 328 cases per 100,000 depending on geographic location **(Jiang J. et al, 2013)**.

Pediatric nurses provide vital role in children's care. Continuing nursing education equips nurses with the knowledge and skills necessary to provide a better quality of care to children with intussusception. Nursing education for nurses caring of children with intussusception may enhance their performance and improve children's outcomes.

Aim of the Study:

The current study aims to evaluate the effect of educational program regarding care of children with intussusception on nurses' knowledge and practice.

Research Hypotheses :-

- Nurses' knowledge regarding care of children with intussusception is expected to be improved after implementing an educational Program.
- Nurses' practice regarding care of children with intussusception is expected to be improved after implementing the educational Program.

Subjects and Method

Research design: A quasi experimental research design was in the current study.

Setting: The study was conducted at: Pediatric Surgical Department of Tanta University Main Hospital and Pediatric Surgical Department of El Shatbi University Hospital which are affiliated to Ministry of Higher Education and Scientific Research.

Subjects: A convenience sampling (60) nurses who were working in the previously. They were distributed as 30 nurses from Pediatric Surgical Department of Tanta University Main Hospital and 30 nurses from Pediatric Surgical Department of El Shatbi University Hospital was recruited in the current study.

Tools of data collection:- Two tools were used to collect data.

Tool I: Nurses' knowledge about intussusception: A structured questionnaire sheets were developed by the researcher after reviewing the related literatures (Gupta E. et al 2011) (Hannah E, and Rita MJ . 2013) It consisted of two parts:

- **Part (1): Socio demographic characteristics of nurses** such as; age, residence, gender, marital status, educational level, years of experience, and attendance of previous training courses.

- **Part (2): Nurses' knowledge about intussusception:** such as: definition of intussusception, causes, predisposing factors, pathophysiology, manifestations, complications, management, problems accompanying with intussusception and discharge plan instruction.

Nurses' knowledge was as follow:-

- Correct & complete answer was scored (2).
- Correct & incomplete answer was scored (1).
- Wrong answer or don't know was scored (0).

Scoring system:

- Less than 60% was considered low level of knowledge.
- From 60- <80% was considered moderate level of knowledge.
- From 80-100 % was considered high level of knowledge.

Tool II: Nurses' practices regarding intussusception observational checklist:

It was developed by the researcher after reviewing the related literatures (Cho HK. 2020) (Kusakawa I. 2012)

Scoring system:

- Done correctly and completely was scored (1)
- Done incorrectly or not done was scored (0)

Total scores of studied nurses' practice were calculated and classified as following:

- Less than 80% was considered unsatisfactory practice.
- From 80-100 % was considered satisfactory practice.

Method:

The study was accomplished through the following steps.

1) Administrative process: Formal letters were directed from the Dean of the Faculty of Nursing to the directors of pediatric surgical departments of Tanta Main University Educational hospital and El shatbi University hospital to obtain their approval.

2) Ethical considerations:

- Ethical approval was obtained from the Faculty of Nursing Scientific Research Ethical Committee code (160/12/2022).
- Informed consent was obtained from the participated nurses after explanation of the aim of the study.
- Nurses who accepted to participate were informed that their participation is voluntarily. They have the right to withdraw from the study at any time without any anonymity.

3) Tools development: two instruments were utilized in the current study. Tool (I): A structured questionnaire sheets with two sections measuring nurses' socio demographic features and nurses' knowledge about intussusception. Tool (II): Nurses' practices regarding intussusception observational checklist: with nurses to gauge their level of understanding of the condition.

4) Tools Validity: The content validity index for the study's instruments was 98% after they were reviewed by five pediatric nursing specialists; changes were made as needed.

5) A Pilot study: A pilot study was done on 10% (6 nurses) of the nurses who participated in study. The necessary adjustments were done. There was omission of the preliminary study from the final analysis.

6) Tools Reliability: The research instruments were tested for reliability using Cronbach's Alpha test it was of 0.903.

7) Phases of the study: The study was conducted on four phases:

1- Assessment phase: Nurses sociodemographic characteristics were assessed using (tool 1 part 1). Nurses' knowledge about intussusception was assessed using (tool 1 part II) . Nurses' practice was assessed using (Tool II). Nurses' knowledge and practices were assessed pre, immediately and after one month from implementation of the educational program.

