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Effectiveness of An Educational Program on Nurses' Knowledge About Peritoneal Dialysis At Pediatric Teaching Hospitals In Baghdad City

*Saba S. Waleed[1],Khetam M. Hattab[2]
[1](Clinical Nurse Specialist, High Health Professions Institute, Ministry of Health, Iraq)
[2](Assistant Professor, Pediatric Nursing Department, College of Nursing, University of Baghdad, Iraq)
CorrespondingAuthor: *Saba S. Waleed*

Abstract: *A quasi-experimental design was used to (1) Evaluate nurses' knowledge regarding peritoneal dialysis at pediatric teaching hospitals in Baghdad city, (2) determine the effectiveness of educational program among nurses' knowledge regarding peritoneal dialysis at pediatric teaching hospitals in Baghdad city, and (3) Identify the relationship between pre- and post – nurses' knowledge score and demographic data, such as age, gender, education, years of employment and training. A purposive "Non-probability" sample of (25) nurses who work in peritoneal medical wards at Pediatric Teaching Hospitals in Baghdad City; Ibn Al-Bildi Maternal and Child Teaching Hospital (n = 11), Child' Central Pediatric Teaching hospital (n = 8), and Welfare Pediatric Teaching Hospital (n = 6). The study results revealed that that there was an improvement in nurses' knowledge about PD over time for most of the items. This reflects the positive influence of the educational program on nurses' knowledge about PD. However, that there is no statistical significant association between nurses' age, gender, level of education, years of experience in nursing field, years of experience in pediatric medical wards and their knowledge. On the other hand, there is a statistical significant association between nurses' number of specialist courses and their knowledge.*

Keywords: *Nurses' Knowledge, Peritoneal Dialysis, Children*

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I. Introduction

Renal failure is occurred when the kidney has a problem to concentrate urine, conserve electrolytes, or excrete waste products. Renal failure in children as in adults may occur as an acute or chronic condition [(1)]. Chronic kidney disease (CKD) is a clinical syndrome derived from the slow, regular, and irreversible loss of kidney function [(2)]. It is defined as a glomerular filtration rate (GFR) of <60 mL/min./1.73 m^2 for at least three months and/or signs of kidney damage for ≥3 months. CKD, further defined in stages (1-5) depending on severity [(3)]. The diagnosis of CKD is based on an estimated glomerular filtration rate (eGFR) of less than 60 mL/min/1.72m2 for a period of over three months with evidence of structural or functional kidney damage [(4)]. In children, CKD may progress over years, becoming end stage renal disease (ESRD) and leading to the need for conservative therapy, dialysis, or kidney transplantation [(5)].

Renal transplantation is the therapy of choice for end-stage renal disease (ESRD) in children and adolescents. However, due to the shortage of organs, and often the lack of preemptive possibilities, time to transplantation must be bridged with either peritoneal dialysis (PD) or hemodialysis (HD) [(6)]. Both procedures are well established in these patients, and both forms are considered as being in general an equal option for children and adolescents with ESRD, with the natural restriction that in newborns and toddlers, preference is given to PD [(6)]. Innovative and successful variants of PD have been developed for the delivery of optimal dialysis dosage, treatment of complications, peritoneal access and composition of solutions [(7, 8, 9)]. Many of these achievements are due to the establishment of a unique worldwide registry for children and adolescents on PD [(10)]. A similar improvement has not been achieved for HD; only little, if any, progress has been made, such as the introduction of high-flux membranes and the use of hemodiafiltration [(11, 12, 13)]. Therefore, based on clinical experience in adult patients, programs have been initiated for children and adolescents extending the time on dialysis ('intensified dialysis'), thus increasing the dialysis dose delivered [(14, 15)].

The advantages of PD over other forms of renal replacement therapy are numerous, in particular the potential for the child to lead a relatively normal life [(16)]. PD is the preferred and convenient treatment modality for acute renal failure (ARF) in children and hemodynamically unstable patients, because of its inherent advantages: technique can be initiated simply and quickly, no highly trained personnel nor expensive and complex apparatus are required and systemic anticoagulation is not needed [(17)].

