

Effect of Implementation of Teaching Program about Care of Children with Nephrotic Syndrome on Nurses Knowledge and Practice

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Abstract:

Nephrotic syndrome characteristic by proteinuria, hypoalbuminemia, edema, and hyperlipidemia. Certain complications can arise such as infection, thromboembolism, cardiovascular disease, respiratory distress and acute renal failure. Nurses play an important role in providing nursing care to those children and need continues teaching and training program to enhance their knowledge and improving their practice. **The aim of the study** was to determine the effect of implementing teaching program about care of children with nephrotic syndrome on nurse's knowledge and practice. **Method:** The study was conducted at Renal Pediatric Unit and Pediatric Intensive Care Unit of Tanta University Hospital. **Method:** a quasi-experimental design was utilized in this study **Sample** all available nurses working in the previously mentioned settings were included (40). **Tools:** two tools were used to called socio-demographic data related to nurses and children as well as Nurses Knowledge about nephrotic syndrome (Tool I) nursing observation checklist to assess nurses practice in providing care to children with nephrotic syndrome (Tool II) **The results** showed that, before preprogram total nurses knowledge scores were poor while as (65%) had good scores immediately after program . The total practice scores of studied nurses before program either poor (40%) or fair (60.0%) .While immediately and one month post program, the total practice scores for all nurses were good. **Conclusion:** There was statistical significant difference before and after program implementation regarding to nurse's knowledge and their practice. **Recommendation:** were suggested that, the important of implementing in service training program about care of children with nephrotic syndrome to enhance nurse's knowledge and improve their practice. Written pamphlet or booklet containing information about care of nephrotic syndrome should be available in renal pediatric units.

Key words: Teaching Program, nephrotic syndrome, Knowledge, Practice

Introduction

Nephrotic syndrome (NS) is a common renal problem in pediatric⁽¹⁾. Nephrotic syndrome is a group of signs and symptoms including low blood protein, proteinuria and generalized edema⁽²⁾. It affects 16 in 100,000 children worldwide year, the ratio of males to females is approximately 2:1 That is make this condition one of the common childhood kidney diseases^(3,4).

Nephrotic syndrome is associated with a high relapse rate⁽⁵⁾. Caused by idiopathic renal diseases or by a variety of secondary causes⁽⁶⁾. Such as infection e.g., infection of sore throat, use certain drugs, and immune disorders. Nephrotic syndrome can accompany kidney disorders such as glomerulonephritis⁽⁷⁾.

Most of the children (90%) with nephrotic syndrome have a form of the idiopathic nephrotic syndrome. The remaining 10% of children with NS have secondary causes related to systemic or glomerular diseases⁽⁸⁾. The annual incidence of nephritic syndrome range from 2-7 per 100,000 children, and prevalence from 12-16 per 100,000 worldwide⁽⁹⁾. There is epidemiological evidence of a higher incidence of nephrotic syndrome in children from south Asia⁽¹⁰⁾. The condition is primary (idiopathic) in 95 per cent cases.

An underlying disorder that might be identified in less than 5 per cent cases⁽¹¹⁾.

The chief complication of nephrotic syndrome is infection, followed by thromboembolic events. Hypertension, hyperlipidaemia, features corticosteroid toxicity and behavioral disorders are less frequent⁽¹²⁾. Treatment for NS include specific treatment and nonspecific treatment. Specific treatment focuses on the underlying causes of the condition, while nonspecific treatment includes corticosteroid, immunosuppressive, antihypertensive, diuretic medications and antibiotics for infections. Supportive treatment may also include diet, high in protein and fiber but low in saturated fat and salts⁽¹³⁾.

The nurses has a vital rate in care of children with nephritic syndrome. Nurses should assess child's fluid status⁽¹⁴⁾. Nursing intervention involves administering of medications which are diuretics, antibiotics and corticosteroids as prescribed. A low salt diet is used to prevent fluid retention and odema. Fluid restriction may also be helpful in limiting the increase in odema. Moreover, weighing, encouraging activity and exercise, monitoring intake and output hourly is curcual⁽¹⁵⁾, skin care including

daily bathing. Special attention is given to the neck, under arms, groin and other moist area of the body. The male genitalia are bathed and dusted with a soothing powder. When necessary the scrotum is supported with a soft pad. Never use adhesive because it lead to scratching and infection⁽¹⁶⁾.

