Effectiveness of Health Educational Program on Nurses' Knowledge toward children with pneumonia in Al-Amara City Hospitals

فاعلية البرنامج التعليمي الصحي على معارف الممرضين تجاه ألاطفال المصابين بذات الرئة في مستشفيات مدينة العمارة .

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المستخلص:

الهدف: تهدف الدراسة الى تقييم فاعلية البرنامج التعليمي الصحي على معارف الممرضين تجاه الأطفال المصابين بذات الرئة في مستشفيات مدينة العمارة.

المنهجية: تصميم دراسة شبه تجريبية مجموعتان دراسيتان (اختبار قبلي ١ واختبار بعدي ٢) تم إجراؤهما في مستشفى الزهراوي ومستشفى الطفل والولادة في مدينة العمارة لتحديد فعالية البرنامج التثقيفي الصحي حول معرفة الممرضين تجاه الأطفال المصابين بذات الرئة. أجريت الدراسة في الفترة من ١ سبتمبر ٢٠١٩ إلى ١ أبريل ٢٠٢٠. تم اختيار عينة هادفة (غير احتمالية) لهذه الدراسة. بلغ حجم العينة (٦٠) من الممرضين مقسمة إلى مجموعتين تحتوي كل واحدة على (٣٠) ممرض وممرضة كمجموعة ضابطة ومجموعة دراسة. تعرضت مجموعة الدراسة لبرنامج تعليم الصحي بينما لم تتعرض مجموعة الضبط لبرنامج تعليم الصحي.

النتائج: أظهرت نتائج الدراسة اثراً إيجابيا واضحا للبرنامج على معارف الممرضين إزاء الأطفال المصابين بذات الرئة. وأشارت نتائج الدراسة بوجود فروق ذات دلالة معنوية عالية للمجموعة التجريبية بين الاختبار القبلي والاختبار البعدي في الجوانب الرئيسية التي لها علاقة بمعارف الممرضين إزاء الأطفال المصابين بذات الرئة.

التوصيات: أوصت الدراسة بتصميم وبناء برنامج تعليمي للملاك التمريضي حيث يتم من خلال البرنامج التأكيد على توجيههم وتعريفهم على كيفية التعامل مع الأطفال المصابين بذات الرئة وتشجيع الملاك التمريضي للمشاركة في برامج تعليمة لتغطية حاجاتهم المختلفة المتعلقة بالإخفاقات والمعوقات لممارساتهم وإقامة علاقات تعاونية ما بين وزارة الصحة ووزارة التعليم العالي لتهيئة هذا البرنامج.

الكلمات المفتاحية: فاعلية البرنامج التعليمي الصحي ، معارف الممرضين ، أطفال ذات الرئة ، مستشفيات مدينة العمارة.

Abstract:

Objective(s): The present study aims to evaluate the effectiveness of Health educational program on nurses' knowledge toward children with pneumonia in Al-Amara City hospitals.

Methods: A quasi-experimental study design of two-study group (pretest-posttest 1 and posttest 2) carried out at Alzahrawy Hospital and Child and Maternity hospital in Al Amara City to identify the effectiveness of the health educational program on nurses' knowledge toward children with pneumonia of the period between September 1st, 2019 to April 1st, 2020. A Purposive (Non-probability) sample is chosen for the present study. The size of sample is (60) nurses divided into two groups each one contains (30) nurses as control group and study group. The study group was exposed to the health educational program while the control group was not exposed to the health educational program.

Results: The results of the study showed a clear positive effect of the program on the nurses' knowledge towards children with pneumonia. The study results indicated that there are high significant differences for the study group between the pre-test and the post-test in the main aspects that have to do with the knowledge of nurses about children with pneumonia.

Recommendations: The study recommended to design and construct an educational program for the nursing staff, whereby through the program emphasizing the directed and familiarize with how to deal with children with pneumonia, encourage the nursing staff to participate in educational programs to cover their various needs related to failures their practices and establish cooperative relations between the Ministry of Health and Higher Education to prepare this program**.**

Keywords: health educational program, nurses' knowledge, children with pneumonia.