Health-related quality of life (HRQOL) of children and adolescents with chronic health conditions or special health care needs is a multifactorial concept that combines a child's perception of and adaptation to their physical, social, emotional, and school environments regardless of a particular medical diagnosis [(18)]. The special health care needs of children with CKD place them at increased risk for impaired HRQOL [(19)]. Patient education to improve exchange technique is therefore central when managing patients on PD [(20)]. Nurses play a key role in a peritoneal dialysis (PD) program, as it is their responsibility to educate, encourage, and provide oversight to self-care management to secure a better quality of life for their patients [(21)]. There is a need to establish satisfactory level of knowledge for nurses working in PD units which helps in providing qualified nurses who can care for patients in PD [(22)]. In Iraq, there is no any previous study that was shed the light on the work of nurses in the field of peritoneal dialysis. So, this study was conducted to assess and improve nurses' knowledge who work in peritoneal dialysis units in pediatric teaching hospitals. Specifically, this study aimed to: (1) Evaluate nurses' knowledge regarding peritoneal dialysis at pediatric teaching hospitals in Baghdad city, (2) determine the effectiveness of educational program among nurses' knowledge regarding peritoneal dialysis at pediatric teaching hospitals in Baghdad city, and (3) Identify the relationship between pre- and post – nurses' knowledge score and demographic data, such as age, gender, education, years of employment and training.

II. Methodology

Study Design: A quasi-experimental design study was used in this study. Study Sample: A purposive "Non-probability" sample of (25) nurses who work in peritoneal medical wards at Pediatric Teaching Hospitals in Baghdad City; Ibn Al-Bildi Maternal and Child Teaching Hospital (n = 11), Child Central Pediatric Teaching hospital (n = 8), and Welfare Pediatric Teaching Hospital (n = 6). The study instrument is a questionnaire that was designed and constructed by the investigator which consists of two parts; the first part is related to nurses' general information (7 items), and the second part is related to nurses' knowledge about pediatric peritoneal dialysis which consists of (37) items distributed into nine domains. The reliability of the questionnaire was determined through a pilot study using inter-observer reliability (Test-retest) Pearson correlation coefficient. The correlation coefficient was test-retest method for nurses' knowledge (r =0.77). The content of validity for the early developed instrument and program was determined through the panel of expert who has had more than 10 years' experience in their specialty field.

III. Implementation Of Educational Program

The educational program was started on January 25th, 2017 to April 15th, 2017. The nurses in the study met the inclusion criteria and were informed to insure their agreement to participate in this study, and discuss the plan of the educational program. The program introduced the following:

Demographic data obtained from nurses in study and pre-knowledge test was conducted.

Implementation of educational program designed and presented in two sessions in two days for each hospital, every session took approximately (One hour).

The first session is included: introduction about renal failure, types of renal failure, the main causes of renal failure in pediatric, steps of renal failure, definition of peritoneal dialysis, anatomy of peritoneum, principles of peritoneal dialysis, cases we used peritoneal dialysis, and disadvantages of peritoneal dialysis. Whereas the second session included: steps of peritoneal dialysis, equipment we use in insertion of peritoneal catheter, general nursing role in catheter insertion procedure, complication of peritoneal dialysis in pediatrics, peritonitis, and the role of nurse to prevent infection.

IV. Data Collection Methods

The data have been collected by using self-administration method to answer questionnaire format, Implementation of the educational program required (2) lectures at (2) days for each hospital. The pretest data collected before application of the program. Then, the post-test-I data collected three weeks interval later to the application of the program, and the (post-test II) was performed three weeks later to the first post-test.

V. Study Results

Table 1. Participants' Sociodemographic Characteristics

Variables	Groups	Frequency	Percent
Age (years)	20-25	3	12.0
	26-31	6	24.0
	32-37	13	52.0
	38-43	1	4.0
	44-49	1	4.0
	50-55	1	4.0
	Total	25	100.0
Gender	Male	6	24.0
	Female	19	76.0

	Total	25	100.0
Educational Qualification	Secondary school of Nursing	6	24.0
	Associate Degree	9	36.0
	Bachelor	10	40.0
	Total	25	100.0
Years of experience in nursing field	1–5	12	48.0
	6–10	6	24.0
	≥ 11	7	28.0
	Total	25	100.0
Years of experience in medical wards	1-2	4	16.0
	3–5	8	32.0
	≥ 6	13	52.0
	Total	25	100.0
Number of specialist Courses	None	11	44.0
	2 specialized courses	6	24.0
	1 specialized course	8	32.0
	Total	25	100.0
Place of specialized courses (n = 14)	Inside Iraq	13	92.9
	Outside Iraq	1	7.1
	Total	25	100.0