The child is turned frequently to prevent respiratory infection. Diet should be high in protein, low in fat and salt⁽¹⁴⁾. The children urine must be carefully measured and the nurse must know how to test the urine for albumin using special reagent strips. The child is weighted daily to determine changes in the degree of edema. The nurse should explain the nature of the illness to the parents and the side effect of medication⁽¹⁶⁾. Therefore, this study aimed to determine the effect of implementation of teaching program about care of children with nephrotic syndrome on nurses knowledge and practice.

Aim of the Study:

The aim of this study was to: Determine the effect of implementation of teaching program about care of children with nephrotic syndrome on nurses knowledge and practice.

2. Subjects and Method

Research Design

A quasi experimental research design was used in this study

Setting:

The study was conducted at Renal Pediatric Unit and Pediatric Intensive Care Unit (PICU) of Tanta University Hospital

Sample:

All nurses working in the previously mentioned settings were included in this study with the total numbers of 40 (30 nurses from Pediatric Intensive Care Unit and 10 nurses from Renal Pediatric Unit of Tanta University Hospital).

Tools of data collection:

Two tools were used to collect the necessary data Socio demographic data and Nurses

Knowledge Assessment Structured Questionnaire (tool I):-

It was developed by the researcher after review the related literature to assess socio demographic data of nurses and children as well as nurses knowledge about care provided to children with nephrotic syndrome. The questionnaire consists of 16 questions with total. Score of 32.

The total scores of nurses knowledge were classified as follow:

- 70 % and more were considered good level of knowledge.
- 60-to less than 70% were considered fair level of knowledge.
- Less than 60% were considered poor level of knowledge

Tool II: Nursing Practices Observation Checklist

It was developed by Bindler et al., (2007) and modified by the researcher after reviewing literature to assess nurses practice related to care provided to children with nephrotic syndrome. It includes:-

Measuring vital signs, intake and output, daily child weight, collect urine for 24 – hours, assessment child for edema, check urine for protein, obtaining blood sample for investigation, medication administration as order, provide psychological support for child and their families, prevent pressure sore by changing position, Infection control, discharge plan and home care.

- The total grades of nurses practice were 408.

The total scores of nurses practice were calculated and classified as the follows.

- 70 % and more were considered good practice.

- 60 less than 70% were considered fair practice.

- Less than 60% were considered poor practice.

Method:

An official permission: was obtained from faculty of nursing Tanta University to responsible authorities of renal pediatric

unit and intensive care unit of Tanta university hospital after explain the aim of the study.

Ethical and legal consideration: privacy and confidentiality were protected. Mothers were reassured that the obtaining information was confidential and used only for the purpose of the study.

A pilot study was carried out on 10 % of the study sample to evaluate the tools applicability. It was excluded from the study sample.

Meeting with nurses who were participated in the study in order to explain the purpose of the study.

Study tools were developed and tested by five jury experts in area of specialty to check content validity and reliability.

The reliability of the tools was evaluated by using test and retest method. The time interval between the test and retest was one month.

Nurses knowledge were assessed using (Tool I).

Nurses practices were assessed by using observation checklist (Tool II).

Implementation of educational program were conducted to all nurses in both setting using different teaching methods such as: small lecture, discussion, power point and book notes to facilities their learning.

Teaching program: was conducted through 4 phases.

-Assessment phase: Initial interview with nurses were done at renal pediatric unit and intensive care unit of Tanta University to explain the purpose of the study.

-Planning phase: program was developed by the researcher. Audiovisual materials were used.

-Implementation phase:

The researcher was available in the study settings four consecutive, days per week.

Nurses were divided into 4 groups each group consisted of:-

Two groups in intensive care unit. They were divided into 8 nurses at morning shift and 4 nurses at after noon shift.

