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Research Article

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Effect of Instruction Program on Nurses' Knowledge about reducing Fear and Anxiety related to Nursing Intervention among Children

Yasser Abed Al-Qadir Hammed MSc.*; Hawraa Hussein Ghafel, Ph.D.**.

*MSC, Ibn Al-Balady Hospital for Children and Women, Baghdad, Iraq.

E: Mail: yasir.abd2104m@conursing.uobaghdad.edu.iq

**Prof., Maternal and Neonate Nursing Department, College of Nursing, University of Baghdad.

E: mail: hawraah@conursing.uobaghdad.edu.iq

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ABSTRACT

Objective(s): Evaluating nurses' knowledge towards reducing children's anxiety and fear during nursing interventions, determining the effectiveness of the Instructional Program on nurses' knowledge towards reducing children's anxiety and fear during nursing interventions. **Methods:** The study was designed as a Quiz-experimental design (test-retest approach) for study group participants employed in the (Fatima Al Zahraa Hospital for Maternal and Child care) and (Ibn Al Baladi Hospital for in pediatric emergency unit and pediatric medical units. (30) of them were the study group and (30) of them were the control group. The study was started at December 15, 2022 to April 25, 2023.

Results: The results of the study showed nurses level of knowledge about reducing children's anxiety and fear during nursing interventions for the study sample and the control sample were fair in the pre-test time (76.7%, $M \pm SD = 6.97 \pm 1.810$), while they are showing a good level of knowledge during the post-test 1 (100%, $M \pm SD = 10.83 \pm .379$) and post-test 2 (100%, $M \pm SD = 10.70 \pm .702$).

Conclusion: The counseling program, after its application, had a positive and effective effect on the nurses' knowledge towards reducing children's anxiety and fear during nursing interventions.

Recommendations: The study recommended nurses need training courses to reduce children's anxiety and fear during nursing interventions. Nurses need training courses to reduce children's anxiety and fear during nursing interventions.

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*Corresponding author: Ibn Al-Balady Hospital for Children and Women, Baghdad, Iraq. E: Mail: yasir.abd2104m@conursing.uobaghdad.edu.iq (Hammed Y. A.). ORCID: <https://orcid.org/0009-0003-6567-4479>.

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تأثير برنامج الارشادي على معارف الممرضين في تقليل الخوف والقلق المرتبط بالتدخل التمريضي لدى الأطفال

المستخلص

الهدف: تقويم معارف الممرضين المتعلقة بتقليل القلق والخوف لدى الاطفال , وتحديد فاعلية البرنامج الارشادي على معارف الممرضين تجاه تقليل قلق وخوف الاطفال اثناء التداخلات التمريضية .

المنهجية: دراسة شبه تجريبية أجريت باستخدام أسلوب الاختبار وإعادة الاختبار للممرضين في مجموعة الدراسة العاملين في مستشفى فاطمة الزهراء لرعاية النسائية والاطفال (و مستشفى ابن البلدي لرعاية النسائية والاطفال) كانت العينة ٦٠ ممرض من وحدة طوارئ الأطفال ووحدات طب الأطفال (٣٠) منهم كانت مجموعة الدراسة و (٣٠) منهم كانت المجموعة الضابطة وبدأت الدراسة في ١٥ ديسمبر ٢٠٢٢ إلى ٢٥ أبريل ٢٠٢٣.

النتائج: أظهرت نتائج الدراسة أن مستوى معارف الممرضين تجاه الحد من قلق الأطفال وخوفهم أثناء التداخلات التمريضية لعينة الدراسة وعينة المراقبة كان عادلاً في وقت الاختبار السابق (٧٦,٧٪ ، ٦,٩٧ ± ١,٨١٠) ، بينما لقد أظهروا مستوى جيداً من المعرفة أثناء الاختبار اللاحق ١ (١٠٠٪ ، ١٠,٨٣ ± ٠,٣٧٩) وبعد الاختبار ٢ (١٠٠٪ ، ١٠,٧٠ ± ٠,٧٠٢).

الاستنتاجات: ان البرنامج الارشادي بعد تطبيقه كان له تأثير ايجابي و فعال في معارف الممرضين تجاه تقليل قلق وخوف الاطفال اثناء التداخلات التمريضية .