Table (1) reveals that more than a half of study participants are within the age group of (32-37) years-old (n = 13; 52.0%), followed by those who are in the age group of (26-31) (n = 6; 24.0%). Concerning participants' gender, the majority are females (n = 19; 76.0%) and less than a quarter are males (n = 6; 24.0%). Regarding the educational qualification, two-fifths have Bachelor's degree (n = 10; 40.0%), followed by those who have an associate degree (n = 9; 36.0%), and those who are Preparatory Nursing school graduates (n = 6; 24.0%). In relation to the number of years of experience in nursing field, less than a half have (1-5) years (n = 12; 48.0%), followed by those who have (>11) years (n = 7; 28.0%), and those who have (6-10) years (n = 6; 24.0%). With respect to number of years in medical wards, more than a half have six or more years (n = 13; 52%), followed by those who have (3-5) years (n = 8; 32.0%), and those who have (1-2) years (n = 4; 16.0%). Concerning the number of specialist training courses that the study participants have, more than two-fifths had no any training course (n = 11; 44.0%), less than a third have 1 specialist training courses (n = 8; 32.0%), and less than a quarter have 2 training courses (n = 6; 24.0%). Ultimately, the majority of training courses that the study participants received were hold inside Iraq (n = 13; 92.9%).

Table 2. Comparison between Participants' Knowledge among Pre, Posttest-I and Posttest-II

List	Items Related to Nurses' knowledge	Pretest		Posttest-I		Posttest-II	
		M.S.	Ass.	M.S.	Ass.	M.S.	Ass.
1	Renal failure is:	1.24	M	1.72	H	1.60	H
2	When renal failure occurs, there will be a decrease in:	1.80	H	1.72	H	1.76	H
3	Renal failure is divided into:	1.28	M	1.64	H	1.76	H
4	_____ is considered a continuous, irreversible damage in the nephrons, what increases the accumulation of metabolic wastes, fluids, and urea:	1.48	M	1.76	H	1.84	H
5	The reason(s) of renal failure among children include(s):	1.20	M	1.72	H	1.64	H
6	Nephrotic syndrome is characterized by:	1.44	M	1.52	H	1.36	M
7	The percentage of nephrons damage in the second stage of renal failure ranges:	1.20	M	1.68	H	1.44	M
8	Which of the renal failure stages is characterized by increased urea, creatinine, and nitrogenic wastes in the blood:	1.24	M	1.12	M	1.48	M
9	Peritoneal dialysis:	1.40	M	1.56	H	1.88	H
10	Peritoneal dialysis is considered the first choice for:	1.20	M	1.52	H	1.88	H
11	The surface area of the peritoneal membrane in children is estimated to be	1.16	M	1.52	H	1.80	H
12	The peritoneal membrane consists of:	1.28	M	1.96	H	1.80	H
13	Diffusion is:	1.40	M	1.56	H	1.60	H
14	Osmosis is:	1.12	M	1.64	H	1.56	M
15	Extra water is removed from patient's blood in the peritoneal dialysis through a process called:	1.08	L	1.20	M	1.48	M
16	Of the factors that increase permeability through	1.52	H	1.76	H	1.64	H

	the peritoneal membrane is:						
17	We use peritoneal dialysis in case of:	1.04	L	1.24	M	1.68	H
18	It is preferable to use peritoneal dialysis instead of hemodialysis in case of:	1.16	M	1.64	H	1.72	H
19	It is preferable not to use peritoneal dialysis in case of:	1.52	H	1.88	H	1.84	H
20	The sequence of the stages of peritoneal dialysis would be as follow:	1.44	M	1.72	H	1.84	H
21	The required time in dwell time stage is:	1.16	M	1.72	H	1.80	H
22	The Dialysate required for filling the peritoneal cavity for each child is calculated by ml per kg, and it is preferable to begin with:	1.52	H	1.84	H	1.92	H
23	One of the following types of peritoneal dialysis used in hospitals is:	1.12	M	1.72	H	1.80	H
24	One of the following types of peritoneal dialysis used in hospitals is:	1.04	L	1.72	H	1.88	H
25	When the outflow exceeds inflow, the balance would be:	1.36	M	1.80	H	1.84	H
26	When the outflow is less than inflow, the balance would be:	1.20	M	1.68	H	1.76	H
27	The documentation of the sum of the fluid entered the peritoneal membrane and the outflow would be with:	1.20	M	1.20	M	1.60	H
28	Of the equipment that need to be available in the procedure of inserting the peritoneal catheter is:	1.72	H	1.96	H	1.92	H
29	Before performing the peritoneal catheter, it is necessary to:	1.76	H	1.96	H	1.76	H
30	In order to prevent fibrin formation in the catheter, the following is added:	1.68	H	1.80	M	1.88	H

