International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Effect of Comprehensive Nursing Care Package on Knowledge Regarding Care of Children with Nephrotic Syndrome Among Caregivers at Selected Hospital, Kolkata

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Abstract: ***Background: Nephrotic syndrome is one of the most significant chronic kidney diseases in childhood which distresses both children and family members. Poor understanding about care of children with nephrotic syndrome may lead to adverse outcome, including frequent hospitalizations which further leads to life endangering situation as End Stage Renal Disease (ESRD). If caregivers have sufficient knowledge regarding care of children with nephrotic syndrome and follow the comprehensive nursing care package will result healthy outcome among children, promote prognosis and stop deterioration. Keeping this in view, the study was aimed to assess the effect of the comprehensive nursing care package on knowledge regarding care of children with nephrotic syndrome among caregivers in selected hospital Kolkata. Material and Methods: A Quasi-experimental with one group pretest posttest design was selected for this study. The conceptual framework of the study was based on Ludwig von Bertalenffy's General system model (1968). Non probability convenience sampling technique was adopted to select 60 participants. Unstructured interview schedule and structured knowledge questionnaire were used to collect the data which were analyzed by differential and inferential statistical methods. Results: Findings of the study were the mean post-test knowledge score (20.43) of caregivers was higher than the mean pre-test knowledge score (10.48) with 't' value ['t'(59)= 29.20] at 0.01 level of significance, indicates highly significant result. Conclusion: The study concluded that the comprehensive nursing care package was effective in enhancing the knowledge of caregivers of children with nephrotic syndrome.***

Keywords: Nephrotic Syndrome, Comprehensive nursing care package, Knowledge, Caregivers, Kolkata

1. Introduction

Nephrotic syndrome is a cluster of clinical symptoms presented by huge proteinuria [>40mg/m2/hr., hypoalbuminemia [2.5g/dl], massive edema and hyperlipidemia [1]. It's predominantly affecting the health status of the children which distresses both the child as well as family members also. Prevalence of nephrotic syndrome is 15 times more in children than adults. The collective prevalence rate is about 16 cases per 100,000 individuals. According to the International Study of Kidney Disorder in Childhood (ISKDC) 2007: In 90% cases with nephrotic syndrome had a form of idiopathic nephrotic syndrome. The subgroups of this type are 85 % of all children had minimal change nephrotic syndrome, 9.5 % had focal segmental glomerulosclerosis, and 2.5% had mesangial nephropathy or other etiologies [2]. Although minimal change nephrotic syndrome is acute but it is curable and has a good response with steroid therapy. Therefore, educating caregivers about disease and totality of care management is a more crucial factor for more favorable prognosis as compared to adults.

Nephrotic syndrome is one of the most common causes of hospitalization among children. It is more common in male children than females which impairs the functions of the kidney. The mean age of occurrence is 2 to 6 years. A study from New Zealand found that the incidence of nephrotic syndrome to be almost 20 cases per million children under age of 15 years [3]. International Study of Kidney Disorder in Childhood (ISKDC) data indicate that out of minimal change nephrotic syndrome patients, 70% are younger than 5 years whereas only 20-30% of adolescents [4]. As children are not able to express themselves properly and are not able to take care themselves adequately during the remission or relapse of the disease, they need some special care, attention and support from their parents or family members that is from caregivers. Hence it is very much essential to have sufficient knowledge of caregivers regarding care of children to support them who are suffering from nephrotic syndrome.

Relapses are actually a general feature of childhood in nephrotic syndrome. 75% of nephrotic children will have relapse of the disease. Out of these 25-30 % have either frequently relapsing or steroid dependent nephrotic syndrome. Up to 20% of the relapses will remit spontaneously. **Premala SK, Hodson EM, Willis NS, Barzi F, Craig JC (2014)** conducted a research study [5] on Predictors of remission and relapse in idiopathic nephrotic syndrome where the result revealed that out of 129 children, 107 achieved remissions with corticosteroid therapy and 86 subsequently relapsed. They concluded that management of childhood nephrotic syndrome involves intense outpatient follow-up and family participation for disease monitoring and treatment; hence the

caregivers must have sufficient knowledge on management of childhood nephrotic syndrome.

Nephrotic syndrome, as a long-term chronic illness, therefore, the child is unable to reach the age-appropriate developmental stages. Recurrent hospitalization also may affect the child from developing spontaneous actions for self-care, resulting in dependence on significant others. So, involvement of family members in monitoring disease conditions and treatment are the important aspects of supportive supervision.

