Impact of Education Program upon Nurses' Knowledge towards Children under Mechanical Ventilation at Pediatric Teaching Hospitals in Baghdad City

أثر برنامج تثقيفي على معارف الملاك التمريضي تجاه الأطفال تحت التهوية الآلية في مستشفيات الأطفال التعليمية في مدينة بغداد

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المستخلص:

ألهدف: أثرا لبرنامج التثقيفي على معارف الممرضين تجاه الأطفال تحت التهوية الآلية بعد تطبيق برنامج تثقيفي وإيجاد العلاقة بين معارفهم والمعلومات العامة لهم .

المنهجيه: دراسة شبه تجريبية أجريت على ممرضي الأطفال العاملين في وحدات العناية التنفسية في مستشفيات الأطفال التعليمية في بغداد للفترة من الخامس عشر من شباط إلى السادس و العشرين من أيلول ٢٠١١.اختيرت عينة غير عشوائية (غرضيه) تتكون من (٢٣) من الممرضين يعملون في وحدات العناية التنفسية في مستشفى حماية الأطفال ومستشفى الطفل المركزي .جمعت المعلومات من خلال استعمال استمارة اختبار المعارف قبل أعطاء البرنامج تجاه الأطفال تحت التهوية الآلية وبعد إعطاء البرنامج . استعملت الإحصاءات الوصفية (الوسط الحسابي ، النسبة المئوية،التكرارات ،لانحراف المعياري) والإحصاءات الاستدلالية (الاختبار التائي،معامل الارتباط الخطي،تحليل التباين) لتحليل النتائج.

النتائج: أشارت نتائج الدراسة الى ظهور مستوى متوسط في معارف الممرضين تجاه الاطفال تحت التهويه الاليه قبل البدء بالبرنامج التثقيفي ومستوى عالي في المتابعة الاولى والثانية بعد تنفيذ البرنامج، وأظهرت النتائج مستوى متوسط في ممارسات الممرضين . وعدم وجود اختلافات ذات دلالة إحصائية بين معارف و ممارسات الممرضين تجاه الأطفال تحت التهوية ألآلية والمعلومات العامة لهم.

التوصيات:أوصت الدراسة بالتأكيد الكبير الذي يجب إن يوجه تجاه الجوانب التثقيفية في وحدات العناية التنفسية بتجهيزهم بالإعلانات والكتيبات التثقيفية والأدلة ويجب توفير التسهيلات التثقيفية الحديثة للفريق التمريضي لتحسين معارفهم.

Abstract

Objective: impact of the education program for nurses' knowledge toward children under mechanical ventilation, and to find out the relationships between nurses' knowledge and their general information.

Methodology: Quasi experimental study was carried out at the respiratory care units of Baghdad Pediatric Teaching Hospitals started from February15th, until September 26th, 2011, A purposive (non-probability) sample of (23) nurses working in the respiratory care units, were selected from Children Welfare and Pediatric Central Teaching Hospitals. The data were gathered through using of the constructed multiple choice questionnaire using to evaluate the nurses knowledge using checklist, The questionnaire consists of two parts the first one is general information data and the second part is nurses' knowledge multiple choice form used pre test before application of the program and post test after the application of the program. Descriptive statistical analysis procedure (frequency, and mean of score and standard deviation) and inferential analysis procedure (person correlation coefficient and t-test and ANOVA).

Results: The findings of the study indicated that nurses have moderate knowledge in pre test. But post evaluation revealed high level of knowledge among nurses at RCU toward children under mechanical ventilation. The program reflects an effect on nurses' knowledge. There were no statistical significant association between nurses' knowledge and their general information.

Recommendations: The study recommended that great focusing should be directed toward the educational aspects at respiratory care units by providing educational posters, guidelines, pamphlets and manuals to enhance nurses' knowledge at RCU.