Introduction

Pneumonia is a form of acute respiratory infection that affects the lungs. The lungs are made up of small sacs called alveoli, which fill with air when a healthy person breathes. When an individual has pneumonia, the alveoli are filled with pus and fluid, which makes breathing painful and limits oxygen intake [(1)].

Pneumonia causes substantial morbidity in children worldwide and is a leading cause of death in children in the developing world. The incidence of pneumonia is the highest in children under 5 years of age and in recent years, the incidence of complicated and severe pneumonia seems to be increasing. Pneumonia continues to be the biggest killer worldwide of children under five years of age [(2)].

Although the implementation of safe, effective and affordable interventions has reduced pneumonia mortality from 4 million in 1981 to just over one million in 2013 [(3)].

It consists of classifying the severity of illness using simple clinical signs such as fast breathing, chest in drawing and general danger signs, 3 and then applying the appropriate treatment. Treatment includes home care advice, antibiotics for home therapy, or referral to a higher-level health facility. The recommendations for the management of pneumonia in health facilities have recently been modified [(4)].

Children with cough and cold who did not have signs of pneumonia were classified as “no pneumonia”, and their caregivers were advised on appropriate home care. Children with fast breathing were classified as “pneumonia” and were given an oral antibiotic (at that time oral cotrimoxazole) to take at home for five days [(5)].

Methodology

A quasi –experimental study design Two study group (pretest-posttest 1 and posttest 2) carried out at Alzahrawy Hospital and Child and maternity hospital in Al Amara City to identify the effectiveness of the Health educational program on Nurses Knowledge toward Children pneumonia; the study was conducted between 1 of September 2019 to 1 of April 2020.A Purposive (Non-probability) sample is chosen for the present study. There are (92) nurses work in (Medical Ward, NICU, and pediatric Emergency Department).A random sample has been selected to obtain representative and accurate data. The size of sample is (60) nurses divided into two groups each one contains (30) nurses as control group and study group. The study group was exposed to the nursing educational program while the control group was not exposed to the nursing educational program. To evaluate the effectiveness of the Health educational program on the nurses, a self-administered questionnaire is constructed to assess the knowledge toward children pneumonia at pediatric department, it consists of two Domains. Domain I: The Demographic and Socio-demographic Characteristics of the Nurses such as(age, gender, level of educations, years of experience in nursing, and years of experience in pediatric department and training

sessions). Domain Two is a self-administered related paper to know nurses towards children pneumonia. it consists of (30) multiple-choice questions in three areas: Part one: nurses' knowledge about the respiratory system and children pneumonia consists of (10) elements. Part Two: Nurses' knowledge about risk factors and disease treatment for children consists of (10) elements. Part three: nurses' knowledge about the procedures and nursing measures for children pneumonia with (10) elements. The validity of the program content and knowledge of the study tools were determined by a committee of 13 experts, who had more than five years of experience in their field to investigate the content of the educational program and the children pneumonia questionnaire. Reliability of the Instrument. Reliability of the questionnaire is determined through the use of test and re-tests approach obtained through evaluating 10 nurses selected from the pediatric department at Alzahrawy Hospital and the interval was more two weeks.

Result

Table (1): Distribution of Demographic Data for Study and Control Groups from AL- Amara City Hospitals According to the Study Sample:

Variables	Groups	Study		Control	
		Freq.	%	Freq.	%
Age (years)	18-25	17	56.7	14	46.7
	26-33	11	36.6	10	33.3
	34-41	2	6.7	6	20.0
	Total	30	100.0	30	100.0
Gender	Male	11	36.7	13	43.4
	Female	19	63.3	17	56.6.
	Total	30	100.0	30	100.0
Level of Education	Graduate junior high	12	40.0	13	43.3
	Graduate Institute	15	50.0	15	50.0
	College graduate	3	10.0	2	6.7
	Total	30	100.0	30	100.0
Years of Service	1-10	15	50.0	12	40.0
	11-20	11	36.7	10	33.3
	21-30	4	13.3	8	26.7
	Total	30	100.0	30	100.0
Participant in Training sessions	No	19	63.3	16	53.3
	Yes	11	36.7	14	46.7
	Total	30	100.0	30	100.0