There are certain aspects like diet, administration of medications, assess child's fluid status, restriction of fluid, reducing edema, weighing, encouraging activity and exercise, monitoring intake and output and prevention of infection including skin care which caregivers should be familiar with and apply them at home while caring a child. If caregivers have sufficient knowledge and follow the comprehensive nursing care package will result in healthy outcome among children, foster prognosis, prevent relapse, reduces hospitalization and stop deterioration.

Infection is an important cause of morbidity and mortality in nephrotic children which is associated with either onset of disease or during the course of disease may result in relapses or steroid resistance or may activate the beginning of disease. It is estimated that 52–70% of relapses in steroid sensitive nephrotic syndrome often follow infections of acute upper and lower respiratory infections (ARI) including pneumonia with or without empyema, skin infections including impetigo and cellulites, acute gastroenteritis (watery diarrheal) or dysentery, urinary tract infections (UTI) and primary peritonitis [1].
Kumar M, Ghunawat J, Saikia D, Manchanda V (2019) revealed that incidence of major infections in hospitalized children with nephrotic syndrome was 43.8%. Peritonitis was the commonest infection (24%), followed by pneumonia (18%), urinary tract infection (15%), and cellulitis (14%), contributing with two thirds of major infections [6]. In order to prevent this infection, a knowledge regarding care of children with nephrotic syndrome is also crucial.

The nephrotic syndrome, as a chronic illness, creates anxiety in both patients and family. Frequent Hospitalization and relapses create a severe strain on all family members. Training of the caregivers as regards use of safe drinking water, hand washing, adequate diet, avoiding crowded area and contact with infectious patient including skin care is very important. Caregivers should be counseled and a positive approach with detailed information helps them to take care of nephrotic children with confidence.

2. Objectives of the study

1) To determine knowledge level of caregivers regarding care of children with nephrotic syndrome.
2) To evaluate the effect of the comprehensive nursing care package in terms of change in knowledge score
3) To find out the association between knowledge score and selected demographic variables.

3. Hypothesis

H_1 - The mean post test knowledge score of the caregivers is significantly higher than the mean pre-test knowledge score after administration of comprehensive nursing care package as measured by structured knowledge questionnaire at 0.05 level of significance.

4. Materials and Method

1) **Research approach:** Quantitative research approach.
2) **Research design:** Quasi-experimental "One group pre-test post-test design
3) **Setting of the study: F**inal study was conducted at NRS Medical College and Hospital and R. G. Kar Medical College and Hospital, Kolkata in the month of February 2022 to March 2022.
4) **Population:** The Population of the study comprises of all caregivers of children with nephrotic syndrome.
5) **Sample and Sample Size:** 60 caregivers of children with nephrotic syndrome of NRS Medical College and Hospital and R G Kar Medical College and Hospital, Kolkata.
6) **Sampling Technique:** Non- probability convenience sampling technique was used for the study.

Table 1: Data collection tools and techniques

Tool No.	Variables to be measured	Name of the tools	Technique
1.	Demographic characteristics	Unstructured interview schedule	Interviewing
2.	Knowledge level of caregivers regarding care of children with nephrotic syndrome	Structured knowledge questionnaire	Interviewing

5. Results

5.1 Section I

Findings related to demographic characteristics of respondents.

Table 2: Distribution of demographic characteristics of respondents in according to their age (in year), gender and educational qualification, n=60

Sample Characteristics	*Frequency (f)*	*Percentage (%)*
Age (in year)		
20-25	25	41.70
26-30	27	45
Above 30	08	13.30
Gender		
Male	Nil	-
Female	60	100
Educational qualification		
Up to primary level	20	33.30
Up to secondary and higher secondary	36	60
Graduation and above	04	6.70

Data presented in table 2 shows that maximum 45% respondents belonged to the age group of 26-30 years. The table 2 also reveals that100 % respondents ware female. The data also indicate that majority of respondents 60% completed up to secondary and higher secondary level, 33.30 % completed up to primary level whereas only 6.70 % respondents completed graduation and above.

n=60

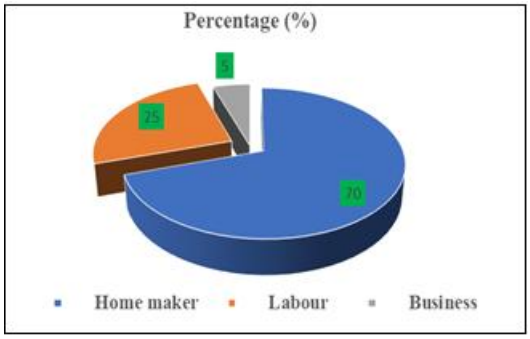

Figure 1: Distribution of respondents according to their occupation

Data presented in figure 1 depicts that majority of respondents 70% were homemaker.