التوصيات اوصت الدراسة بأن الممرضين بحاجة إلى دورات تدريبية لتقليل قلق الأطفال وخوفهم أثناء التداخلات التمريضية

الكلمات المفتاحية: القلق, الخوف , التداخلات, الممرضين.

Introduction

Hospitals may be frightening and stressful environments for children any medical procedure or examination could perhaps cause the child to feel anxious and uncomfortable (1). The fear experienced by the children for illness and hospital causes the development of negative outcomes such as extension of recovery period and the increase in the need for painkillers and sedative drugs(2).

Children's responses to invasive medical procedures can vary widely. While some children experience anxiety and distress, others exhibit calm and cooperation. One medical procedure known to cause particularly intense and potentially enduring anxiety in children is the voiding cystourethrogram (VCUG), a fluoroscopic study of the urinary tract that involves catheterization, filling of the urinary bladder with a room temperature radiopaque liquid, and voiding of the liquid by children while lying on a radiographic table (1). Children's

comprehension of and fear of using the oxygen that is delivered is as well-regulated according with their needs (3). Young children often experience fear and anxiety in the hospital setting. found that fear in children is associated with age and pain, and these factors explain 33% of the mean fear scores of children. In studies using different distraction methods during phlebotomy, there was a difference between the pain and fear scores experienced during the procedure between the control group and the group in which distraction methods were applied found that distraction methods used during intravenous (IV) access reduced children's fear scores (4,5). Health professionals have a key role in the success of the IV access. This is a difficult skill to acquire for health professionals and can cause complications, such as repetitive vascular access and infiltration, if not done properly (6). When a child is admitted to the hospital, their usual routine is interrupted and they have to leave their homes, parents, and siblings. In addition,

being in a hospital ward is commonly associated with feeling uncomfortable, scared, out of control. This is especially true for young children in elementary school who are engaged in learning activities that require mental, emotional and social adjustment ⁽⁷⁾. Most children feel anxiety and fear while receiving nursing care. This makes it difficult for the medical and nursing staff to deal with children, which leads to a delay in the child's recovery period and his stay in the hospital for a longer period.

Painful experiences for children during blood draws and other invasive procedures can cause negative consequences such as extreme anxiety during future procedures and extreme physiological reactions during the current procedure. In addition, previous painful experiences, fear of needles, and anxiety continue into adulthood, and this situation can cause increased pain reaction and may result in avoiding medical procedures. For all these reasons, venous interventions, for example, which are an important source of fear and anxiety in children, should be managed effectively ⁽⁸⁾. Nurses should know about and apply nonpharmacological methods as much as pharmacological methods in stopping the pain. Distraction technique, which is among nonpharmacological methods, is used to decrease sensitivity for pain, fear, and anxiety by distracting the attention away from the pain to another interesting stimulant ⁽⁹⁾. Identify potential health problems and organize procedures using concepts from early science used in nursing practice. Children's psychological concerns can be dealt with and their quality of life can be improved through therapeutic and medical discussion ⁽¹⁰⁾. The basis of the health team's means of communication with children is therapeutic communication, which provides an opportunity to build rapport, understand the child's experience, develop children's interventions, and maximize the use of health

care resources to help reduce children's fear and anxiety of medical care ⁽¹¹⁾.

It is the primary role of nurses to control and help reduce pain well, reduce the intensity of suffering, and reduce children's fear and anxiety. As a result, pathology, exercise, and nursing science should all be core aspects. ⁽²⁾.

Nurses use toys to provide enjoyable play in order to assuage children's concerns about nursing care before and after nursing interventions, lower anxiety levels, and create a positive experience ⁽¹²⁾. However, children are vulnerable to feelings of anxiety, stress and disappointment if they are not informed of what will happen to them or are not actively involved in their care. They may also feel rejected and ignored ⁽¹³⁾.

Methods

Design of the study

A quiz-experiment design using (test - retest) approach for the study group participants employed this study was started at January 2, 2023 to February 28, 2023.

Setting of the study

The study was conducted in (Ibn Al-Baladi Hospital for Women and Children) and (Fatima Al-Zahra Hospital for Women and Children. These hospitals are located in Baghdad, Rusafa, in Sadr City. The hospital departments are the pediatric emergency unit, the pediatric medical unit, the mother and child care unit, the maternity operating room, and the pediatric dialysis unit.