Reading the Sources about Nursing Intervention	No	20	66.7	17	56.6.
	Yes	10	33.3	13	43.4
	Total	30	100.0	30	100.0

Freq. =Frequencies, %=Percentages, , P=Probability, FEPT=Fisher Exact Probability Test
N.S.= Non-Significant

Table (1) reveals that the majority 17(56.7%) of nurses in the study group are within the age group (18 - 25) while in the control group 14(46.7%) of nurses in same age group and both groups: the study group 19(63.3%) and control group 17(56.6%) have been female. Concerning the level of education, demonstrate half of nurses in both groups 15(50%) were the institutes graduated. In relation to the number of years of service in hospitals, 15(50%) of nurses in the study, and 12(40%) of nurses in the control groups have experience of (1-10) years. Regarding subject participant in training sessions, the majority of both groups have not training sessions in the specialist field of children pneumonia,19(63.3%) 16(53.3%) respectively. Concerning the reading the sources about nursing intervention for children pneumonia, the majority of research sample in both groups were not reading references, 20(66.7%) for study group, and 17(56.6%) of the control.

Table (2): Comparison Among Three Periods (pre, post 1 and post II tests) Related to Nurses' Knowledge Toward Children with Pneumonia for the Study Group:

Questions Related to Nurses' Knowledge	Pre-Test		Post I Test		Post II Test		ANOVA			
	Mean	Eva.	Mean	Eva.	Mean	Eva.	d.f	F	P_{-value}	C.S.
A. Nurses' knowledge about the respiratory system and pneumonia in children:										
A.1. Anatomically, Respiratory system consists of	0.93	**H**	1.00	**H**	1.00	**H**	87	2.071	**0.132**	**NS**
.2. Called the sound box is a hort passageway onnecting the pharynx and rachea	0.57	**M**	1.00	**H**	1.00	**H**	87	22.176	**0.000**	**HS**
A.3. It is a pair of conical organs located in the chest cavity and the heart is located between them	0.43	**M**	1.00	**H**	1.00	**H**	87	37.923	**0.000**	**HS**
A.4. Pneumonia is a common disease that affects children, as it is often caused by	0.20	**L**	0.63	**M**	0.63	**M**	87	8.721	**0.000**	**HS**
A.5. After the disease occurs, the child's lung is full	0.23	**L**	0.73	**H**	0.73	**H**	87	12.719	**0.000**	**HS**
A.6. Diagnosing pneumonia in children is difficult because the signs and symptoms depend on	0.20	**L**	0.67	**M**	0.67	**M**	87	10.449	**0.000**	**HS**
A.7. Lobar pneumonia can be divided into stages depending on how it progresses	0.10	**L**	0.67	**M**	0.53	**M**	87	13.610	**0.000**	**HS**
A.8. Methods for diagnosing pneumonia	0.40	**M**	0.87	**H**	0.87	**H**	87	13.406	**0.000**	**HS**