Table 2. (Continued)

List	Items	Pretest		Posttest-I		Posttest-II	
		M.S.	Ass.	M.S.	Ass.	M.S.	Ass.
31	Of the complications of peritoneal dialysis is:	1. 08	L	1.32	M	1.64	H
32	Of the signs of peritonitis is:	1.28	M	1.40	H	1.60	H
33	Of the methods of preventing peritonitis is wearing sterile gown for:	1.72	H	1.92	H	1.92	H
34	Of the signs of dialysate contaminations is:	1.68	H	1.88	H	1.92	H
35	A specimen of the dialysate is sent for culture and sensitivity each	1.76	M	1.64	H	1.80	H
36	It is necessary to change the container of the dialysate removed from patient's abdomen in the acute intermittent peritoneal dialysis each:	1.36	M	1.80	H	1.88	H
37	It is necessary to change the dressing around the peritoneal catheter insertion site each:	1.24	M	1.76	H	1.92	H

M.S. =Mean of score, S.D. = Standard Deviation, Ass. = Assessment, Level of assessment: (0.5-1) = Low; (1-1.5) = Moderate; (1.5-2) = High, M = Moderate, H= High

Table (2) displays that there was an improvement in nurses' knowledge about PD over time for most of the items. This reflects the positive influence of the educational program on nurses' knowledge about PD.

Table 3. Distribution of the Levels of Participants' Knowledge over the Three Period (Pre, Posttest-I and Posttest-II)

Period	Level of Assessment	Frequency	Percent
Pre-test	**(0-24) very poor: 1**	**5**	**20%**
	(25–49) poor:2	**19**	**76%**
	(50–74) Moderate: 3	**1**	**45**
	(75-100) good: 4	**0**	**0%**
	Total	**25**	**100%**
	$\bar{x} \mp S.D$	**33.600 ± 9.482**	
Posttest-I	**(0-24) very poor: 1**	**3**	**12%**
	(25–49) poor: 2	**5**	**20%**
	(50–74) Moderate: 3	**11**	**44%**
	(75-100) good :4	**6**	**24%**
	Total	**25**	**100%**
	$\bar{x} \mp S.D$	**56.720 ± 21.968**	

Posttest-II	**(0-24) very poor: 1**	**0**	**0%**
	(25–49) poor: 2	**0**	**0%**
	(50–74) Moderate: 3	**13**	**52%**
	(75-100) good :4	**12**	**48%**
	Total	**25**	**100%**
	$\bar{x} \mp S.D$	**73.880± 7.338**	

$\bar{x} \mp S.D.$ **=Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.)**

Table (3) demonstrates that there are remarkable differences in participants' knowledge overtime. In pretest phase, most of participants' knowledge were poor (n = 19; 76.0%). In posttest-I, such knowledge improved to be at a moderate level (n = 11; 44.0%), and they improved more in the posttest-II (n = 13; 52.0%).

Table 4. Comparison among the Three Period (Pre, Post-I and Post-II) at Overall domains for Nurses' Knowledge by using ANOVA test and Leven's test

	N	**Mean**	**Std. Deviation**
Pre-Test	**25**	**33.6000**	**9.48244**
Post-Test I	**25**	**56.7200**	**21.96877**
post-Test II	**25**	**73.8800**	**7.33894**
Total	**75**	**54.7333**	**21.89121**

Table (4) presents that the three period (Pre, Post-I and Post-Test II) shows the Mean is High with in Post- 2.