Study Sample and Sampling

A non-probability purposive sample consist (60) nurses, the study group include (30) nurses selected from pediatric emergency unit and the pediatric medical unit for (Fatima Al-Zahra Hospital for Maternal and Child

Care) and the control group include (30) nurses selected from pediatric emergency unit and the pediatric medical unit for (Ibn Al-Baladi Hospital for Maternal and Child Care). Participants in the study group underwent an instructional program, selection criteria were defined as follows

Inclusion Criteria

- Nurses working at pediatric emergency unit.
- Nurses working at pediatric medical unit.
- Day and night shifts.

Exclusion Criteria

Nurses they not dealing with children.

Ethical Considerations

Participants were fully aware of the current study and its aims and therefore voluntary signing consent was obtained in order to participate in the study. Besides, the confidentiality of the information obtained from the nurses was taken into account. Ethical approval was also obtained from the Research Ethical Committee at the College of Nursing, University of Baghdad on 12/12/2022 regarding confidentiality and non-disclosure of the identities of the participants.

The Program and Instrument Construction

The design of the instructional program was based on the findings of the nurses' needs assessment and information collected from a review of relevant scientific literature and prior studies, based on nurses' needs for more information about reducing children's fear and anxiety during nursing interventions. The instructional program is designed to improve nurses knowledge related to reducing children's fear and anxiety during nursing interventions, the definition of fear and anxiety, how to diagnose fear and anxiety, and ways to reduce children's fear and anxiety during nursing interventions.

Part I: Include socio-demographic data for nurses including gender, age, level of

education and years of experience as general nurses, have you participated in training courses related to fear and anxiety in children, do you have training courses related to fear and anxiety in children. All answered through the system of choices. **Part II:** Nurses' knowledge toward of reducing children's fear and anxiety during nursing interventions. This part consists of 11 questions It is answered by true or false.

Content of instructional program

First-Lecture: An introduction to the anxiety and fear of children in hospitals Nursing interventions. **Second-Lecture:** Anxiety in children, how to diagnose it, and ways to reduce anxiety during nursing interventions.

Third-Lecture: Fear in children, diagnostic methods and how to reduce it nursing interventions and ways to reduce fear and anxiety in children during nursing interventions.

Validity and Reliability of the study questionnaire

To make the instrument more valid, it was presented to a panel of (11) experts in the different fields. They asked to review the questionnaire, and proposed a counseling program to evaluate whether they agreed or disagreed with its contents. The results of the questionnaire review and the counseling program proposed by the experts showed that all experts agreed, as they were clear and sufficient to measure the study. Minor changes have been made to some elements, such as minor script rewrites. These changes were made according to the suggestions of the experts.

The internal consistency type of reliability was determined in the current study; internal consistency reliability measures the consistency between different items of the instrument. The internal consistency between items was determined by using Cronbach's alpha coefficient which calculated through the application of Statistical Package for Social Science Program (IBM SPSS) version 26.0 as

referred on a sample of (10) participants which were selected purposive.

SPSS (Statistical Package for Social Sciences) version 24.0 was used to analyze the study data.

Statistical Analysis

Results:

Table 1. Nurses Socio-demographic Characteristics

No.	Characteristics	Study group		Control group		
		f	%	f	%	
1	Age (Years)	20 – 24	9	30	9	30
		25 – 29	13	43.4	7	23.3
		30 – 34	3	10	6	20
		35 – 39	4	13.3	1	3.4
		40 _100	1	3.3	7	23.3
		M±SD=	27.8 ± 5.7		29.9 ± 8.5	
2	Gender	Male	6	20	11	36.7
		Female	24	80	19	63.3
3	Level of education in nursing	Secondary school	10	33.3	12	40
		Diploma	11	36.7	14	46.7
		Bachelor	9	30	4	13.3
4	Years of experience in nursing	1 – 5	15	50	16	53.3
		6 – 10	10	33.3	5	16.7
		11 – 15	3	10	5	16.7
		16 _40	2	6.7	4	13.3
		M±SD=	6 ± 4.7		7.6 ± 7.7	

No= Number, f= Frequency, %= Percentage, M= Mean, SD= Standard deviation

As shown in Table (1), according to 80% of the reports, nurses constituted the majority. Within this age group, 43.4% of people are in the "25- to under-30" category. The highest percentage of both categories refers to a "diploma degree" when discussing educational attainment, with 36.7% of nurses reporting it. The average years of experience indicates that 50% of them have less than six years of experience.