Table 3: Distribution of respondents according to their monthly family income (in Rs.), relationship with the child and family history of nephrotic syndrome, n=60

Sample Characteristics	*Frequency (f)*	*Percentage (%)*
Monthly family income (in Rs.)		
5000 – 10000	21	35
10001 – 15000	28	46.70
15001 - 20000	11	18.30
Relationship with the child		
Mother	55	91.70
Grandmother	05	8.30
Family history of nephrotic syndrome		
Yes	Nil	-
No	60	100

Data presented in table 3 shows that maximum 46.70% respondents were monthly family income of Rs. 10001-15000. The table 3 also reveals that most of respondents 91.70% were mother whereas only 8.30% were grandmother. The table also depicts that 100% respondents were no family history of nephrotic syndrome.

Table 4: Distribution of child's clinical profile according to duration of illness and number of hospitalizations, n=60

Sample Characteristics	*Frequency (f)*	*Percentage (%)*
Duration of illness		
<1 year	24	40
1 – 3 years	26	43.30
>3 years	10	16.70
Number of hospitalizations		
Once	06	10
Twice	06	10
Thrice	23	38.30
Four and above	25	41.70

Data presented in table 4 shows that maximum 43.30% children were suffering for 1-3 years, 40% children for less than 1-year and 16.70% children for more than 3 years. The table also depicts that maximum 41.70% children were admitted in the hospital four and more times.

5.2 Section II

Findings related to knowledge level of caregivers regarding care of children with nephrotic syndrome.

Table 5: Mean, Median and Standard deviation of pretest and posttest knowledge score of the caregivers, n = 60

Knowledge score	*Range*	*Mean*	*Median*	*SD*
Pre-test	7 - 14	10.48	10	2.14
Post-test	18-23	20.43	21	1.57

Maximum possible score = 25
Minimum possible score = 0

Data presented in table 5 shows that in pre-test, the knowledge score of caregivers range between 7-14 and the post-test score range between 18-23. The mean post-test knowledge score (20.43) was higher than the mean pre-test knowledge score (10.48) with the median of 21 and 10 respectively. The data also depicts that the standard deviation of the pre-test score was 2.14 and in post-test it was 1.57 which indicates that there was more homogeneity in the post-test knowledge score.

n=60

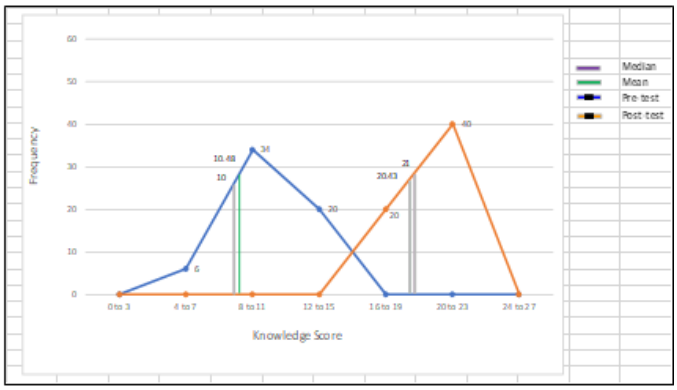

Figure 2: Frequency polygon showing the comparison between pre-test and post-test knowledge score of caregivers

The frequency polygon in figure 4 shows the pre-test knowledge score range was 7-14 and maximum frequency lies in class boundary 8 to 11 with mean of 10.48, median of 10. In the post-test, knowledge score of caregivers' range was 18-23 and maximum frequency lies in class boundary 20 to 23 with mean of 20.43, median of 21. This indicates that the post-test knowledge score of caregivers were increased after administration of comprehensive nursing care package on care of children with nephrotic syndrome.

Table 6: Frequency and percentage distribution of participants according to pre-test and post-test knowledge level, n = 60

Knowledge level	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Excellent (≥80%)	-	-	40	66.67
Very Good (60-79%)			20	33.33
Good (45-59%)	20	33.33		
Average (35-44%)	27	45	-	-
Poor (≤34%)	13	21.67	-	-

Data presented in table 6 shows that in pre-test, 45% caregivers were average knowledge, 33.33% caregivers were good knowledge and 21.67% caregivers were poor knowledge. After administration of comprehensive nursing care package, majority 66.67% of caregivers were excellent knowledge and 33.33 % of them were very good knowledge.

5.3 Section III

Findings related to the effect of comprehensive nursing care package in terms of change in knowledge score.