Table 5. Distribution and Association of Nurses' Knowledge with Their Age

Nurses' Knowledge / Age (Years)	**Frequency**	**Pre-test Mean ± S.D.**	**Post 1 Mean ± S.D.**	**Post 2 Mean ± S.D.**
20-25	**3**	**35.000 ±7.000**	**52.0000 ±35.042**	**69.3333 ±4.041**
26-31	**6**	**29.6667 ±6.408**	**66.1667 ±18.573**	**78.1667 ±4.956**
32-37	**13**	**37.5385 ±8.675**	**54.4615 ±19.653**	**72.5385 ±8.752**
38-43	**1**	**24.0000 ±8.675**	**76.0000 ±19.653**	**73.0000 ± 8.752**
44-49	**1**	**35.0000 ±8.675**	**65.0000 ±19.653**	**78.0000 ±8.752**
50-55	**1**	**10.0000 ±8.675**	**16.0000 ±19.653**	**76.0000± 8.752**
Total	**25**	**33.6000 ±9.482**	**56.7200 ±21.968**	**73.8800 ±7.338**
		F =2.996 d.f.=24 P = .037	**F = 1.193 d.f.=24 P = .350**	**F =.770 d.f.=24 P = .583**

$\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is no statistical significant association between nurses' age and their knowledge (pretest, posttest I and posttest II) with educational program follow-up (p-value >0.05). There are no differences between age mean of score of knowledge when analyzed by Leven's test and ANOVA.

Table 6. Distribution and Association of Nurses' Knowledge with Their Gender

Nurses' Knowledge / Gender	**Frequency**	**Pre-test Mean ± S.D.**	**Post 1 Mean ± S.D.**	**Post 2 Mean ± S.D.**
Male	**6**	**33.166±12.0235**	**45.500±21.1542**	**71.666±5.8195**
Female	**19**	**33.736±8.9246**	**60.263±21.5402**	**74.578±7.7625**
Total	**25**	**33.600±9.4824**	**56.720±21.9687**	**73.880±7.3389**
		F = .016 d.f. = 24 P = .901	**F = 2.159 d.f. = 24 P =.155**	**F = .709 d.f. =24 P = .408**

$\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is no statistical significant association between nurses' gender and their knowledge (pretest, posttest I and posttest II) educational program follow-up (p-value >0.05). There are no differences between gender mean of score of knowledge when analyzed by Leven's test and ANOVA.

Table 7. Distribution and Association of Nurses' Knowledge with Their Level of Education

Nurses' Knowledge / Level of Education	Frequency	Pre-test Mean ± S.D.	Post 1 Mean ± S.D.	Post 2 Mean ± S.D.
Secondary school of Nursing	6	28.000±11.4017	55.333±24.3939	71.833±4.4459
Diploma	9	37.222±8.94117	57.000±23.0705	73.222±10.4256
Bachelor	10	33.700±7.9028	57.300±21.9446	75.700±5.3965
Total	25	33.600±9.4824	56.720±21.9687	73.880±7.3389
		F = 1.820 d.f. = 24 P =.186	F = .015 d.f.= 24 P = .985	F = .556 d.f.= 24 P =.582

$\bar{x} \mp$ S. D.=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is no statistical significant association between nurses' level of education and their knowledge (pretest, posttest I and posttest II) educational program follow-up (p value > 0.05), there are no differences between level of education mean of score of knowledge when analyzed by Leven's test and ANOVA.

Table 8. Distribution and Association of Nurses' Knowledge with Their Years of experience in Nursing

Nurses' Knowledge / Years of experience in nursing field	Frequency	Pre-test Mean ± S.D.	Post 1 Mean ± S.D.	Post 2 Mean ± S.D.
1– 5 years	12	32.583±8.73299	60.666±21.43206	74.250±7.60532
6 – 10 years	6	36.500±6.47302	55.000±23.60508	76.833±5.74166
≥ 11 years	7	32.857±13.18368	51.428±23.60690	70.714±7.82548
Total	25	33.600±9.48244	56.720±21.96877	73.880±7.33894
		F = .351 d.f. =24 P = .708	F = .394 d.f. = 24 P =.679	F = 1.169 d.f. =24 P = .329

$\bar{x} \mp$ S. D.=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is no statistical significant association between nurses' Years of experience in nursing field and their knowledge (pretest, posttest-I and posttest-II) educational program follow-up (p-value > 0.05). There are no differences between Years of experience in nursing field mean of score of knowledge when analyzed by Leven's test and ANOVA.