Table 2. Nurses’ Knowledge on the Reduce of Children’s Fear and Anxiety During Nursing Interventions among Study and Control Groups.

List	Knowledge	Study Group (N=30)						Control Group (N=30)					
		Pre-test		Post-test 1		Post-test 2		Pre-test		Post-test 1		Post-test 2	
		M	Ass.	M	Ass.	M	Ass.	M	Ass.	M	Ass.	M	Ass.
1	Parents cannot be used to reduce children's fear and anxiety during nursing interventions	.60	Fair	1.00	Good	1.00	Good	.63	Fair	.63	Fair	.64	Fair
2	Verbal distraction and encouragement are among the factors that reduce children's fear and anxiety during nursing interventions	.62	Fair	100	Good	1.00	Good	.67	Good	.67	Good	.66	Fair
3	Children's fear and anxiety cannot	.66	Fair	1.00	Good	1.00	Good	.60	Fair	.60	Fair	.60	Fair

	be reduced by using toys and games during nursing interventions												
4	The fear and anxiety of children during nursing care depends on the hospital environment and the treatment of the nursing staff	.65	Fair	1.00	Good	1.00	Good	.47	Fair	.47	Fair	.48	Fair
5	The use of television and cartoons helps reduce children's fear and anxiety during nursing interventions	.66	Fair	1.00	Good	1.00	Good	.57	Fair	.60	Fair	.62	Fair
6	The method of inflating rubber balloons for children is not a means of reducing children's fear and anxiety during nursing interventions	.57	Fair	1.00	Good	1.00	Good	.66	Fair	.66	Fair	.60	Fair
7	The use of iPod's and electronic games contributes to the anxiety and fear of children during nursing interventions	.63	Fair	1.00	Good	1.00	Good	.63	Fair	.64	Fair	.63	Fair
8	Children's fear and anxiety during nursing interventions are reduced through the use of a virtual reality device for children	.47	Fair	1.00	Good	1.00	Good	.17	Poor	.20	Poor	.21	Poor
9	It is not possible to reduce the anxiety and fear of children during nursing interventions by using warm or cold compresses or using a cold spray	.23	Poor	1.00	Good	1.00	Good	.13	Poor	.13	Poor	.10	Poor
10	The use of soft music and children's music contributes to reducing children's fear and anxiety during nursing interventions	.66	Fair	1.00	Good	1.00	Good	.60	Fair	.61	Fair	.66	Fair
11	Using the continuous inhalation and exhalation method reduces fear and anxiety in children	.60	Fair	1.00	Good	1.00	Good	.40	Fair	.47	Fair	.43	Fair

Table (2) show that in the study group, nurses demonstrate fair level of knowledge during the pre-test among all items except item 9, which reveals poor, and that nurses' knowledge increases to good level among all items during the post-test 1 and post-test 2. The table 2 lists the items of nurses' knowledge about reducing fear and anxiety in children during nursing intervention.

Table 3. An overall Nurses’ Knowledge About Reducing Anxiety and Fear in Children During Nursing Intervention Among Study and Control Group.

Levels of knowledge	Study Group (N= 30)												Control Group (N=30)											
	Pre-test				Post-test 1				Post-test 2				Pre-test				Post-test 1				Post-test 2			
	f	%	M	S.D	f	%	M	S.D	f	%	M	S.D	f	%	M	S.D	f	%	M	S.D	f	%	M	S.D
Poor	0	0			0	0			0	0			2	6.7			2	6.7			2	6.7		
Fair	23	76.7	6.97	1.810	0	0	10.83	.379	0	0	10.70	.702	22	73.3	6.53	2.270	21	70	6.57	2.329	22	73.3	6.70	2.366
Good	7	23.3			30	30			30	30			6	20			7	23.3			6	20		

F= Frequency, %= Percentage, M= Mean, SD= Standard deviation, **Poor**= 0 – 3.66, **Fair**= 3.67 – 7.33, **Good**= 7.34 – 11.

