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Empowerment Program for Mothers to Improve Quality of Life of their Children with Chronic Kidney Disease

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Abstract: **Chronic kidney disease refers to irreversible kidney damage that can further progress to end-stage renal disease and dramatically affects children's quality of life. This study aimed to evaluate the effect of empowerment program on mothers to improve quality of life of their children with chronic kidney disease. Subjects and methods; Quasi experimental design was used, fifty five children with chronic kidney disease from both sex and their mothers were included in the study; the study conducted at Children's Hospital affiliated to Ain Shams University Hospitals. The tools of data collection included questionnaire sheet to assess knowledge of the studied mothers, observation sheet to assess the studied mothers practice, family empowerment scale and empowerment program as well as pediatric quality of life inventory version 4.0 to assess quality of life of the studied children. The results revealed that 70.9% of the studied mothers had unsatisfactory knowledge about CKD pre intervention. Meanwhile the majority (90.9%) of them had satisfactory knowledge post intervention, where x^2= 43.78 and p- value = .001. A statistical significance difference was observed pre/post empowerment program implementation regarding to knowledge and practice of mothers about the disease and its management; also, there was a statistical significance difference pre/ post empowerment program implementation regarding to quality of life of children with chronic kidney disease with p- value= .030. Conclusion: There was positive effect of empowerment program on improving knowledge and practice of the studied mothers as well as quality of life of their children with chronic kidney disease. Recommendations: Encourage use of empowerment program for mothers having children with chronic kidney disease based on their actual needs assessment. Further researches are needed to improve quality of life of children with chronic kidney disease.**

Keywords: **Chronic Kidney Disease, empowerment, pediatric quality of life.**

1. INTRODUCTION

Chronic Kidney Disease (CKD) is a major health problem worldwide with increasing incidence and prevalence that is threatening to bring on the onset of a real epidemic **(Arora, 2016 & Bruck et al., 2015).** It is a clinical syndrome characterized by a gradual loss of kidney function over time.

Chronic kidney disease is a progressive and irreversible deterioration in kidney function in which body ability to maintain metabolic, fluid and electrolyte balance fails, resulting in uremia or azotemia **(Kidney Disease: Improving Global Outcomes {KDIGO} 2016).** Chronic kidney disease defined as loss of the ability of the kidney to excrete wastes and concentrate urine.

The incidence of end stage renal disease in children worldwide has increased almost 2 fold while the prevalence has increased 4 fold in the last 30 years. The rate of end stage renal disease incidence increases with age such that approximately 75% of pediatric patients are between the ages of 10 – 19 years **(Vogt and Avner, 2016).**

In Egypt, due to the absence of a national registry, the exact incidence and burden of CKD in children are not known. In a developing country such as Egypt, with limited diagnostic resources, end-stage renal disease (ESRD) is probably the "tip of the iceberg" **(Safouh et al., 2015).**

The diagnosis of chronic kidney disease has implications in many areas of life of both the children and their families, and can dramatically affect their quality of life. The World Health Organization (WHO) has defined QoL as "the perception of individuals of their position in life in the context of culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns"**(World Health Organization {WHO} 2018).**

Mothers are the primary health care providers in their home and they devote more time for the protection and care of their children with chronic kidney disease. The mothers had reported a lower quality of life, difficulties in managing the child's care, higher levels of anxiety, maladaptive behavior and impaired children' interactions with the physical and social environment they live in; in addition to, other psychological stressors which lead to disruption of family life **(Tong et al., 2017).**

Efforts are necessary to empower mothers to improve their existing abilities and competencies, acquire the new skills that meet their needs and consequently enhance quality of life of children and their family members **(Subandi, 2016).**

Empowerment is a process through which the mothers acquire knowledge and skills so that family life can be managed optimally and consequently the family members' lifestyles and quality of life are enhanced **(Subandi, 2016).**

Significance of the Study:

Chronic kidney disease in children is considered a threatening condition for children's' health and their families. The number of children with chronic kidney disease in Children's Hospital affiliated to Ain Shams University Hospital is approximately thousand cases through the past two years (2017-2018). Children with chronic kidney disease visit the hospital for hemodialysis process three days per week and the other children with chronic kidney disease not on hemodialysis having regular visits to pediatric nephrology clinic at the hospital.

Mothers have a central role in delivering hospital and home based intervention for their children with chronic kidney disease, so empowerment program for mothers will help them improve disease control, its better management and improve physical and mental functions of their children and prevention of disease complications; so that, the children can resume their normal activities and their quality of life will be improved.