2-Planning phase: The researcher set objectives, plan for educational sessions and prepare the educational materials according to the assessment phase.

3-Implementation phase: The researcher classify the nurses into six groups each group comprised of five nurses. A combination of video lectures, PowerPoint presentations, and interactive posters made up the class sessions. The researcher conducted an educational program for nurses by holding a series of six sessions according to needs assessment. The researcher met the participated nurses twice weekly. Session length varied from 30 to 45 minutes, with discussion time varying based on nurses' input and progress. The content of the educational program was presented in the following:

First session: It was focus on knowledge about intussusception definition, etiology and pathology.

Second session: It started by revision for the knowledge given in the first session. Then the researcher moved on to cover knowledge related to clinical symptoms,

diagnostic procedures, and surgical treatment for intussusception.

Third session: A practical session. It focus on nurses' practice of pre-operative care including children's preparation for intussusception surgery including the need to refrain from eating and drinking for a certain time before to the procedure, chart whether the child has passed urine and had a bowel movement, a water soluble contrast or air enema, administration of intravenous fluids and electrolytes, insertion of nasogastric tube and anti- shock measures, monitoring vital signs, urine output, avoid hypothermia, hypoxia and hypovolemia.

Fourth session: Started by revision of the content in the previous session then focus on post-operative preparation for children undergoing intussusception operation by checking tubes, drains and equipment. Observation of drainage, care of wound, observation for passage of stools or barium, observation of character of stool, recurrence of previous symptoms, signs of infection (increasing redness occurs around the wound, pus or cloudy fluid drainage from the wound, pain and swelling, bad odour, elevated body temperature).

Fifth session: It concentrated on post-operative problems of children with intussusception (constipation, abdominal distension and dehydration). Discussion of linked ideas provides the material to nurses.

Sixth session: It focused on discharge and follow up plan.

Evaluation phase:

The participated nurses were evaluated immediately and one month after implementation of the educational program about children's intussusception and these

results were compared with the results of the pre educational assessment using tool (I part 2) & tool (II).

Statistical analysis: The data was organised, tabulated, and analysed using SPSS, a statistical computer programme, version 25. Finding the mean, standard deviation, and range were all part of the calculations for numerical data. The qualitative data was analysed with the use of the Chi-square test (χ^2). Using a T-test for independent to compare between the two groups' means. We compared the means of the group variables before and after the intervention using a paired sample T-test. If there were more than two variables or three intervention periods in a group, the F-value of analysis of variance (ANOVA) was calculated to compare the means. a Pearson correlation and Spearman's correlation coefficient, abbreviated as r were used to correlate between variables. A significance threshold of $P < 0.05$ was used to interpret the results of the significance tests (*). The results of the significance tests were also interpreted using an extremely significant threshold of $P < 0.01$ (**). (Gerstman B. 2018 and Petrie A. 2015).

Results:

Table (1): demonstrates Percentage distribution of the studied nurses regarding their socio demographic characteristics. The study revealed that 40% of them, their age range from 41 to less than 51 years old with the mean age \pm SD (38.9 \pm 9.91). Regarding sex, it was also clear that the majority of nurse were females (81.7%), respectively. Regarding level of education, it was found that slightly less than half of

the nurses (46.6%) had technical instituted in nursing . It was observed that 46.6% of the nurses had more than 10 years of experience with the mean \pm SD (7.47 \pm 4.89). The table also illustrated that all studied nurses (100%) had not attended training courses related to intussusception.

Table (2): describes Percentage distribution of the studied nurses regarding their total knowledge about intussusception. It was observed that the most of nurses (81.7%) had low level of knowledge pre the educational program compared to (6.7% and 15%) of them who had low level of knowledge immediately and one month after educational program respectively. The highest percentage of nurses (80.% & 63.3%) had high level of knowledge immediatel and one month after educational program respectively as compered to 5 % of them pre-education. There was statistical significant difference pre, immediate, and post one month of the educational program $P = 0.001$.