Table 9. Distribution and Association of Nurses' Knowledge with Their Years of experience in Pediatric Medical Wards

Nurses' Knowledge / Years of experience in pediatric medical wards	Frequency	Pre-test Mean ± S.D.	Post 1 Mean ± S.D.	Post 2 Mean ± S.D.
1- 2 years	4	35.750±5.909	58.000±31.026	72.250±6.701
3 – 5 years	8	31.000±9.812	62.000±17.411	75.250±8.259
≥ 6 years	13	34.538±10.389	53.076±22.676	73.538±7.378
Total	25	33.600±9.482	56.720±21.968	73.880±7.338
		F = .446 d.f. =24 P = .646	F = .396 d.f. = 24 P = .678	F = .236 d.f. =24 P =.792

$\bar{x} \mp$ S. D.=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is no statistical significant association between nurses' years of experience in pediatric medical wards and their knowledge which (pretest, posttest-I and posttest-II) educational program follow-up (p-value >0.05). There are no differences between years of experience in oncology wards mean of score of knowledge when analyzed by Leven's test and ANOVA.

Table 10. Distribution and Association of Nurses' Knowledge with Number of Training Courses

Nurses' Knowledge / Number of training courses	Frequency	Pre-test Mean ± S.D.	Post 1 Mean ± S.D.	Post 2 Mean ± S.D.
None	11	29.454±9.352	58.181±20.841	73.090±4.700
2 specialized course	6	32.666±7.033	64.333±18.768	74.500±9.115
1 specialist course	8	40.000±8.569	49.000±25.7182	74.500±9.591
Total	25	33.600±9.482	56.720±21.968	73.880±7.338
		F =3.509 d.f.=24 P = .048	F =.869 d.f. =24 P =.433	F =.105 d.f. =24 P =.901

$\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is a statistical significant association between nurses' number of specialist courses and their knowledge at (post-1) educational program follow-up (p-value <0.05), while at (pretest and posttest II). There are no significant differences between number of specialist courses mean of score of knowledge (p-value >0.05). This difference reflects effectiveness of number of specialist courses on the educational program when analyzed by Leven's test and ANOVA.

Table 11. Distribution and Association of Nurses' Knowledge with Their Place of Specialist Session

Nurses' Knowledge / Place of specialized courses	Frequency	Pre-test Mean ± S.D.	Post 1 Mean ± S.D.	Post 2 Mean ± S.D.
None	11	29.454±9.35269	58.181±20.841	73.090±4.700
Inside Iraq	13	36.615±8.82740	58.615±21.430	73.769±8.955
Outside Iraq	1	40.000±8.82740	16.000±21.430	84.000±8.9550
Total	25	33.600±9.48244	56.720±21.9687	73.880±7.338
		F = 2.116 d.f.=24 P = .144	F = 1.929 d.f. =24 P = .169	F = 1.017 d.f. =24 P =.378

$\bar{x} \mp S.D.$=Arithmetic Mean ($\bar{x}$), Std. Dev. (S.D.), d.f. = degree of freedom, P = probability value

This table shows that there is statistical significant association between nurses' place of specialist courses and their knowledge at (posttest-I) educational program follow-up (p-value <0.05), while at (pretest and posttest-II) there are no significant differences between place of specialist courses mean of score of knowledge (p-value >0.05). This difference reflects effectiveness of place of specialist courses on the educational program when analyzed by Leven's test and ANOVA.

VI. Discussion

The result indicated that the nurses' knowledge at poor level before the beginning of an educational program and become high level after first and second follow-up of an education program post-I and post-II. Concerning the association between nurses' knowledge and their age, the finding indicated that there was no statistical significant association between nurses' age and their knowledge (p>0.05). This finding agreed with Sharhan [(23)] his study (Effectiveness of Health Educational Program on Nurses' Knowledge toward Palliative Care in Pediatric Oncology Wards at Pediatric Teaching Welfare Hospital). Concerning the association between nurses' knowledge and their gender, the finding indicated that there is no statistical significant association between nurses' gender and their knowledge (P>0.05) table (9) this result agrees with Salih [(24)] study (Assessment of Pediatric nurses' knowledge and pediatrics toward mucositis in children under chemotherapy in Baghdad pediatric hospitals) his findings show no statistical significant association between nurses' age and their knowledge.

Regarding the association between nurses' knowledge and their level of education, the findings indicated that there was no statistical significant association between nurses' knowledge and their education level (P>0.05). This result was incongruent with that of Al-Fahdawi [(25)] (Assessment of nurses' knowledge and practices toward children with nephrotic syndrome at pediatric teaching hospitals in Baghdad city). The findings showed that there was a statistical significant association between nurses' educational level and their knowledge. However, this finding corresponds with Salih [(24)] who mentioned that no statistical significant association between nurses' knowledge and their level of education. Pertaining to the association between nurses' knowledge and their years of experience in nursing field, the findings indicated that there was no statistical significant association between nurses' knowledge and their years of experience at nursing field (P>0.05). This result agreed with Salih [(24)] who stated that there was no significant association between nurses' knowledge and their years of experiences as a nurse.