A.9. The types of pneumonia are	0.23	**L**	0.73	**H**	0.50	**M**	87	8.721	**0.000**	**HS**
A.10. Pneumonia is classified according to the site of the injury	0.17	**L**	0.83	**H**	0.83	**H**	87	30.933	**0.000**	**HS**
B. Nurses' knowledge about risk factors and the treatment of disease for children										
B.1. Causes of the disease in children	0.37	**M**	0.77	**H**	0.67	**M**	87	5.953	**0.004**	**HS**
B.2. It is not considered one of the types of viruses that cause pneumonia	0.17	**L**	0.63	**M**	0.63	**M**	87	10.468	**0.000**	**HS**
B.3. When suspending the presence of fluid in pleural space in child's lung, a test must perform	0.27	**L**	0.67	**M**	0.63	**M**	87	6.593	**0.002**	**HS**
B.4. The people who are most at risk of pneumonia	0.17	**L**	0.67	**M**	0.67	**M**	87	12.429	**0.000**	**HS**
B.5. It is called pneumonia that occurs due to Bacteria	0.47	**M**	0.97	**H**	0.80	**H**	87	12.783	**0.000**	**HS**
B.6. Pneumonia is a common disease affecting children. It is considered as one of the following	0.27	**L**	0.67	**M**	0.43	**M**	87	5.295	**0.007**	**HS**
B.7. Pneumonia may cause complications such as	0.33	**L**	0.77	**H**	0.73	**H**	87	8.479	**0.000**	**HS**
B.8. If pneumonia is not treated, you may develop fluid around your lungs in the pleura called	0.47	**M**	0.93	**H**	0.90	**H**	87	14.701	**0.000**	**HS**
B.9. Parents should inform the treating doctor about additional ways to prevent pneumonia	0.10	**L**	0.77	**H**	0.70	**H**	87	24.492	**0.000**	**HS**
B.10. Children of any age should be vaccinated	0.20	**L**	0.60	**M**	0.60	**M**	87	7.250	**0.001**	**HS**
C. Nurses' knowledge about the procedures and nursing measures for pneumonia in children										
C.1. Nursing operations consist of	0.43	**M**	0.77	**H**	0.60	**M**	87	3.637	**0.030**	**S**
C.2. Priorities for nursing procedures pneumonia	0.33	**L**	0.70	**H**	0.67	**M**	87	5.465	**0.006**	**HS**
C.3. Nursing evaluation of pneumonia includes	0.30	**L**	0.77	**H**	0.77	**H**	87	11.123	**0.000**	**HS**
C.4. Nursing planning is necessary to establish appropriate interventions for the patient's case	0.20	**L**	0.53	**M**	0.50	**M**	87	4.450	**0.014**	**S**
C.5. The person with pneumonia suffers from easy fatigue and poor appetite, so adequate nutrition and adequate irrigation must be provided	0.37	**M**	0.70	**H**	0.50	**M**	87	3.538	**0.033**	**S**
C.6. Children with sickle cell anemia will need Treatment	0.37	**M**	0.67	**M**	0.60	**M**	87	3.109	**0.050**	**S**

C.7. Within the specification of the nursing documentation process	0.43	**M**	0.77	**H**	0.67	**M**	87	3.936	**0.023**	**S**
C.8. The nurse should educate the mother about benefit the nature of breast feeding to child as	0.23	**L**	0.50	**M**	0.50	**M**	87	3.038	**0.053**	**NS**
C.9. One of the nursing procedures is to educate parents about the nature of childcare at home, where they should be taught	0.33	**L**	0.83	**H**	0.60	**M**	87	9.059	**0.000**	**HS**
C.10. Within the instructions provided to the patient before leaving the hospital	0.20	**L**	0.57	**M**	0.50	**M**	87	5.063	**0.008**	**HS**

ANOVA= Analysis of Variance, Eva= evaluation, df= degree of freedom, F= F-test, p: probability, C.S.: Comparison, Significant, NS: Non-Significant at P > 0.05, S: Significant at P < 0.05, HS: Highly Significant at P < 0.01, Level of evaluation: (1-1.67) = Low ;(1.68-2.33) = Moderate; (2.34-3.00) = High, L= Low; M = Moderate, H= High.

Table (2) indicates that there are highly significant differences between three periods (pre, post-I and post-II tests) at the study group in all items related to nurses' knowledge toward children pneumonia; except (A.1& C.8) which show that there are non-significant differences related to the nurses' knowledge about the respiratory system and pneumonia in children, and about the procedures and nursing measures for pneumonia when they are analyzed by ANOVA.