The second two groups working in renal pediatric unit, the nurses were divided into 6 nurses at morning shift and 2 nurses at afternoon shift.

The implementation of the program was carried out in 9 sessions.

The time for each session were between 30 to 40 minutes.

Session I: it covered

Definition, anatomy and physiology of the kidney, causes of nephrotic syndrome, signs and symptoms and complications of nephrotic syndrome.

Session II: focused on diagnosis, investigation, management and how to monitor urine specimen for 24 hours.

Session III: concentrates on management of child with nephrotic syndrome, nutrition, and their activity.

Session IV: about guideline for parent about the management and treatment of children with nephrotic syndrome and the role of nurses on admission.

Session V: it was concentrates on physiological measurement such as: measuring vital signs, daily weight at morning, monitor intake and output, assessment and documentation of the child edema. Urine check for protein and obtaining blood sample for investigation.

Session VI: it was about medication administration, how to prevent sore pressure, diet for nephrotic children.

Session VII: focus on child teaching and home care of nephrotic syndrome, psychological support for children and their family, health teaching.

Session VIII: Infection controlling by following aseptic technique during obtaining blood sample, Medication administration, Insertion of I V cannula and measuring vital signs.

Session IX: focus on discharge plan and home care.

Data were collected over a period of 4 months started from January to April 2016. Evaluation was done after one month from May to August 2016.

Evaluation phase: The program implementation was evaluated immediately and one month after implementation of teaching program using constructed toolsII.

Statistical analysis:

The collected data were organized, tabulated and statistically analyzed using SPSS software. For quantitative data, mean and standard deviation were calculated. For qualitative data, using Chi-square test (χ^2). For comparison between means of two groups of parametric data Z value of Mann-Whitney test was used. For comparison between more than two means of parametric data, F value of ANOVA test was calculated. For comparison between more than two means of non-parametric data, Kruskal-Wallis (X^2 value) was calculated. Correlation between variables was evaluated using Pearson's correlation coefficient (r).

Results

Table (1) shows percentage distribution of studied nurses according to their sociodemographic characteristics. It was found that, 37.5% of nurses their age were from 25 to <35years old. Same percentage of nurses their age>35 years old. While 25.0% their age ranged between 20 to <25 years. Regarding to their education, half of studied nurses (52.5%) had diplome in nursing while 20.0% of had technical

nursing institute and bachelor nursing science while 7.5% completed master degree in nursing. Furthermore, regarding to years of experience in renal pediatric unit, (70.0%) of nurses had >15 years While those who had 10-<15years of experience constitute 20%, only 5% of them had 1-to <10 years of experience. In relation to their attending any training program about nephrotic syndrome. The table reveals that, all nurses not attend any training program.

Table (2) shows percentage distribution of socio-demographic characteristics of studied children. It was found that, one third of studied children (37.5%) their age group between 7-12 years old and had primary school regarding to their sex two third (65%) of studied children were male. Nearly three quarters of them (70.0 %) suffer from primary disease.

Table (3) and figure (1)presents total nurses knowledge and mean scores about nephrotic syndrome. It was found that, preprogram the total knowledge scores for all nurses were poor. Whereas, immediately after program the total scores of about two thirds (65.%) of studied nurses were good. The mean scores of nurse's knowledge were 9.72 ± 4.18 , 24.92 ± 3.88 , and 17.45 ± 2.21 pre, immediate post and one month post program

respectively. There were statistical significant differences ($p < 0.05$).

Table (4) and figures (2) presents total practice mean scores of the studied nurses about care provided to children with nephrotic syndrome. It was found that, Preprogram the total practice scores for nurses either poor 40.0%, or fair 60.0%. Whereas, immediately, and one month post program, the total practice scores for all nurses (100%) were good. The mean of total practice scores pre, immediate post and one month later were 258.27 ± 16.89 , 407.90 ± 19.91 and 352.00 ± 7.40 respectively. There were statistical significant differences ($p < 0.05$).