Table 7: Mean, Median, Standard deviation and 't' value of pre-test and post-test knowledge scores of caregivers, n = 60

Knowledge score	Mean	Median	Mean difference	Standard Deviation	't' value
Pre-test	10.48	10	09.95	2.14	29.20**
Post-test	20.43	21		1.57	

t(df59) = 2.66, p<0.01

Data presented in table 7 indicates that the mean post-test knowledge score 20.43 was higher than the mean pre-test knowledge score 10.48 with a mean difference of 9.95 which was found statistically significant as evident from the 't' value of 29.20 for df (59) at 0.01 level of significance. Hence, the null hypothesis (H_0) is rejected and research hypothesis (H_1) is accepted. Thus, the comprehensive nursing care package was effective in enhancing the knowledge of caregivers regarding care of children with nephrotic syndrome.

5.4 Section IV

Findings related to association between knowledge of caregivers and selected demographic variables.

Table 8: Association between knowledge score of caregivers and selected demographic characteristics. n=60

Sample Characteristics	*Knowledge score*		*Chi square*
	Below Median	*At and above Median*	
Age (in years)			0.16
Up to 25	10	15	
Above 25	11	24	
Educational qualification			0.02
Up to secondary level	15	30	
Higher secondary and above	06	09	
Child's duration of illness			
≤ 2 years	16	21	2.01
> 2 years	05	18	
Child's number of hospitalization			2.42
≤ 2 times	07	05	
> 2 times	14	34	

χ^2 df (1) =3.84, p<0.05

The data presented in table 8 shows there was no significant association between knowledge score of caregivers and selected demographic variables such as age (in years), Educational qualification, Child's duration of illness and Child's number of hospitalization.

5.5 Major findings of the study

5.5.1 Findings related to demographic characteristics of respondents

- Maximum of respondents 45% belonged to the age group of 26 -30 years.
- All respondents 100 % were female.
- Majority of respondents 60% completed up to secondary and higher secondary level.
- Most of the respondents 70% were homemaker.
- Majority of respondents 46.70% had monthly family income within Rs 10001-15000 per month.
- Most of respondents 91.70% were mother.
- None of them had family history of nephrotic syndrome.
- Maximum 43.30% Children were suffering from the disease for 1-3 years.
- Maximum 41.70% children were admitted in the hospital four times and above due to relapse of the disease.

5.5.2 Findings related to knowledge of caregivers regarding care of children with nephrotic syndrome

- In the pre-test, the knowledge level of caregivers ranges between 7-14 and in the post-test, it ranges between 18-23.
- In the pre-test, maximum of participants (45%) had average knowledge level and in the post-test, majority of them (66.67%) had excellent knowledge level.

5.5.3 Findings related to the effect of comprehensive nursing care package

The comprehensive nursing care package was effective in enhancing the knowledge of caregivers in terms of change in knowledge score as the calculated 't' value (29.20) was more than the table value (2.66) at 0.01 level of significance.

5.5.4 Findings related to association between knowledge score of the caregivers with selected demographic variables.

There was no association between the knowledge score of caregivers with selected demographic variables.

5.6 Discussion in relation to other studies

5.6.1 Findings related to determine the knowledge level of caregivers regarding care of children with nephrotic syndrome.

The findings of this study are consistent with another study conducted by **Negi S, Chauhan V, Sylvia Devi R (2020)** on effectiveness of need-based education on homecare of nephrotic syndrome on knowledge among caregivers of children with nephrotic syndrome. The study revealed that in pre-test, most of participants 52.80% had average knowledge and 41.50 % had good knowledge regarding homecare of children with nephrotic syndrome but no one was in the category of very good knowledge level. While in post-test, most of them 69.80% had good knowledge 28.30% had very good and 1.90% had average knowledge regarding homecare of children with nephrotic syndrome [7].

The present study findings are dissimilar with another study conducted by **Devi EA, Pitre S, Jogdeo B (2017)**, the results revealed that before administration of information booklet, majority of the caregivers 70% had good knowledge, 28.3% caregivers had excellent knowledge and 1.7% of them had poor knowledge. After administration of information booklet, majority of the caregivers 98.30% had excellent knowledge and 1.70% of them had good knowledge regarding care of child with nephrotic syndrome [8].

5.6.2 Findings related to effect of comprehensive nursing care package

The study findings are consistent with the study conducted by **Devi EA, Pitre S, Jogdeo B (2017)**, the results revealed that in pre-test, mean knowledge score was 14.2 which increased to 20.5 in post-test with 't'-value were 15.6 with 59 degrees of freedom. [8].