Aim of the study:

This study aimed to assess the effect of empowerment program for mothers to improve quality of life of their children with chronic kidney disease.

Research Question:

Is the quality of life of children with chronic kidney disease improved after implementing an empowerment program for their mothers?

2. SUBJECTS AND METHODS

Setting: This study was conducted at Children's Hospital affiliated to Ain Shams University Hospitals at Hemodialysis Unit and Conservative Pediatric Nephrology Out-patient Clinic.

Subjects:

- Forty children with chronic kidney disease (stage 5) who are on regular hemodialysis at the hemodialysis unit and their mothers. The researcher selected these children because they were free from other chronic diseases as hepatic and neuropsychiatric disorders (based on exclusion criteria); in addition to Fifteen children with chronic kidney disease (stages 1- 4), not on regular hemodialysis, and are receiving conservative management at the conservative clinic of the

Pediatric Nephrology Unit and their mothers. The researcher determined the number of children based on their ages (8-20 years) as almost of the children who follow up at nephrology outpatient clinic were below 7 years.

The criteria of sample selection included:

-Mothers of children with chronic kidney disease who can read and write regardless their age.

- Children with chronic kidney disease at age from 8 – 20 years.

Exclusion criteria:

Children with other chronic diseases were excluded from the study such as hepatic disease, neuropsychiatric disorders, and diabetes mellitus.

Tools of data collection:

Tools were designed by the researcher in an Arabic language after reviewing the related literature and after reviewing from the researcher' supervisors, they consisted of the following:

I- Questionnaire sheet: to gather data in relation to:

Part I: Characteristics of mothers having children with chronic kidney disease as age, level of education, working status and marital status.

Part II: Characteristics of children with chronic kidney disease as age and gender.

Part III: Mothers' knowledge about chronic kidney disease as definition, causes, clinical manifestations, complications and management.

Part IV: Mothers' knowledge about nutrition, fluids and medications of children with chronic kidney disease as appropriate diet, normal amount of fluid per day and compliance with medications.

Scoring system of mothers' knowledge:-

The total score was 120 grades (equal 100%). Studied mothers answers were categorized into:

- Satisfactory; when mother's knowledge is more than 60%.
- Unsatisfactory; when mothers knowledge is less than or equal 60%.

2- Observation sheet: was adapted from **Bowden and Greenberger, (2012),** and modified by the researcher to suit the nature of study and reviewing from the researcher supervisors to assess reported practice of mothers regarding to care of their children with chronic kidney disease as measuring child's weight, temperature, range of motion exercise, breathing & coughing exercise.

Scoring system: Each procedure was scored 5 to 10 grades according to weighting of each step that make a total score of (100) grades; equal 100%. The scoring system of mother's practice was classified into:

- Satisfactory practice when mothers reported practice is more than 75%.
- Unsatisfactory practice when mothers reported practice is less than or equal 75%.

3- Pediatric quality of life inventory version 4.0: (The PedsQL4.0 generic core scale) which developed by **Varni, (2014),** and translated in Arabic language by the researcher to suit the nature of the study and to assess health related quality of life of children with chronic kidney disease**.** This scale consists of 23 items included in four domains, these were:

Physical functioning (8 items), Emotional functioning (5 items), **Social functioning (5 items) and School functioning (5 items)**

The sum of the 4 scales is the total score. Each item has a score ranging from 0 – 4 Where,

0 = it is never a problem.

1 = it is almost never a problem.

2 = it is sometimes a problem.

3 = it is often a problem.

4= it is almost always a problem.

After that the items were scored and linearly transformed as 0 = 100, 1 = 75, 2 = 50, 3 = 25 and 4 = 0. So that the higher scores indicate better health related quality of life. Quality of life is classified accordingly into;

- High quality of life (the score less than 75 – 100)
- Moderate quality of life (the score less than 50-<75)
- Low quality of life (the scores from 0-<50).

4- Family empowerment scale:

The family empowerment scale was developed by **Koren et al., (1992),** and was used to ask about three levels of life, about:

Family level (12 items), **Child's service's level** (12 items) and **Community/political participation level** (10 items)

Scoring system:

The sum of the 3 levels is the total score. Each item had a score ranging from 1 – 5. Where,

Never = 1

Seldom = 2

Sometimes = 3

Often = 4

Very often = 5

The items were scored in the same direction and no item scores are reversed, and a higher score indicates relatively more empowerment in each respective area.