Relating to the association between nurses' knowledge and their years of experience at pediatric peritoneal medical wards, the findings revealed that there was no statistical significant association between nurses' knowledge and their years of experience at peritoneal medical wards (P>0.05). This result was on the same direction with that of Abbas [(26)] who found that there was no statistical significant association between nurses' knowledge and their years of experience at respiratory care unit. With reference to the association between nurses' knowledge and the number of training courses they took, the study findings revealed that there was a statistical significant association between nurses' knowledge and number of training courses at pre-test, and there was no statistical significant in posttest-I and posttest-II. This result agrees with Sharhan [(23)] who revealed stated that there was a statistical significant association between nurses' knowledge and number of training courses. On the other hand, this finding was opposite to that of Abbas [(24)] who found that there was no statistical significant association between nurses' knowledge and number of training courses in respiratory care unit. Ultimately, in relation to the association between nurses' knowledge and their training courses location, the study findings showed that there was no statistical significant association between nurses' knowledge and training courses location. This finding is congruent with that of Abbas [(25)]) who showed that there was no statistical significant between nurses' knowledge and their training course location. On the other hand, this finding was incongruent with that of Sharhan [(23)] who revealed that there was a statistical significant between nurses' knowledge and their training courses location.

VII. Conclusion

Despite the relatively limited nurses who participated in this study, this educational program has enhanced nurses' knowledge about peritoneal dialysis. This program can be applied on larger sample of nurses who work in PD units across Iraq. The specialized training courses had positively influenced nurses' knowledge about PD.

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References

[1]. Kyle, T. and Carman, S. Essentials of Pediatric Nursing. 2nd ed. Philadelphia: Wolters Kluwer/ Lippincott Williams and Wilkins, 2013.
[2]. Greenberg, J. H., Coca, S., and Parikh, C. R. Long-Term Risk of Chronic Kidney Disease and Mortality in Children after Acute Kidney Injury: A Systematic Review. BMC Nephrology, 15(184), 2014.
[3]. Hoskote, A., and Burch, M. Peri-Operative Kidney Injury and Long-Term Chronic Kidney Disease Following Orthotopic Heart Transplantation in Children. Pediatric Nephrology (Berlin, Germany), 30(6), 2015, pp. 905-918. doi:10.1007/s00467-014-2878-4
[4]. Wong, C. J., Moxey-Moms, M., Jerry-Fluker, J., Warady, B. A., and Furth, S. L. CKiD Prospective Cohort Study: A Review of Current Findings. American Journal of Kidney Diseases, 60(6), 2012, pp. 1002-1011.
[5]. Harrington, M. Health Literacy in Children with Chronic Kidney Disease and Their Caregivers. Nephrology Nursing Journal, 42(1), (2015), 53-57.
[6]. Thumfart, J., Hilliger, T., Stiny, C., Wagner, S., Querfeld, U., and Müller, D. Is Peritoneal Dialysis Still an Equal Option? Results of the Berlin Pediatric Nocturnal Dialysis Program. Pediatric Nephrology, 2015, 30(7), pp. 1181-1187.
[7]. Borzych-Duzalka, D., Bilginer, Y., Ha, I. S., Bak, M., Rees, L., Cano, F., … for the International Pediatric Peritoneal Dialysis Network (IPPN) Registry. Management of Anemia in Children Receiving Chronic Peritoneal Dialysis. Journal of the American Society of Nephrology : JASN, 2015, 24(4), 665–676.
[8]. Fischbach, M., Zaloszyc, A., Schaefer, B., & Schmitt, C. Optimizing peritoneal Dialysis Prescription for Volume Control: The Importance of Varying Dwell Time and Dwell Volume. Pediatric Nephrology, 29(8), 2014, pp. 1321-1327.
[9]. Schmitt, C. P., Haraldsson, B., Doetschmann, R., Zimmering, M., Greiner, C., Boeswald, M., & ... Schaefer, F. Effects of pH-neutral, bicarbonate-buffered dialysis fluid on peritoneal transport kinetics in children. Kidney International, 61(4), 2002, 1527-1536.
[10]. Schaefer, F., and Warady, B. A. Peritoneal dialysis in children with end-stage renal disease. Nature Reviews Nephrology, (2011) 7(11), pp. 659–668
[11]. Locatelli, F., Altieri, P., Andrulli, S., Bolasco, P., Sau, G., Pedrini, L., and Zoccali, C. Hemofiltration and Hemodiafiltration Reduce Intradialytic Hypotension in ESRD. Journal of The American Society of Nephrology (JASN), 21(10), 2010, pp. 1798-1807.
[12]. Maduell, F., Moreso, F., Pons, M., Ramos, R., Mora-Macià, J., Carreras, J., and Martinez-Castelao, A. High-Efficiency Postdilution Online Hemodiafiltration Reduces All-Cause Mortality in Hemodialysis Patients. Journal of The American Society of Nephrology (JASN), 24(3), 2013, pp. 487-497.
[13]. Locatelli, F., Martin-Malo, A., Hannedouche, T., Loureiro, A., Papadimitriou, M., Wizemann, V., and Vanholder, R. Effect of membrane permeability on survival of hemodialysis patients. Journal of The American Society of Nephrology (JASN), 20(3), 2009, pp. 645-654.
[14]. Hoppe, A., von Puttkamer, C., Linke, U., Kahler, C., Booss, M., Braunauer-Kolberg, R., and Müller, D. A Hospital-Based Intermittent Nocturnal Hemodialysis Program for Children and Adolescents. Journal of Pediatrics, 158(1), 2011, pp. 64-68.e1.
[15]. Camargo, M., Henriques, C., Vieira, S., Komi, S., Leão, E, & Nogueira, P. Growth of children with end-stage renal disease undergoing daily hemodialysis, Pediatric Nephrology, 29(3), 2014, pp. 439-444.
[16]. Fraser, N., Hussain, F. K., Connell, R., & Shenoy, M. U. Chronic peritoneal dialysis in children. International Journal of Nephrology and Renovascular Disease, 8, 2015, 125-137.
[17]. Azat, N. F. A. Indications and complications of peritoneal dialysis in children with acute renal failure, a single center experience. Journal of the Faculty of Medicine, Baghdad, 58(2), 2016, pp. 126-131.