Keywords: education program, pediatric nurses' knowledge, mechanical ventilation

Introduction:

Mechanical ventilation is a common clinical practice which appears mandatory whenever patient respiratory capabilities are impeded by a variety of diseases it is a life supportive treatment discontinuation of it should be performed as soon as autonomous respiration can be sustained. The process is usually done by the gradual removal of the mechanical support as spontaneous breathing is resumed [(1)].

It is a rapidly advancing technology intensive science, and it can reduce the mortality and morbidity effectively to a great extent [(2)].

Mechanical ventilator is a machine that helps people breathe when they are not able to breathe enough on their own. It is also called a ventilator, respirator, or breathing machine. Most patients who need support from a ventilator because of a severe illness are cared for in a hospital's respiratory care unit (RCU).

People who need a ventilator for longer time may be in a regular unit of a hospital, a rehabilitation facility, or cared for at home the goal of mechanical ventilation is to improve ventilation, oxygenation, lung mechanics and patient comfort while preventing complications [(3)]. The goal of the program to improve nurses' knowledge and improve nursing care provided for children under mechanical ventilation.

Methodology:

Quasi-experimental study was conducted on all nurses working in the respiratory care unit at pediatric teaching hospitals in Baghdad, between Feb.15th until Sep. 26th, 2011. The study was conducted in the (RCU) at the following pediatric teaching hospitals: Children Welfare Pediatric Teaching Hospital, and Child's Central Pediatric Teaching Hospital A purposive (Non-probability) sample of (23) nurses were chosen from (RCU) at the pediatric teaching hospitals.

Questionnaire formats constructed through extensive review of available literature and related studies. The questionnaire format consists of two parts: The first part is related to the nurses' general information and the second part is related to the pediatric nurses' knowledge for children under mechanical ventilation, which included sections about nurses' knowledge for children under mechanical ventilation.

Twenty items were constructed on the base of multiple choice approach these items have been rated and scored according to the two point likert scale for nurses' knowledge and score as(2) for truth and (1) for false. Therefore to estimate the nurses knowledge are divided to three grades (Low (10-13), Moderate (14-17) and High 18-20).

Results:

Table 1. Distribution of General Information of Nurses at Respiratory Care Units

Variables		F	%
Gender	Male	10	43.5
	Female	13	56.5
Age	< 30 years	13	56.5
	> 30 years	10	43.5
Nurses' education Level	Secondary nursing school graduate	3	13
	Medical institute graduate	13	56.5
	Nursing college graduate	7	30.4
years of experience in general hospitals	< 1 year	4	17.4
	1-3 year	8	34.8
	7-9 year	2	8.7
	More than 10 years	9	39.1
years of experience years in RCU	< 1 year	7	30.4
	1-3 year	11	47.8
	4-6 year	1	4.3
	7-9 year	2	8.7
	More than 10 years	2	8.7
Number of training session	1 training session	6	26.1
	2 training sessions	4	17.4
	Non training session	13	56.5
Training session location	Inside Iraq	8	34.8
	Outside Iraq	2	8.7
	Non training session	13	56.5

F= frequency, %= parentage

This table shows that more than half of the study sample (56.5%) were female (< 30) years old, (56.5%) graduated from medical institute, (39.1%) had more than 10 years of experiences in the general hospitals and (8.7%) of them had (7-9) years of experiences.

Table 2. Distribution and Association of Nurses' Knowledge Score follow up in pre test

Nurses' knowledge	f	Mean ± SD
Nurses' knowledge in Pre test	23	12.4 ± 2.8
Nurses' knowledge in Post 1	23	15.9 ± 4.3
Nurses' knowledge in Post2	23	16.7 ± 3.8

F= frequency, SD= standard deviation

$t_{pre\ vs.\ post\ 1} = 4.8$ d.f.= 22 p = 0.000

$t_{pre\ vs.\ post\ 2} = 6.6$ d.f.=22 p = 0.000

This table shows that there is a statistically significant association between nurses' knowledge (pre, posttest 1 and post test 2) and follow up.