The findings of this study are also supported with the study conducted by **Verma C (2019)** revealed that the calculated 't' value (17.37) was more than table value (2.46) at 0.01 level of significance.[9].

5.6.3 Findings related to association between knowledge score of the caregivers with selected demographic variables

The findings of the study are inconsistent with the study conducted by **Devi EA, Pitre S, Jogdeo B (2017)**, the results revealed that there was significant association between knowledge score and the age of the caregivers [8].

The present study also inconsistent with another study conducted by **Chakraborty P (2018)**, the results revealed that there was significant association found between knowledge score of caregivers with child's duration of suffering from nephrotic syndrome and child's number of hospitalization due to nephrotic syndrome [10].

6. Conclusion

On the basis of the findings, it can be concluded that the comprehensive nursing care package was effective in increasing the knowledge of caregivers regarding care of children with nephrotic syndrome as compared with the pre-test and post-test knowledge score. It also concluded that the knowledge of caregivers had no statistically significant association with the selected demographic variables.

7. Limitations

The study was limited to-

- A small number of participants (60) limiting generalization of findings.
- Only selected hospital in Kolkata which further limited the generalization of findings.
- Knowledge of caregivers were assessed through structured knowledge questionnaire further limited the study findings.

8. Recommendations

On the basis of the findings, following recommendations were made for further research-

- A study can be replicated on large sample for better generalization.
- An experimental study can be undertaken with control group for effective comparison.
- A study could be conducted among staff nurses to assess the knowledge regarding care of children with nephrotic syndrome
- A similar study can be conducted among nursing students.
- Similar study can be done to test the effect of various teaching aids in imparting knowledge regarding care of children with nephrotic syndrome among caregivers.

Conflicts of interest

None

Acknowledgements

We are grateful to Babita Biswas, Sr. Lecturer, Medical College and Hospital, Kolkata, India for her continuous support and inspiration.

Funding

The researcher did not receive any funding from any public or private agency.

References

[1] H.L. Barnett, C.M. Edelmann, Jr., I. Greife, A. Spitzer and D. Goldsmith, etc. "International study of kidney diseases in children: the primary nephrotic syndrome in children," The Journal of Pediatrics, 98(4), pp. 561-564, 1981.

[2] C. Verma, "Effect of An Information Booklet on Practice of Caregivers regarding care of Children with Nephrotic Syndrome in selected Hospitals of Mumbai International," Journal of Advances in Nursing Management, 7(4), pp. 344-346, 2019.

[3] W. Wong, "Idiopathic nephrotic syndrome in New Zealand children, demographic, clinical features, initial management and outcome after twelve-month follow-up: results of a three-year national surveillance study,"

Journal of Pediatrics Child Health, 43(5), pp. 337-341, 2007.

[4] https://emedicine.medscape.com/article/982920-overview#a5

[5] P. Sureshkumar, E. M. Hodson, N. S. Willis, F. Barzi, J.C. Craig, "Predictors of remission and relapse in idiopathic nephrotic syndrome: a prospective cohort study," Pediatrics Nephrology, 29(6), pp. 1039-1046, 2014.

[6] M. Kumar, J. Ghunawat, D. Saikia, V. Manchanda, "Incidence and risk factors for major infections in hospitalized children with nephrotic syndrome," Journal Brasileiro de Nefrologia, 41 (4), pp. 526-533, 2019.

[7] S. Negi, V. Chauhan, R. D. Sylvia, "Effectiveness of Need Based Education on Homecare of Nephrotic Syndrome on Knowledge and Practice among Care Givers of Children with Nephrotic Syndrome," International Journal of Health Sciences and Research, 10(12), pp. 274-279, 2020.

[8] E.A. Devi, S. Pitre, B. Jogdeo, "A pre-experimental study to assess the effectiveness of information booklet on knowledge among care givers regarding care of child with nephrotic syndrome in selected hospitals of Pune City," International Journal of Applied Research, 3(7), pp. 610-615, 2017.

[9] C. Verma, "Effect of an information booklet on knowledge of caregivers regarding care of children with nephrotic syndrome in selected hospital of Mumbai," International Journal of Pediatric Nursing, 5(2), pp. 53-55, 2019.

[10] P. Chakraborty, "Effectiveness of Structured Teaching Programme Regarding Home Care Management of Children with Nephrotic Syndrome in Terms of Knowledge among the Care Givers in a Selected Hospital at Kolkata, West Bengal," International Journal of Science and Research, 7(8), pp. 961-963, 2018.