Table (3): describes Percentage distribution of nurses' practices regarding Pre-operative nursing care for children with intussusception pre, immediately and one month after educational program . It was observed that the most of nurses (66.7%) had unsatisfactory level of practice pre the educational program. In contrast, only 8.3% and 11.7% of nurses had unsatisfactory practice immediately and after one month after educational program. The highest percentage of nurses (91.7% & 88.3%) had satisfactory level of practice immediately and one month post educational programs respectively compared to nearly one third (33.3%) of the nurses pre education. There was a

statistically significant difference regarding nurses' pre-operative practice between pre, immediate, and post one month educational program $P = 0.001$.

Table (4): describes percentage distribution of nurses' according to Post-operative nursing practice pre, immediately and one month after education. It was observed that less than three quarters of the nurses (71.7%) had unsatisfactory post-operative care practice pre the educational program compered to 11.7% immedialty post and 15.0% one month after education. It was also found that 88.3% and 85% of the nurses had satisfactory practice immediatel and one month after the educational intervention compared to 28.3% pre education. There was statistically significant difference between pre, immediate, and post one month of the educational program $P = 0.001$.

Table (5): Reveals the relation between nurses' socio demographic characteristics and the main level of knowledge pre, immediately and one month post educational program. It was clear that there was statistically significant differences between nurses' knowledge and their educational level one month post education ($P = 0.034^*$) & between years of experience and nurses' knowledge immediatel post education ($p = 0.031^*$).

Table (6): Reveals relation between nurses' socio demographic characteristics and mean of nurses' practice pre, Immediately and one month post educational program. It showed that, there was statistically significant differences between nurses' mean practice and their socio demographic characteristics immediately and one month post education except sex and residence.

Table (1): Percentage distribution of studied nurses regarding their socio demographic characteristics (n. = 60)

Socio demographic characteristics	studied nurses (60)	
	No.	%
Age / years:		
21 > 31	18	30.0
31 > 41	14	23.3
41 > 51	24	40.0
51 > 60	4	6.7
Range	(21-55)	
Mean ± SD	38.9±9.91	
Sex:		
Male	11	18.3
Female	49	81.7
Marital status:		
Single	9	15.0
Married	43	71.7
Divorced	5	8.3
Widowed	3	5.0
Educational level:		
Secondary school for nursing	16	26.7
Technical Instituted of nursing	28	46.6
Bachelor of nursing	16	26.7
Years of experience:		
< 5 years	18	30.0
5 < 10 years	14	23.4
> 10 years	28	46.6
Range	(1-17)	
Mean ± SD	7.47±4.89	
Previous training courses:		
Yes	0	0.0
No	60	100.0
Residence:		
Urban	49	81.7
Rural	11	18.3

Table (2): Percentage distribution of the studied nurses regarding their total knowledge about intussusception (n. = 60).

Knowledge about Intussusception	Pre guidelines n=(60)		Immediately after guidelines n=(60)		Post one month guidelines n=(60)		Test of sig χ^2	p
	No.	%	No.	%	No.	%		
Low	49	81.7	4	6.7	9	15.0	99.923*	<0.001*
Moderate	8	13.3	8	13.3	13	21.7		
High	3	5.0	48	80.0	38	63.3		
Mean \pmSD	5.85\pm8.08		21.72\pm5.60		19.75\pm6.95		t=2.210*	0.032*
Total knowledge F (p)	177.639*($<0.001^*$)							

F: ANONA with repeated measures

* Statistically significant p-value at < 0.05 **Table (3): Percentage distribution of nurses' practices regarding Pre-operative nursing care for children with intussusception pre, immediately and one month after educational program (n. = 60).**

Pre-operative nurses' practices	Pre		Immediately after guidelines		Post one month		Test of sig χ^2	p
	No.	%	No.	%	No.	%		
Unsatisfactory	40	66.7	5	8.3	7	11.7	68.528*	<0.001*
Satisfactory	20	33.3	55	91.7	53	88.3		
Mean \pmSD	1.98\pm2.61		5.28\pm1.66		4.95\pm1.87		t = 3.703*	0.031*
Total practice scores F (p)	68.734*($<0.001^*$)							

F: ANONA with repeated measures

* Statistically significant difference at ($p < 0.05$).