Table 3. Association between Nurses' Knowledge Score with their Gender

Nurses knowledge / Gender	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
Male	10	12.4 ± 2.3	16.6 ± 4.3	17.1 ± 4
Female	13	12.1 ± 3.2	15.1 ± 4.3	16.2 ± 3.8
Total	23	t = 0.8 d.f. =22 p = 0.7	t = 0.6 d.f. =22 p = 0.4	t = 0.2 d.f. =22 p = 0.6

f =frequency, SD= standard deviation, t= t test , df=degree of freedom P=probability level

This table shows that there is no statistical significant association between nurses' gender and their knowledge (pretest, posttest 1and posttest 2) and follow up.

Table 4. Association between nurses Knowledge Score with their Age

Nurses' Knowledge / Age	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
< 30 years	13	11.8 ± 2.4	16.1 ± 4.5	16.6 ± 4
> 30 years	10	13.1 ± 3.3	15.8 ± 4.1	16.9 ± 3.4
Total	23	t= 1.05 d.f.= 22 p = 0.3	t= 0.15 d.f.= 22 p= 0.8	t= 1.7 d.f.= 22 p= 0.8

f =frequency, SD= standard deviation, t= t test, p= probability level, df=degree of freedom

This table shows that there is no statistical significant association between nurses' age and their knowledge (pre test, post 1and post 2) and follow up.

Table 5. Association between Nurses' Knowledge Score and their Education

Nurses' knowledge / Education level	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
School	3	11.3 ± 4	12.6 ± 6.3	13.3 ± 5.8
College	7	13.3 ± 3.8	16.6 ± 4.1	17.7 ± 3.2
Institute	13	12.2±2	16.3±3.8	17±3.5
Total	23	F = 0.5 d.f. = 22 p = 0.5	F = 1.03 d.f. = 22 p = 0.3	F = 1.5 d.f. = 22 p = 0.2

f =frequency, SD= standard deviation, p= probability level, df=degree of freedom, F=fisher test

This table shows that there is no statistical significant association between nurses' education level and their knowledge (pre test, post test 1 and post test 2 follow up.

Table 6. Association between Nurses Knowledge and years of Experiences at General Hospitals

Nurses knowledge / years of experience at general hospital	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
< 1 year	4	1.2 ± 3.3	12.7 ± 5.2	13.5 ± 4.7
1 – 3 years	8	12 ± 2.2	17.2 ± 3.7	17.7 ± 3.1
7 – 9 years	2	13 ± 1.4	13 ± 1.4	14 ± 0
≥ 10 years	9	13.1 ± 3.4	16.9 ± 4.2	17.8 ± 3.6
Total	23	F = 0.4 d.f. = 22 p = 0.7	F = 1.5 d.f. = 22 p = 0.2	F = 2.02 d.f. = 22 p = 0.1

f =frequency, SD= standard deviation, p=probability level, df=degree of freedom, F=fisher test

This table shows that there is no statistical significant association between nurses' years of experience at general hospitals and their knowledge (pre test, post test 1 and post test 2) and follow up.

Table 7. Association between Nurses Knowledge and Years of Experiences in Respiratory Care Unit

Nurses' knowledge / Years of Experience at RCU	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
< 1	7	11. ± 2.6	13.1 ± 4.9	14.1 ± 4.3
1 – 3	11	13 ± 3.1	16.2 ± 3.6	17 ± 3.2
4 – 6	1	9	19	19
7 – 9	2	13.5 ± 0.7	19 ± 1.4	20
≥ 10	2	13.5 ± 3.5	20	20
Total	23	F = 0.8 d.f. = 22 p = 0.4	F = 1.8 d.f. = 22 p = 0.1	F = 1.9 d.f. = 22 p = 0.1

f =frequency, SD= standard deviation, p= probability level, df=degree of freedom, F=fisher test

Table (7) shows that there is no statistical significant Association between nurses' years of experiences at Respiratory Care Unit and their knowledge (pre test, posttest 1 and posttest 2).