5- Empowerment program:

The researcher designed and implemented empowerment program in Arabic language after reviewing the related literature based on actual needs assessment of the studied subjects (mothers and their children). It contained the theoretical knowledge and practical procedures. Each mother was assessed twice pre / post implementation of empowerment program using the same previously mentioned tools.

Preparatory phase: Review of the available local and international, current and past related literature was done using magazines, articles, and books to get acquainted with various aspects of the research problem, develop the tools for data collection and empowerment program.

Pilot study: Pilot study was conducted on 10% of the study subjects which constitute 7 children and their mothers based on subject criteria. It was conducted to evaluate the validity, clarity and applicability of the study tools. According to the obtained results from the pilot study, the modifications were done, these modifications include; changing in question style from the list only to multiple choices questionnaire, so the subjects of pilot study were excluded from the total sample of the study.

Field work:

- The actual field work was carried out for data collection over 3 months started from September 2017 till end of December 2017. Data collected three days per week during the morning shift from 9 a.m. to 12. To provide empowerment program, mothers were divided into three groups. The first and second groups were at hemodialysis unit and included

twenty mothers for each group; meanwhile the third group was at outpatient nephrology clinic and included fifteen mothers. Each group received the nine sessions through three weeks (3 days per week). Each session lasted about an hour. The empowerment program consumed 13 weeks (3 days per week).

- The researcher started by introducing herself to the mothers and giving them a brief idea about the aim of the study, its components and expected outcomes.
- The sessions of implementation of empowerment program started after collection of questionnaire and observation sheets as well as quality of life and empowerment scale to all subjects of the study.
- Each session was preceded by open discussion about any question and brief summary about what being discussed in the previous session. At the end of each session, the researcher summarized the key topics and verified that the mothers understand the information presented.
- The researcher provide empowerment program for mothers regarding to care of their children with chronic kidney disease using several teaching aids as group discussion, question and answer, role-playing, brain storming, demonstration and re-demonstration, showing images and educational movies, as well as distribution of explanatory related booklet.

The empowerment program were performed through 3 phases

❖ **Assessment phase:**

Assess mothers' knowledge and practice regarding to care of their children with chronic kidney disease. This phase started with mother's interview to assess mother's knowledge about CKD using questionnaire sheet. Quality of life of children is assessed by using pediatric quality of life generic core scale version 4.0. The researcher assessed the role of mother in caring for their children through family empowerment scale (pretest). Also, data related to children were collected as children's characteristics (age and gender) and physical and physiological measurements. The result of laboratory investigation as blood urea nitrogen and creatinine were obtained from medical record of each child. Meanwhile, each mother was assessed regarding to their practice using observation sheet. The time spent to fill the questionnaire ranged between 30 to 40 minutes according to the needed explanation.

Implementation phase:

The implementation of empowerment program sessions aimed to improve knowledge and practice of mothers having children with CKD as well as quality of life of their children. At the beginning of the first session; an orientation and explanation of the empowerment program were done; the aim and objective of the study were explained for mothers to gain their cooperation. Seven sessions were done to provide mothers with knowledge related to the disease. Furthermore two sessions were held by the researcher to cover the practical skills; range of motion, coughing and breathing exercises weight and temperature measurements. Each session started with summary feedback about the previous session, simple words and Arabic language were used to suit the mothers; level of understanding

Evaluation phase:

The researcher assessed the mothers' knowledge at the beginning of each session through asking questions verbally about the content from the previous session. The mother's practice was assessed using the same observation sheet. Also, role of the mothers and quality of life of their children were assessed through posttests using the same quality of life generic core and empowerment scales.

Ethical consideration: The researcher contacted with the study subjects (mothers and their children with chronic kidney disease) before collecting data of actual study for the purpose of providing simple explanation of the aim of the study to gain their cooperation and assure the mothers about the anonymity of their answers and that the information given will be used for scientific research purpose only. All the gathered data was treated with strict confidentially. An oral consent was obtained from the children and their mothers before the participation in the study. They were informed that they have the rights to withdraw from the study at any time without given any reason. Written consent was obtained from the ethical committee.