Table (4): Percentage distribution of nurses' according to Post-operative nursing practice pre, immediately and one month after education (n. = 60)

Post-operative nurses' practices	Pre		Immediately after guidelines		Post one month		Test of sig χ^2	p
	No.	%	No.	%	No	%		
Unsatisfactory	43	71.7	7	11.7	9	15.0	58.168*	<0.001*
Satisfactory	17	28.3	53	88.3	51	85.0		
Mean \pmSD	2.10\pm3.38		6.87\pm2.55		6.42\pm2.76		t = 2.975*	0.039*
Total practice F (pvalue)	80.629*($<0.001^*$)							

F: ANONA with repeated measures

* Statistically significant difference at (p < 0.05).

Table (5): Relation between nurses' socio demographic characteristics and the main level of knowledge pre, immediately and one month post educational program(n= 60).

	Pre guidelines n=(60)	Immediately after guidelines n=(60)	Post one month guidelines n=(60)
socio demographic characteristics			
Age / years:			
21 > 30	7.33±8.87	23.22±1.93	21.44±2.85
31 > 40	4.86±9.40	18.36±8.59	16.57±9.93
41 > 50	5.04±6.75	22.21±5.14	19.67±7.14
51 > 60	7.50±9.0	23.75±0.50	23.75±0.50
F(p)	0.396 (0.757)	2.531 (0.066)	1.853 (0.148)
Sex:			
Male	7.64±8.94	23.36±1.80	22.18±2.71
Female	5.45±7.92	21.35±6.09	19.20±7.49
t(p)	0.809 (0.422)	1.080 (0.284)	2.210* (0.032*)
Marital status:			
Single	13.33±8.37	23.89±0.33	23.00±1.94
Married	4.53±7.26	22.23±4.38	19.98±6.47
Divorced	9.00±12.73	21.00±4.24	17.50±7.78
Widowed	3.00±7.35	15.00±11.85	14.00±11.80
F(p)	3.766* (0.016*)	3.982* (0.012*)	2.244 (0.093)
Educational level:			
Secondary school for nursing	0.13±0.34	19.88±6.47	16.13±7.17
Technical Instituted of nursing	4.54±8.25	22.46±4.79	20.43±6.75
Bachelor of nursing	13.88±5.24	22.25±5.95	22.19±5.94
F(p)	20.303* (<0.001*)	1.194 (0.311)	3.583* (0.034*)
Years of experience:			
< 5 years	7.33±8.87	23.22±1.93	21.44±2.85
5 < 10 years	4.86±9.40	18.36±8.59	16.57±9.93
> 10 years	5.39±6.97	22.43±4.78	20.25±6.75
F(p)	0.445 (0.643)	3.703* (0.031*)	2.153 (0.125)
Residence:			
Urban	6.29±8.00	23.18±2.32	20.90±5.55
Rural	3.91±8.56	15.18±10.09	14.64±10.08
t(p)	0.880 (0.383)	2.615* (0.025*)	1.993 (0.071)

t: Student t-test

F: F for One-way ANOVA test

*: Statistically significant at $p < 0.05$

Table (6): Relation between nurses' socio demographic characteristics and nurses' mean practice pre, Immediately and one month post educational program (n. = 60).