Table (5) and figure (3,4) illustrates correlation between total scores of nurse's knowledge and practice. Pre, immediate and one month post program implementation. It was found that, there were statistical significant difference between nurses knowledge and practice before program (p value < 0.05). While as, immediate and one month post program no statistical significant different correlation (p value > 0.05).

The table also revealed that, the change of total nurses knowledge scores and total practice scores about nephrotic syndrome of children it was noted that there were statistical significant difference between

nurses knowledge and practice scores immediately post program than preprogram. As well as there were statistical significant difference one month post program than preprogram ($p < 0.05$).

Table (1): Percentage Distribution of studied Nurses Related to their Socio-demographic Characteristics (n=40).

Nurses Sociodemographic Characteristics	The studied nurses providing care to children with nephrotic syndrome (n=40)	
	No	%
Age in years:		
20-<25	10	25.0
25-<35	15	37.5
≥35	15	37.5
Educational of qualification:		
Nursing diploma	21	52.5
Technical nursing Institute	8	20.0
Bechelor science of nursing	8	20.0
Master degree of nursing	3	7.5
Years of experience:		
1-<5	2	5.0
5-<10	2	5.0
10-<15	8	20.0
≥15	28	70.0
Attending any training program about nephrotic syndrome		
Yes	0	100.0
No	40	

Table (2): Percentage Distribution of socio-demographic characteristics of studied children (n=40).

Children Sociodemographic Characteristics.	(n=40)	
	No	%
Age in years:		
1< 3	7	17.5
3<6	13	32.5
6<12	15	37.5
>12	5	12.5
Sex:	26	65
Males	14	35
Female		
Educational level s		
Preschool	19	47.5
Primary school	15	37.5
Preparatory education	4	10.0
Secondary education	2	5.0
Diagnosisonadmission.		
Primary disease.	28	70.0
Secondary disease.	8	20.0
Congenital nephrotic syndrome.	4	10.0
	40	100.0

Table (3): Total nurses knowledge and mean scores about nephrotic syndrome of studied nurses.

Total nurses knowledge and mean Scores			The studied nurses providing care to children with nephrotic syndrome (n=40)						χ^2 P
			Preprogram		Immediate post program		One month post program		
			No	%	No	%	No	%	
Level of total knowledge scores:									
Poor	(<60%)	(0-19)	40	100	1	2.5	34	85.0	100.648
Fair	(60-<70%)	(20-22)	0	0	13	32.5	6	15.0	0.0001*
Good	(≥70%)	(23-32)	0	0	26	65.0	0	0	
Total knowledge scores: (0-32)									
Range			0-18		17-31		14-22		
Mean±SD			9.72±4.18		24.92±3.88		17.45±2.21		
F value			185.08						
P			0.0001*						
Change of knowledge scores post than preprogram:									
Change immediate post program than preprogram:									
Range			7-27						
Mean±SD			15.20±4.95						
Change one month post program than preprogram:									
Range			2-19						
Mean±SD			7.72±3.54						
Change one month post than immediate post program									
Range			↓16-↓1						
Mean±SD			↓7.47±4.03						

*Significant (P<0.05)

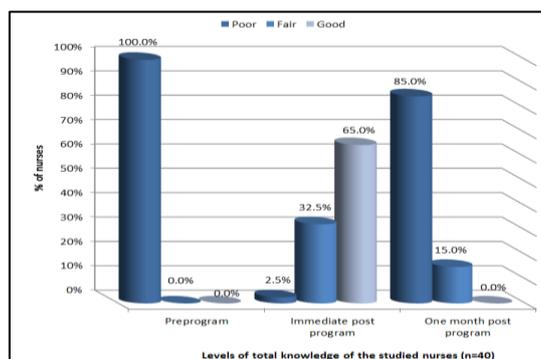


Figure (1): Total levels of nurses knowledge about nephrotic syndrome among studied children.

Table (4): Total practice and mean scores of studied nurses about nursing care provided to children with nephrotic syndrome.