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3. RESULTS

Table (1): Indicated that, the mean age of the studied mothers **X±**SD was 30.10 ± 7.76 years. As regarding place of residence, 70.9% of the studied mothers were lived in rural areas. It was also indicated from this table that, near to three quarters (72.7%) of the studied mothers were housewives. While near to half (43.6%) of them were primary education. Also, this table revealed that, the mean age of the studied children X ± SD 10.6±4.2 was year. It is clear from this table that, about half (50.9%) of the studied children were females.

Table (2): Illustrated that there was a high statistically significant difference regarding to total mothers' knowledge about chronic kidney disease pre/post intervention of empowerment program, with (P value = 0.001).

Table (3): Clarified that there was a high statistically significant difference regarding to total reported practice of the studied mothers' pre and post intervention of empowerment program. It was found that 30.9% of the studied mothers had satisfactory level of total reported practice pre intervention of empowerment program compared to 76.4% post intervention, with (p value= 0.001).

Table (4): Showed that the quality of life domains mean scores pre and post intervention of empowerment program were 1.96±1.25 and 1.49±.91 respectively with (p value= 0.03).

Table (9): Showed that the mean scores according to family empowerment levels pre and post intervention of empowerment program were 2.35+0.6 and 2.95+0.4 respectively with a statistically significant difference (p value = 0.001).

Table (5): Revealed that there was a statistically significant difference between the studied mothers' knowledge and their children's quality of life pre/post intervention of empowerment program with (p- value= .016).

Table (6): Showed that there was a statistically significant difference between the studied mothers' reported practice and their children's quality of life pre and post intervention of empowerment program with (p value = 0.001).

Table (1): Distribution of the studied mothers and children according to their characteristics (n=55)

Mother's characteristics	**No.**	**%**
Age in years:		
20 < 25	17	30.9
25 < 35	**19**	**34.5**
35 ≤ 45	13	23.6
> 45	6	10.9
X±SD	30.10 ± 7.76	
Place of residence:		
Urban	16	29.1
Rural	**39**	**70.9**
Current occupation:		
Employee	9	16.4
Technical	5	9.1
Pensioner	1	1.8
House wife	**40**	**72.7**
Level of education:		
Primary	**24**	**43.6**
Preparatory	6	10.9
Secondary	3	5.5
High education	7	12.7
Technical vocational education	15	27.3

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Children's characteristics:		
Age in years:		25.5
< 10 years	14	30.9
10 <13	17	**43.6**
13 ≤ 18	**24**	
X ± SD	**10.6±4.2**	
Gender:		49.1
Male	27	**50.9**
Female	**28**	

Table (2): Distribution of the studied mothers according to their total knowledge about chronic kidney disease (pre/post intervention) n=55

Total knowledge about chronic kidney disease	Pre- intervention		Post- intervention		X^2	P-value
	No.	%	No.	%		
Satisfactory	16	29.1	50	90.9	43.78	**0.001**
Unsatisfactory	39	70.9	5	9.1		

Table (3): Distribution of the studied mothers regarding to their total reported practice (pre/post intervention) n=55

Level of practice	Pre- intervention		Post- intervention		X^2	p-value
	No.	%	No.	%		
Satisfactory	17	30.9	**42**	**76.4**	22.84	**0.001**
Unsatisfactory	38	69.1	13	23.6		

Table (4): Distribution of the studied children according to quality of life domains mean scores (pre/post intervention) n=55

Quality of life domains	Pre- intervention		Post- intervention		t-value	p-value
	Mean	SD	Mean	SD		
Physical Functioning	2.24	1.59	1.61	1.12	3.36	0.001
Emotional Functioning	1.54	1.34	0.93	0.78	3.14	0.002
Social Functioning	1.65	1.41	1.15	0.98	2.49	0.014
School Functioning	2.21	1.54	2.23	1.44	0.06	0.948
Total	**1.96**	**1.25**	**1.49**	**0.91**	2.20	**0.030**

Table (5): Distribution of the studied mothers according to family empowerment domains (pre/post intervention) n=55

Family empowerment levels	Pre- intervention		Post- intervention		t-value	p-value
	Mean	SD	Mean	SD		
Family level	2.95	0.97	3.94	0.58	6.45	0.001
Child's services level	2.26	0.99	2.91	0.84	3.53	0.001
Community/political participation level	1.74	0.92	2.01	0.88	1.573	0.119
Total	2.35	0.6	2.95	0.42	6.076	**0.001**

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Table (6): Relation between the studied mothers' knowledge and their children's quality of life (pre/post intervention) n=55