Socio demographic characteristics	Total nurses' practice		
	Pre guidelines n=(60)	Immediately after guidelines n=(60)	Post one month guidelines n=(60)
Age / years:			
21 > 30	4.83±6.23	13.61±0.78	13.22±0.73
31 > 40	3.00±5.45	10.07±5.82	8.93±6.20
41 > 50	4.63±6.08	12.04±4.04	11.13±4.56
51 > 60	1.25±2.50	13.50±0.58	13.00±0.0
F(p)	0.640 (0.593)	2.403 (0.077)	2.975* (0.039*)
Sex:			
Male	6.00±6.54	13.45±0.69	13.00±0.63
Female	3.65±5.60	11.86±4.34	11.00±4.80
t(p)	1.218 (0.228)	2.441* (0.018*)	2.812* (0.007*)
Marital status:			
Single	10.33±5.61	13.44±0.73	13.00±0.71
Married	2.91±5.10	12.42±3.67	11.72±4.00
Divorced	6.50±7.78	13.50±0.71	10.00±5.66
Widowed	2.33±5.24	7.83±6.77	6.83±7.49
F(p)	5.342* (0.003*)	3.118* (0.033*)	2.957* (0.040*)
Educational level:			
Secondary school for nursing	0.25±0.45	11.31±4.84	10.06±5.32
Technical Instituted of nursing	2.86±5.32	12.36±3.80	11.64±4.38
Bachelor of nursing	10.06±4.93	12.63±3.42	12.19±3.27
F(p)	21.355* (<0.001*)	0.498 (0.610)	1.036 (0.361)
Years of experience:			
< 5 years	4.83±6.23	13.61±0.78	13.22±0.73
5 < 10 years	3.00±5.45	10.07±5.82	8.93±6.20
> 10 years	4.14±5.80	12.25±3.77	11.39±4.26
F(p)	0.388 (0.680)	3.388* (0.041*)	4.144* (0.021*)
Residence:			
Urban	4.35±5.88	12.78±3.11	11.96±3.80
Rural	2.91±5.50	9.36±6.04	8.73±5.98
t(p)	0.741 (0.462)	1.821 (0.095)	1.715 (0.112)

t: Student t-test

F: F for One way ANOVA test

*: Statistically significant at p < 0.05

Discussion

Intussusception ranks high among the most frequent gastrointestinal and surgical emergencies in children and infants, with a peak incidence from three months to three years aged. Some children may have intermittent symptoms that come and go, leading to delays in diagnosis. Prompt recognition of these clinical manifestations and timely evaluation are crucial for diagnosing intussusception and initiating appropriate treatment to prevent complications. (Rajkarnikar R. et al, 2023).

Regarding nurses' total knowledge levels, It was observed that the majority of the studied nurses had a low level of knowledge pre the educational program. This may be attributed to insufficient information related to intussusception and its complications, pre & post- operative preparation and lack of continuous education pre implementation of the educational program. While more than three quarters and two thirds of the nurses had high level of knowledge immediately and post one month of the educational program respectively. The improvement in the study nurses' knowledge indicates that the planned teaching sessions were effective and enhanced nurses' knowledge post education. The study result was in the same line with Hassan Y. et al (2023) who reported that more than half of study sample had fair knowledge followed by one third of them had poor knowledge and one fifth of the study

sample had a good knowledge concerning pre implementation of the educational program. This result disagrees with the study conducted in Nineveh Governorate by Hameed and Mohammed, (2018) who found that more than half of pre-program knowledge as excellent and more than one third of knowledge was acceptable.

Concerning the mean scores of nurses' practices regarding Pre-operative nursing care intervention for children with intussusception. It was found that there was a positive statistically significant difference between pre, immediate, and post one It was observed that the most of nurses had unsatisfactory level of practice pre the educational program respectively, while the majority of them with satisfactory level of practice had immediate and post one month educational programs. This result may be attributed to lack of training courses as all of the nurses in the current study didn't attend any training courses and nearly one third of them had less than 5 years of experience.

A study done by (Mahmoud N. and Hamed S. 2021) was in harmony with the current results. They found that all of studied nurses didn't assess children's vital signs, assess hypo & hyperthermia at preprogram implementation, while more than two third of them performed it immediately post-program, and about two third of studied nurses completely performed it after one month of program implementation. Another

study by **Slagle, (2017)**, who found was agreed with the current results. They found that all of studied nurses didn't have satisfactory level of practice regarding assess patients' sign and symptoms of hyper& hypothermia and also concluded that change in nursing practice to best is difficult due to time constraints. Additionally, the result was in the same line with (**Jeesh Y.A.A. et al, 2021**) who found that there were variations of the nurses' improvement in all practice after the program, and the percentage of the nurses that implement the steps correctly shifted from the minority to the majority.

Concerning to the mean score of nurses' practice regarding post-operative care, the current study proved that the majority of nurses practice was improved immediately and one month after educational program compared to nearly one third of them before education. This may be attributed to the effectiveness of the educational program in improving nurses' practice. A study conducted by (**Hanaa A. et al. 2020**) was in agreement with the present findings as they found highly statistically significant differences between nurses' practice pre, immediately and one month after education.