Total practice and mean scores of nursing care procedures to children with nephrotic syndrome			The studied nurses providing care to children with nephrotic syndrome (n=40)						χ^2 P
			Preprogram		Immediate post program		One month post program		
			No	%	No	%	No	%	
Level of total practice scores:									
Poor	(<60%)	(0-259)	16	40.0	0	0	0	0	120.000
Fair	(60-<70%)	(260-303)	24	60.0	0	0	0	0	0.0001*
Good	(≥70%)	(304-434)	0	0	40	100	40	100	
Total practice scores: (0-434)									
Range			213-284		365-430		345-372		
Mean±SD			258.27±16.89		407.90±19.91		352.00±7.40		

F value	932.996	
P	0.0001*	
Change of practice scores post than preprogram:		
Change immediate post program than preprogram:		
Range	94.00-214.00	
Mean±SD	149.62±28.43	
Change one month post program than preprogram:		
Range	68.00-151.00	
Mean±SD	94.47±22.53	
Change one month post than immediate post program		
Range	↓79.00-↓3.00	
Mean±SD	↓55.05±19.23	

*Significant (P<0.05)

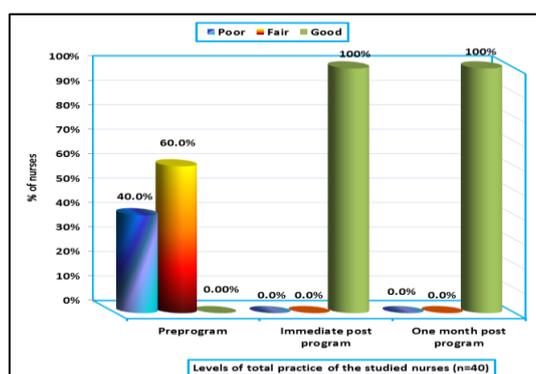


Figure (2): Total Nurses practice scores about care provided to children with nephrotic syndrome

Table (5): Correlation between Total Scores of Nurses Knowledge and total scores of nurses Practice pre, immediate and one month post program implementation.

Total practice scores	Total knowledge scores					
	Pre program		Immediate post program		One month post program	
	R	P	R	P	r	P
Pre program	0.514	0.001*				
Immediate post program			0.059	0.720		
One month post program					0.169	0.298

Nurses practice	Nurses of total knowledge scores of nurses about nephrotic syndrome of children . (n=40)					
	immediate post program than preprogram		one month post program than preprogram		one month post than immediate post program	
	R	P	R	P	r	P
Change immediate post program than preprogram	0.530	0.0001*				
Change one month post program than preprogram			0.469	0.002*		
Change one month post than immediate post program					0.127	0.437

*Significant (P<0.05) r=Correlation Coefficient

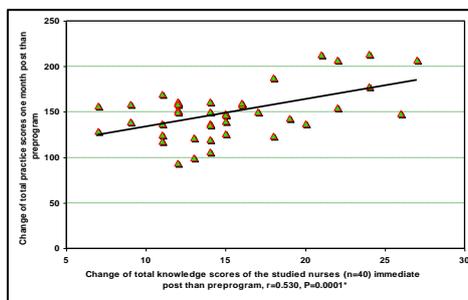


Figure (3): Correlation between Total Nurses Knowledge and Practice Scores pre and Immediate post program implementation (n=40).

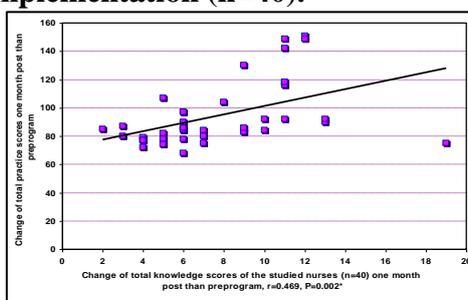


Figure (4): Correlation between Total nurses Knowledge and Total Practice Scores pre and one Month Post program implementation.

Discussion

The present study revealed that, all nurses do not attend any educational training program about care of children with nephrotic syndrome and they had poor knowledge. This result may be due to the absence of in-service training program department in the hospital and increased work load. This result was supported by **Mary et al., (2001)**⁽¹⁷⁾ who study about nursing experience and education, effect on quality of care and found that, there was a positive relation between nurses' knowledge and practices and training courses.