Level of knowledge / Quality of life	Pre- intervention				Post- intervention			
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory	
	No.	%	No.	%	No.	%	No.	%
Low	5	31.2	7	17.9	0	0.0	0	0.0
Moderate	4	25	19	48.7	17	34	5	100
High	7	43.8	13	33.3	33	66	0	0.0
	X^2= 2.75 p- value = .248				X^2= 8.25 p- value = .016			

Table (7): Relation between the studied mothers' reported practice and their children's quality of life (pre/post intervention) no=55

Level of practice / Quality of life	Pre- intervention				Post- intervention			
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory	
	No.	%	No.	%	No.	%	No.	%
Low	5	41.7	7	58.3	0	0.0	0	0.0
Moderate	10	43.5	13	56.5	22	100	0	0.0
High	2	10	18	90	20	60	13	40
	X^2= 36.67 p- value= 0.000				X^2= 11.34 p- value= 0.001			

4. DISCUSSION

Chronic kidney disease (CKD) is an irreversible loss of kidney function that progress rapidly to end stage renal disease and significantly affects on the children's quality of life. Although the children with chronic kidney disease usually require maintenance hemodialysis, they don't require permanent hospitalization. They are in need to ongoing health education which include knowledge about nature of the disease, medical regimen, avoidance of infection, rest and exercise as well as when to call physician. The mother is the first and foremost environmental factor who contributes to the child's growth and development. They become nurses, pharmacists and physician for their children **(Abd Elaziz et al., 2016).**

Regarding characteristics of the studied mothers, the results of the present study revealed that the mean age of the studied mothers was mean age was 30.1 years. This finding wasn't in agreement with **John et al., (2016)** who studied the quality of life in children with chronic kidney disease that maternal age was 39.5 years.

The results of the present study revealed that, more than two thirds of the studied mothers lived in rural areas. This finding can be attributed to the fact that the rural areas receive unclean water that increases risk of urinary tract infection which in turn affects renal function. The result of the current findings was in agreement with **El- Sayed, (2014)** who stated in the study which was conducted at Banha University about the effect of self-learning package on caregivers of children undergoing dialysis therapy that the highest percentage of the studied mothers lived in rural area. On the contrary **John et al., (2016)** found that, two thirds of the studied mothers lived in urban community.

Regarding to mother's education, the results of the current study revealed that near to half of the studied mothers had primary education. This result was in agreement with ***Katarzyna et al., (2017)*** who found in a study about, perception of health-related quality of life in children with chronic kidney disease by the patients and their caregivers that near to half of the studied mothers were elementary/ trade school. On contrary ***Arlene et al., (2018)*** found in the study about health-related quality of life of children with mild to moderate chronic kidney disease that about half of mothers had high school education.

The present study revealed that near to three quarters of the studied mothers were housewives. This may be due to some mothers give up their jobs to care for their children and to meet the demands of medical treatment such as taking the child to hospital for follow up maintenance or dialysis treatment, giving medication for child and follow up the child condition. This result was similar to a study done by ***Metwaly, (2016)*** who noted in the study conducted at Zagazig University Hospital about nursing intervention protocol for parents having children under hemodialysis therapy that the majority of the studied sample was housewife.

Concerning characteristics of the studied children with chronic kidney disease, the present study revealed that, the mean age of the studied children was 10.6 ± 4.2 years. This result was supported by the result of ***Wun et al., (2017)*** who studied the assessment of dietary intake of children with chronic kidney disease who found that, the mean age of the studied children was 10.2 years. On the contrary, ***David and Nicholas, (2017)*** who examined the roles and experiences of fathers of children with chronic kidney disease, found that, the majority of the studied children were in age group 11- 15 years.

Regarding to gender of the studied children with chronic kidney disease, the results of the present study showed that more than half of the studied children were females. This finding was supported by the study done by ***John et al., (2016)***, who studied the quality of life in children with chronic kidney disease who found that, slightly more than half of the studied children were females.

In relation to positive family history of the disease, the result of the current study revealed that the minority of the studied children had positive family history. Similarly, ***Kilis- Pstrusinska et al., (2017)*** found that the majority of children undergoing dialysis therapy had negative renal family history. The current result was not in agreement with ***Arwa et al., (2018)*** who studied the assessment of quality of life among children with end-stage renal disease; they found that more than half of children had positive consanguinity. Also, the findings of the current study clarified that about one third of the affected family members were siblings. This result in accordance with ***Metwaly, (2016)*** who found in a study about nursing intervention protocol for parent having children under hemodialysis that siblings were the main affected member in the family.