[18]. Kelly, M. M. Assessment of Life after Prematurity in 9- to 10-year Old Children. MCN: The American Journal of Maternal Child Nursing, 39(1), 2013, pp. 26-32.
[19]. Kelly, M. M. Exploring the Evidence. Children and Adolescents with Chronic Kidney Disease: A Population at Risk for More Than Just Kidney Disease. Nephrology Nursing Journal, 43(1), 2016, pp. 67-71.
[20]. Paudel, K., Namagondlu, G., Samad, N., McKitty, K., and Fan, S. L. Lack of Motivation: A New Modifiable Risk Factor for Peritonitis in Patients Undergoing Peritoneal Dialysis? Journal of Renal Care, 41(1), 2015.
[21]. Torreão, C.L., de Souza, S.R., and Aguiar, B.G.C. Nursing Care to the Customer in Peritoneal Dialysis: Practical Contribution for and Clinical Handling. Revista de Pesquisa: Cuidado é Fundamental Online, 1(2), 2009, pp. 317-325.
[22]. McHugh, M. D., and Lake, E. T. Understanding Clinical Expertise: Nurse Education, Experience, and the Hospital Context. Research in Nursing & Health, 33(4), 2010, p. 276–287.
[23]. M.A, Sharhan, Effectiveness of Health Educational Program on Nurses' Knowledge toward Palliative Care in Pediatric Oncology Wards at Pediatric Teaching Welfare Hospital, master thesis, College of Nursing, University of Baghdad, 2015.
[24]. Y. Salih, Assessment of Pediatric Nurses' Knowledge and Practices toward Mucositis in Children under Chemotherapy in Baghdad Pediatric Hospitals, master thesis, College of Nursing, University of Baghdad, 2007.
[25]. A. A. Al-Fahdawi, Assessment of nurses' knowledge and practice toward children with nephrotic syndrome at Pediatric Teaching Hospitals in Baghdad City, Master thesis, College of Nursing, University of Baghdad, 2016.
[26]. F. H. Abbas, Effectiveness of an educational health program on pediatric nurses' knowledge and practices toward children under mechanical ventilation in Pediatric Teaching Hospital at Baghdad City, master thesis, College of Nursing, University of Baghdad, 2012.

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