Table 8. Association between Nurses' Knowledge Score with Number of Training Session

Nurses' knowledge / Number of training sessions	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
1	6	13.8 ±3.8	17.8 ± 3.1	18.3 ± 2.2
2	4	13.2 ± 1.7	17.3 ± 3.2	18.7 ± 1.8
Non	13	11.5 ± 2.4	14.6 ± 4.7	15.4 ± 4.3
Total	23	F = 1.7 d.f. = 22 p = 0.2	F = 1.4 d.f. = 22 p = 0.2	F = 2.1 d.f. = 22 p = 0.1

f=frequency, SD = standard deviation, p= probability, df=degree of freedom، F=fisher test

This table shows that there is no statistical significant association between number of training sessions and nurses' knowledge (pre test, post test 1 and post test 2) follow up.

Table 9. Association between Nurses Knowledge Score with Location of Training Session

Nurses' knowledge / Location of training session	f	Pre test Mean ± SD	Post test 1 Mean ± SD	Post test 2 Mean ± SD
Inside Iraq	8	13.4 ±1.6	17.1 ± 3.1	18.2 ± 2.1
Outside Iraq	2	14.5 ± 7.8	19.5 ± 0.7	19.5 ± 0.7
Non	13	11.5 ± 2.4	14.7 ± 4.7	15.4 ± 4.3
Total	23	F = 1.8 d.f. = 22 p = 0.1	F = 1.6 d.f. = 22 p = 0.2	F = 2.2 d.f. = 22 p = 0.1

f=frequency, SD= standard deviation, p= probability, df=degree of freedom، F=fisher test

This table shows that there is no statistical significant association between location of training session and nurses' knowledge (pre test, post test 1 and post test 2) follow up.

Discussion:

Throughout the findings of the present study, table (1) indicated that more than half of the study samples (56.5%) were female this result agrees with [4] and [5]. Concerning the number of training sessions, (56.5%) of the study sample had no training sessions. There is more of half of study sample had no training [5].

According to this study the sample were female because most of females had intimate and passion feelings more than the male toward children so they like to work in pediatric hospitals. In regard to the age, the study samples were (< 30) years old this result agree with [6]. In relation to the nurses' years of experiences in general hospitals, that greater percentage of them had more than 10 years' experience and accounted (39.1%) this result disagree with [7]. The results of this study might reveal the important of experiences in practice improvement.

The results indicated that no statistical significant association between nurses' knowledge and the number of training session and session location (p>0.05) Tables (8) and (9). There is no significant relationship between nurses' knowledge and number of training session [8].

Concerning the experience years at respiratory care unit almost about half of the sample had 1-3 years, (47.8) %. Only one third (34.8%) of the study sample participate in training session inside Iraq. Training session is considered an important to improve nurses' knowledge at (RCU) it is appositive effect and supportive for nurses' knowledge for child under mechanical ventilation.

Twenty items of the questionnaire used to assess nurses' knowledge for nurses at (RCU). The results indicated that the nurses' knowledge revealed that their knowledge was at moderate level in pre and became at high level in posttest 1 and posttest 2. The nurses' knowledge improved after the application of the educational program.

Table 3,4,5,6, and7 respectively indicated that there were no statistical significant association between nurses' knowledge and their gender, age, educational level, years of experiences at general hospitals and at respiratory care unit (p>0.05). No statistical differentiation between nurses knowledge and the nurses' gender or age [9] There is no association between nurses' knowledge and practice and their educational level and years of experience [10].

Recommendations:

The study recommended that great emphasis should be directed toward the educational aspects at respiratory care unit by providing educational posters, guidelines, pamphlets, manuals and modern educational facilities.

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