Further support for these findings came from a research in Jordan (**Richboarg, et al., 2017**), which found that children fared better when postoperative care nurses had expert wound care and training. The findings were corroborated by **Golik et al.**

(**2018**), who also noted that nurses are expected to engage in continuous learning and that wound care nursing practice requires specialized knowledge and abilities. The current findings highlighted the need for maintaining up-to-date skills and having enough knowledge while dealing with children in clinical practice.

The findings of the current study revealed a significant association between nurses' knowledge and their sociodemographic characteristics especially level of education and experiences. The significant associations found between age groups and the level of knowledge, that a nurse younger age was a good level of knowledge than older age in contrast to with the study done by "**AL-Simady (2006)**" which found that the results indicate that younger nurses possess a higher degree of knowledge compared to their more seasoned counterparts, despite the fact that the former should be knowledgeable of many practical steps to minimize difficulties and provide the best nursing care for children. The claims made in the research are contradicted by this.

The findings indicated a strong relationship between gender and knowledge level, indicating that males had average knowledge. Also, there were very strong correlations between education and knowledge, suggesting that nurses with bachelor's degrees or above had a wealth of information. In line with a prior research carried out by

"Hospitals with a larger percentage of direct-care registered nurses with bachelor's degrees showed a significant survival benefit over hospitals with a lower proportion of staff nurses with bachelor's degrees, according to **Aiken et al. (2003)**. In a similar vein, institutions with a larger percentage of registered nurses with bachelor degrees had a far better chance of surviving severe complications encountered by surgical children while hospitalized.

Moreover, there was a statistically significant relationship between years of experience and degree of expertise in this study; specifically, nurses with eleven to fifteen years of practice exhibited a moderate degree of expertise. With this outcome, we concur "Nursing practice time was the primary emphasis of **AL-Simady (2006)** and **Shayma'a (2004)** in their efforts to improve nurses' performance. There was a strong correlation between the nurses' education and years of experience providing post-operative care for children, as well as their entire understanding of the topic, according to a previous study (**Hashem& Abusaad, et al., 2016**). This conclusion is in line with the current training program. "**Hassan Y. (2023)**" found similar results, finding that knowledge level was significantly correlated with age, gender, qualification, and years of experience, but that marital status, financial status, and training course were not significant in the Assessment of Nurses' Knowledge Regarding

associations. While a previous study by **Betty Lebona (2016)** did not discover any correlation between post-operative care knowledge and demographic variables such as age, gender, or educational attainment, the present investigation did find a statistical correlation between knowledge and some socio-demographic variables. In addition, these findings ran counter to those of (**Golik et al. 2018 & Swierzewski 2019**), who found that advanced practice nurses caring for children after surgery should possess a bachelor's degree in nursing and practice. This would allow them to better advise, teach, and collaborate with physicians from different units as well as children'.

Regarding to association between Socio demographic factors and overall nurses' practice scores (before, immediately and Post) one month operational educational program for children with intussusception. Except for sex and locality, A statistically significant difference was discovered in the total number of nurse practices and socio-demographic factors according to the present study (P value < 0.05). These findings ran counter to those of "**Hanaa A., et al 2020**," which found There was no statistically significant correlation between the sample's age, education level, or years of experience and their degree of practicing. Initial stages and subsequent results Instantly & The amount of post-operative wound care after three months was significantly related to the degree of

practice before the educational program this relationship persisted regardless of educational status (p-value = 0.038).

Conclusion:

Nurses' receiving an educational program about children with intussusception had improved in their level of knowledge and had satisfactory practice immediately and one month post educational program compared to pre-educational program. Statistical significant differences were found between nurses' sociodemographic characteristics and their knowledge & practices.

Recommendations: The current study recommended the following:

- In-service training program should be conducted for nurses to update their knowledge and practice regarding care of children with intussusception.
- Booklet and brochures about pre- and post-operative nursing care for children with intussusception should be available at Pediatric Surgical units.
- Further studies are needed to improve nurses' practices for caring of children with intussusception before and after surgery.

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