Table (3): Comparison Among Three Periods (Pre, Post-I and Post II Tests) for Nurses' Knowledge toward Children with Pneumonia to the Control Group:

Questions Related To Nurses' Knowledge	Pre-Test		Post I Test		Post II Test		ANOVA			
	Mean	Eva.	Mean	Eva.	Mean	Eva.	d.f	F	P_{-value}	C.S.
A. Nurses' knowledge about the respiratory system and pneumonia in children:										
A.1. Anatomically, Respiratory system consists of	0.93	H	0.97	H	0.97	H	87	0.254	0.776	NS
A.2. Called the sound box is a short passageway connecting the pharynx and trachea	0.83	H	0.87	H	0.87	H	87	0.087	0.917	NS
A.3. It is a pair of conical organs located in the chest cavity and the heart is located between them	0.57	M	0.63	M	0.63	M	87	0.182	0.834	NS
A.4. Pneumonia is a common disease that affects children, as it is often caused by	0.17	L	0.33	L	0.33	L	87	1.381	0.257	NS
A.5. After the disease occurs, the child's lung is full	0.33	L	0.57	M	0.57	M	87	2.213	0.115	NS
A.6. Diagnosing pneumonia in children is difficult because the signs and symptoms depend on	0.23	L	0.30	L	0.30	L	87	0.215	0.807	NS

A.7. Lobar pneumonia can be divided into stages depending on how it progresses	0.17	L	0.40	M	0.33	L	87	2.091	0.130	NS
A.8. Methods for diagnosing pneumonia	0.53	M	0.57	M	0.53	M	87	0.043	0.958	NS
A.9. The types of pneumonia are	0.43	M	0.47	M	0.30	L	87	0.961	0.387	NS
A.10. Pneumonia is classified according to the site of the injury	0.23	L	0.43	M	0.43	M	87	1.731	0.183	NS
B. Nurses' knowledge about risk factors and the treatment of disease for children										
B.1. Causes of the disease in children	0.33	L	0.47	M	0.43	M	87	0.584	0.560	NS
B.2.It is not considered one of the types of viruses that cause pneumonia	0.30	L	0.40	M	0.37	M	87	0.331	0.719	NS
B.3. When suspending the presence of fluid in pleural space in child's lung, a test must perform	0.30	L	0.47	M	0.43	M	87	0.961	0.387	NS
B.4. The people who are most at risk of pneumonia	0.33	L	0.47	H	0.43	M	87	0.584	0.560	NS
B.5.It is called pneumonia that occurs due to Bacteria	0.50	M	0.63	M	0.57	M	87	0.531	0.590	NS
B.6. Pneumonia is a common disease affecting children. It is considered as one of the following	0.37	M	0.40	M	0.23	L	87	1.039	0.358	NS
B.7. Pneumonia may cause complications such as	0.47	M	0.53	M	0.40	M	87	0.524	0.594	NS
B.8. If pneumonia is not treated, you may develop fluid around your lungs in the pleura called	0.70	H	0.73	H	0.73	H	87	0.054	0.948	NS
B.9. Parents should inform the treating doctor about additional ways to prevent pneumonia	0.27	L	0.30	L	0.23	L	87	0.165	0.848	NS
B.10. Children of any age should be vaccinated	0.43	M	0.47	M	0.47	M	87	0.043	0.958	NS
C. Nurses' knowledge about the procedures and nursing measures for pneumonia in children										
C.1. Nursing operations consist of	0.47	M	0.47	M	0.37	M	87	0.397	0.673	NS
C.2. Priorities for nursing procedures pneumonia	0.53	M	0.67	M	0.57	M	87	0.584	0.560	NS
C.3. Nursing evaluation of pneumonia includes	0.50	M	0.60	M	0.53	M	87	0.305	0.738	NS
C.4. Nursing planning is necessary to establish appropriate interventions for the patient's case	0.33	L	0.40	M	0.40	M	87	0.184	0.833	NS