Table (3) show that nurses in the study group demonstrated a fair level of knowledge during the pre-test period (76.7%, MSD= 6.97 1.810) but a good level of knowledge during the post-test 1 (100%, MSD= 10.83 .379) and post-test 2 (100%, MSD= 1070 .702), which represents the significant changes in nurses' level of knowledge. The control group's nurses demonstrated a reasonable level of knowledge across the three testing sessions: the pre-test (73.3%, MSD= 6.53 2.270), post-test 1 (70%, MSD= 6.57 2.329), and post-test 2 (73.3%, MSD= 6.70 2.366), which showed no discernible change in the nurses' knowledge.SD= 9.07 2.116), post-test 1 (86.7%, MSD= 9.10 2.392), and post-test 2 (83.3%, MSD= 8.90 2.708), all of which show no appreciable change in the nurses' practices.

Table 4. Repeated Measure Analysis of Variance (RM-ANOVA) Test for Effectiveness of Instructional Program on Nurses’ Knowledge about reducing Anxiety and Fear in Children during Nursing Intervention among the Study Group (N=30)

Descriptive									
Knowledge	Mean (S.D)	Source	Type III Sum of Squares	df	Mean Square	F	P-value	Partial Eta Squared	
Pre-test Post-test I Post-test II	6.97 (1.810) 10.83 (.379) 10.70 (.702)	Time	Sphericity Assumed	289.067	2	144.533	160.388	.001	.847
		Greenhouse-Geisser	289.067	1.066	271.083	160.388	.001	.847	
		Huynh-Feldt	289.067	1.074	269.244	160.388	.001	.847	
		Lower-bound	289.067	1.000	289.067	160.388	.001	.847	
		Error(Time)	Sphericity Assumed	52.267	58	.901			
		Greenhouse-Geisser	52.267	30.924	1.690				

		Huynh-Feldt	52.267	31.135	1.679			
		Lower-bound	52.267	29.000	1.802			

SD= Standard Deviation, df= Degree of Freedom, f= F-statistics, P-value= .00.

Table (4) shows that the instructional program had a significant impact on the study group's nurses' knowledge. Out of the descriptive data, it is evident that the instructional program was effective because there was a considerable increase in the mean score on the nurses' knowledge during post-tests1 and 2.

Discussion

The results in table 1 showed that the age of the participants (n= 60 for two groups). The descriptive analysis in table 4-1 showed that the average age for nurses in the study group refers to 27.8±5.7 years and the highest percentage of them are seen with age group of “25-less than 30 years” among 43.4% of them. The average age for nurses in the control group refers to 29.9±8.5 year and 30% of them are seen with the age group of “20-less than 25” years. This finding similar with Evaluation of Nurses’ Practices toward Caring of Children with Febrile Convulsion find the average age of the nurses included in the study sample was 31.48 years, with ages (25-29) and (33-34) having the highest¹⁴. The average age ranged from 20-30 years, which is the most present category for health care with children, which requires great effort by the staff for that matter.

The results in table 1 showed that the gender variable is no difference between the two groups, as it is a high of females in both groups refers that nurses are females as reported among 80% of them in the study group and 63.3% of them in the control group. This finding similar w Effectiveness of Health Educational Program on Nurses' Knowledge toward children with pneumonia in Al-Amara City Hospitals included in the study sample was the study group 19(63.3%) and control group 17(56.6%) have been female. The percentage of the nursing staff was mostly women, and that is because these hospitals receive patients of children and

women, and this requires the presence of nursing staff of women ⁽¹⁴⁾.

The results in table 1 showed that the level of education, the highest percentage refers to “diploma degree” among both groups as reported among 36.7% of nurses in the study group and 46.7% of nurses in the control group. were in line with a research conducted in Alexandria, Egypt, that found the highest percentage of participants (n=24, or 33.8%) have a diploma in nursing. The majority of the sample in the control group (52.4%) were nursing institute members, in contrast to a study conducted in that found the high majority of the sample (45.8%) to be nursing institute members. It is attributed that the number of nursing cadres, most of whom are graduates of nursing institutes in Iraq, and this is because the number of institutes that graduate the number of nurses in Iraq is the largest category present in Iraq⁽¹⁴⁾. Level of Education Regarding level of education, the highest percentage refers to “diploma degree” among both groups as reported among 36.7% of nurses in the study group and 46.7% of nurses in the control group. This result is consistent with a study conducted in the city of Amarah, entitled "The Effectiveness of the Health Education Program in Nurses' Knowledge of Children with Pneumonia", which showed the participation of 20 nurses in the study, 12 with a nursing diploma, and 8 with a certificate. Bachelor degree The results in table 1 showed The average years of experience refers to 6±4.7 years among nurses