On the other hand this result disagree with **Mukhlif, (2016); Hattab, (2016)** who study about assessment of nurses knowledge and practice toward children with nephrotic syndrome and revealed that, there was no significant association between nurses' knowledge and share in specialist courses^(18,19).

Another study done by **Salih, (2007)** about assessment of nurses knowledge and practices toward oral mucositis under chemotherapy. Who indicated that, there was no significant relation between nurses knowledge based on scientific background and training course²⁰. (table 1).

The present study found that, one third of studied children their age between 7-12

years old and had primary school. This finding on the same line with **Khider et al., (2017)**⁽²¹⁾ who study about nephrotic syndrome knowledge and health care related practices among school age children and revealed that, less than three quarter of the children their age between 8 > 9 years and most of them in primary school. Furthermore, the present study reveals that, regarding to their sex it was noticed that two third of studied children were male. It can be explained that, there was a male preponderance among young children, at a ratio of 2:1 to females²². And agree with **Khider et al., (2017)**⁽²¹⁾ who found that more than three quarters of studied children were male.

The present study shows that, nearly three quarters of them suffer from primary disease⁽²³⁾. Approximately 85% of children with nephrotic syndrome had a type of primary disease called minimal change of nephrotic syndrome. The disease was rare in children younger than 6 months of age, uncommon in infants younger than 1 year of age and unusual after the age of 8 years **Robinson et al., (2003)**⁽²³⁾.

Furthermore, the finding of the present study revealed that, preprogram the majority of nurses knowledge were poor about nephrotic syndrome. Whereas,

immediately post program most of nurses knowledge were improved. whereas the answers of (65%) of nurses were good immediate and one month post program.^(18,19) This result disagree with **Mukhlif, (2016)**⁽¹⁸⁾ and **Hattab, (2016)**⁽¹⁹⁾ who found that, throughout the study, the majority of nurses' answers were poor in relation to their overall knowledge about nephrotic syndrome before program (table 2). This may be attributed to the absence of resources which help nurses to get the required knowledge whenever they need. As well as there was no motivation for the nurses to update and improve their knowledge. It was noticed that, most of nurses knowledge (65%) were improved after implementation of teaching program from the researcher point view giving training program to the nurses in clinical area supported with booklets were necessary to improved nurses knowledge and their practice. It could be attributed also to the fact that, nurses are liable to learn and acquired knowledge through the training program. On the same line with **Saed, (2012)**⁽²⁴⁾ who study about nursing management of children with hemophilia according to basic standards and indicated that, almost of nurse knowledge before stander application were poor while

immediately and after three month all nurses were good.

Before program implementation, the total practice scores for nurses either poor (40%) or fair (60%). Whereas, immediately and one month post program, the total practice scores for all nurses performance (100%) were good. This finding in the same line and agree with **Mukhlif, (2016)**⁽¹⁸⁾ and **Hattab, (2016)**⁽¹⁹⁾ who found that, nurses practices were poor about nephritic syndrome disease (table 4).

There were no statistical significant correlation between the mean scores of nurses knowledge and attended any training program immediate and one month post program compared to preprogram. This finding agreed with **Mukhlif, (2016)**⁽¹⁸⁾; **Hattab (2016)**⁽¹⁹⁾ who indicated that, there was no significant between nurses' knowledge and share in specialist courses. On the opposite side this result disagrees with **Abbar S (2015)** who study about effectiveness of health educational program on nurses' knowledge toward palliative care in pediatric and mentioned that, there was a significant association between nurses' knowledge and their share in specialist courses⁽²⁵⁾.

Conclusion:

Based on the finding of the present study, it can be concluded that there were improvement in nurse's knowledge and practice as there was statistical significant difference before and after program.

Recommendation:

Nurses should receive continuous in service training program about care of children with nephrotic syndrome to update their knowledge and improve their practice.

A written pamphlet or booklet containing information about care of nephrotic syndrome should be available in renal pediatric unit as a reference to nurses.

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