C.5. The person with pneumonia suffers from easy fatigue and poor appetite, so adequate nutrition and adequate irrigation must be provided	0.50	M	0.50	M	0.37	M	87	0.704	0.497	NS
C.6. Children with sickle cell anemia will need Treatment	0.47	M	0.47	M	0.33	L	87	0.716	0.492	NS
C.7. Within the specification of the nursing documentation process	0.53	M	0.53	M	0.47	M	87	0.173	0.842	NS
C.8. The nurse should educate the mother about benefit the nature of breastfeeding to child as	0.47	M	0.53	M	0.50	M	87	0.129	0.879	NS
C.9. One of the nursing procedures is to educate parents about the nature of childcare at home, where they should be taught	0.40	M	0.43	M	0.20	L	87	2.146	0.123	NS
C.10. Within the instructions provided to the patient before leaving the hospital	0.67	M	0.73	H	0.63	M	87	0.347	0.708	NS

ANOVA= Analysis of Variance, Eva=evaluation, df= degree of freedom, F= F-test, p: probability, C.S.: Comparison, Significant, NS: Non-Significant at P > 0.05, Level of evaluation: (1-1.67) = Low ;(1.68-2.33) = Moderate; (2.34-3.00) = High, L= Low; M = Moderate, H= High.

Table (3) presents that there is non-significant difference between three periods (pre, post-I and post-II tests) at the control group in all items related to the knowledge of the nurses concerning pneumonia in children, when they are analyzed by ANOVA.

Discussion

The table (1) reveals that the majority 17(56.7%) of nurses in the study group are within the age group (18 - 25) while in the control group 14(46.7%) of nurses in same age group and both groups: the study group 19(63.3%) and control group 17(56.6%) have been female.

Concerning the level of education, demonstrate half of nurses in both groups 15(50%) were the institutes graduated. In relation to the number of years of service in hospitals, 15(50%) of nurses in the study, and 12(40%) of nurses in the control groups have experience of (1-10) years. Regarding subject participant in training sessions, the majority of both groups have not training sessions in the specialist field of children pneumonia,19(63.3%) 16(53.3%) respectively. Concerning the reading the sources about nursing intervention for children pneumonia, the majority of research sample in both groups were not reading references, 20(66.7%) for study group, and 17(56.6%) of the control. These findings are consistent with the study of Impact of Education on Nurses' Knowledge of Children Pneumonia in Neonatal Settings at Southern West Bank Hospitals who found no significant difference between study and control groups

related to Demographic characteristics [6].

Results of tables (2) indicated that there are highly significant differences between three period (pre, post-I and post-II tests) at the study group in all items related to nurses' knowledge toward children pneumonia; exceptA.1(Structurally, the respiratory system consists of) & C.8 (The nurse should educate the mother of the affected child about the nature of breastfeeding the child as) which show that there are non-significant differences related to the nurses' knowledge about the respiratory system and pneumonia in children , and about the procedures and nursing measures for pneumonia. These findings are consistent with the study conducted in Finland the effectiveness of education program on nurses' knowledge in adhering to guidelines to prevent pneumonia who found there are highly significant differences among the three period (pre, post-1and post-2 tests) for nurses' knowledge toward prevent pneumonia. of the study sample in all Items[7].

Results of tables (3) indicated that there is non-significant differences between three periods (pre, post-I and post-II tests) at the control group in all items related to the knowledge of the nurses concerning pneumonia in children. These findings are consistent with the study conducted in Egypt Effect of Educational Program on nurse Knowledge about Pneumonia for their Children who found non-significant differences between three periods (pre, post-I and post-II tests) at the control group in all items related to the knowledge of the nurses about Pneumonia for children [8].

Recommendation

1- The educational lectures should be regularly done and updated for nurses' knowledge about children pneumonia.

2- Great emphasis should be directed toward the educational aspects at paediatric department by providing educational posters, guidelines pamphlets and manuals.

3- Provide educational booklets for nursing staff directed to improve their knowledge that leads to develop their performance.

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