in the study group with “1-less than 6” years of experience among 50% of them, and among control group, the average years of experience refers to 7.6 ± 7.7 years with “1-less than 6” years of experience among 53.3% of them. The results of the current study were consistent with a study conducted in the emergency department / teaching hospital in Nasiriyah district. In addition, the results of the study group were consistent with a reliable Korean source who found that the majority of participants had between 1-5 years of experience with it. Furthermore, this finding is consistent with a study conducted in Sudan, which showed that the majority of participants ($n = 75$ (35.0%)) achieved the same results⁽¹⁵⁾. The percentage of years of experience in nursing with children differed as a result of the existence of age groups from 20-30 years, with the presence of cadres in varying proportions who have experience of more than 10 years providing support and expertise to less experienced cadres.

The results of Table 3 show the findings indicated that nurses in the study group are showed a fair level of knowledge during the pre-test time while they are showed a good level of knowledge during the post-test 1 and post-test 2 that indicated the significant changes in nurses’ level of knowledge after applying the program. These results of this study agreed with a study in Egypt Effect of education program on nurses’ knowledge and practice regarding care of central venous line in pediatric hemodialysis The results showed that less than 50% The nurses had satisfactory knowledge regarding central venous line in pediatric hemodialysis at the pre-intervention stage. The A minority of them (12.5 and 2.5%, respectively) have it satisfactory knowledge of the listing site of evidence-based guidelines for the care of CVC maintenance. However, the vast majority of them had an improvement in the degree of their knowledge immediately and 6 months After implementing directions (82.5, 90, 92.5,

95, 97.5 and 100, respectively) with a statistically high score significant difference ($P < 0.00$)⁽¹⁷⁾. The discrepancy in the nurses' knowledge was due to the lack of workshops on reducing children's anxiety and fear during nursing interventions, and the lack of priority given to this subject due to the large number of pediatric patients in these hospitals.

The results of Table 3 show nurses in the control group demonstrated a good level of knowledge for each of the three testing sessions: Pre-Test Post-Test 1 and Post-Test II which did not show a significant change in the nurses' knowledge. The results of the study "The effectiveness of the health education program in the knowledge of nurses about communication skills with children in the children's teaching hospital in the city of Baghdad" are consistent with these results. When assessing the levels of knowledge with anxiety over the performance of the control group in this study, it was discovered that their scores were in fact low to moderate and remained the same throughout the pre-test, post-test, and post-test 2. This disparity was the result of a difference in the sample chosen due to their knowledge gaps, as well as the impact of the counseling program⁽¹¹⁾.

The results of table 4 the analysis of the RM-ANOVA test show that the instructional program had a significant impact on the study group's nurses' knowledge, which is supported by the high significance of the "Greenhouse-Geisser" correction at p-value 0.001 and the large size effect (.847) indicated by the Eta squared. Out of the descriptive data, it is evident that the instructional program was effective because there was a considerable increase in the mean score on the nurses' knowledge during post-tests 1 and 2. The findings of the study "Effectiveness of an Interventional Program on Nurses' Practices regarding Removing and Cleaning Burn Dead Tissue" conducted in Baghdad City are in agreement with these findings. Participants in this study, which was conducted on nurses

working in pediatric acute care trauma units, were aware of the proper components of trauma-informed treatment. The majority of them had favorable views on including psychosocial factors and being mindful of potential post-traumatic stressor responses in their procedures. Hence, the majority of them regard their competency in a variety of techniques and talents to be Intermediate. These are the components of trauma-informed pediatric care ⁽¹⁶⁾.

Conclusion

The study concluded that the Instructional program designed to reduce children's anxiety and fear during nursing interventions was effective in improving the information and knowledge of nurses.

Recommendations

Nurses need training courses to reduce children's anxiety and fear during nursing interventions. Preparing an instructional brochure for nursing worker to dealing child fear and anxiety improve the nurses' knowledge and practices.

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Conflict of interest

None to declare.

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Data availability

The data supporting the findings of this study are not publicly available due to ethical and privacy considerations but may be made available from the corresponding author upon reasonable request and with appropriate approval.

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