In relation to the studied mother's total knowledge about chronic kidney disease and its management, the result of the present study revealed that the mothers' knowledge was unsatisfied but their knowledge was improved after provision of empowerment program in posttest and there was a statistically significant difference of mothers' knowledge pre and post. From the researcher point of view, this may be returned to lack of continuous training educational program and there was no educational guide in the dialysis unit to improve mothers' knowledge. Also, it reflects lack of responsibility of nursing director and management staff in providing such training programs for mothers. This result in accordance with ***Bellou and Geroianni, (2017)*** who found that most families have inadequate knowledge concerning the provision of effective care to their children with chronic kidney disease and they also, found that the parent needs knowledge concerning the progress of patient's condition, treatment and general care provided for their children. Furthermore ***Mangione et al., (2017)*** found in their study about identifying children's health care quality measures that empowerment result in improvement in mother's knowledge.

As regards total reported practice of the studied mothers regarding to care of their children with chronic kidney disease namely, measurement of weight, temperature, range of motion exercise and coughing and breathing exercise. The result of the current study showed that two thirds of the studied mothers had unsatisfactory practice pre intervention of empowerment program with significant improvement post intervention of empowerment program. This result was in agreement with ***El- Sayed, (2014)*** who found that caregivers of children with chronic kidney disease had unsatisfactory practice, while they improved after the program.

As regards physical domain of quality of life, the result of the present study revealed that there was a statistically significant difference in the mean score pre/post intervention of empowerment program. This finding is supported by the finding of ***El-Sayed et al., (2016),*** who studied the effect of nursing intervention on the quality of life of children undergoing hemodialysis; they reported that, more than half of the studied sample had poor quality of life in physical domain while they improved post intervention. On contrary ***Minard et al., (2016)*** found in their study about health-related quality of life functioning over a 2-year period in children with end-stage renal disease that all four domains didn't change significantly over time.

Regarding to the emotional and social domain of quality of life, the findings of the current study revealed that there was a statistically significant difference in the mean score pre/post intervention of empowerment program. This finding was similar to the finding of ***Shari et al., (2017),*** who conducted their study about health related quality of life functioning over a 2 years period in children with end stage renal disease and reported that, patients in dialysis particularly the females reported worse emotional functioning. Meanwhile, ***Minooet et al., (2016)*** found that there was a statistically significant difference in children's quality of life from their own perspectives in the physical and psychosocial domains. The result of the present study wasn't in agreement with ***Arwa et al., (2018)*** who found that the difference was not significant in the mean score of emotional and social domains of quality of life.

Regarding to the school domain of QoL, the current study revealed that there was insignificant difference in the mean score pre/post intervention of empowerment program. This may be due to the complexities of the children's medical care and the frequency of medical visits interfering with school attendance, possibly impairments in attention or cognitive functioning associated with deteriorating kidney function. This result was similar to a study done by ***Minard et al., (2016)*** who found that there was insignificant change of school functioning over time. While this result wasn't in accordance with ***Ghazavi et al., (2017)*** who found in their study about the effect of family empowerment model on quality of life in children with chronic kidney diseases, that empowerment result in improvement in all domains of quality of life.

The result of the present study revealed that, there was a statistically significant difference regarding the total mean score of the studied children's quality of life pre and post empowerment program. This result is supported by ***Minooet et al., (2016)*** who found that there was a statistically significant difference in the mean score of the children's quality of life. On the other hand ***Arwa et al., (2018)*** found in their study about assessment of quality of life among children with end stage renal disease that there wasn't a statistically significant difference regarding to the total quality of life mean score.

The results of the current study revealed that there was a statistically significant difference regarding to the relation between the studied children quality of life and mothers' knowledge and reported practice pre and post empowerment program. This result was similar to ***El- Sayed, (2014)*** who found that there was a statistically significant difference between the studied children quality of life and caregivers' knowledge and reported practice.

5. CONCLUSION

It was concluded that there was a positive effect of empowerment program on improving knowledge and practice of the studied mothers as well as, quality of life of children with chronic kidney disease.

6. RECOMMENDATION

- Encourage use of empowerment programs periodically for mothers having children with chronic kidney disease based upon their actual needs assessment to help them to improve their knowledge and performance for care of their children in the pediatric nephrology departments and reduce complications of the disease.
- Further researches are needed to improve quality of life of children with chronic kidney disease.

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