

Assessment knowledge and practice of mothers having children with chronic kidney disease

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Abstract

Background: Chronic kidney disease (CKD) refers to irreversible kidney damage that can further progress to end-stage renal disease (ESRD). **This study aimed to** assess knowledge and practice of mothers having children with chronic kidney disease. **Subjects and methods; Research design:** Descriptive design was done, **Sample:** A convenient sample included 55 children with chronic kidney disease from both sex and their mothers, **Setting:** The study was conducted Children's Hospital affiliated to Ain Shams University Hospitals. **Tools of data collection:** Questionnaire sheet and observation checklist. **The results of this study** revealed that mother's knowledge and practice regarding care of their children with chronic kidney disease was unsatisfactory. **In conclusion:** It was concluded that about three quarters of the studied mothers have unsatisfactory knowledge and practice regarding care of their children with chronic kidney disease. **The study recommendations:** Encourage training courses for mothers regarding care of their children with chronic kidney disease.

Keywords: Chronic Kidney Disease (CKD), mother's knowledge and practice

Introduction

Chronic Kidney Disease (CKD) is identified by the presence of kidney damage, either structural or functional, or by a decline in glomerular filtration rate (GFR) below 60 mL/min/1.73 m² of body surface area for more than 3 months (**Kidney Disease: Improving Global Outcomes {KDIGO} 2013**). Therefore, the term CKD defines renal dysfunction as a *continuum*, rather than a discrete change in renal function. Chronic kidney disease is asymptomatic in its earliest stages (stage I and stage II), although

urine analysis findings or blood pressure may be abnormal. As chronic kidney disease progresses to more advanced stages (stage IV and stage V), signs and symptoms greatly increase (pale, headache, nausea, loss of appetite, anemia, fatigue, decreased mental alertness and ability to concentrate) (**Ball and Bindler, 2012**).

Chronic kidney disease refers to a condition related to irreversible kidney damage that can further progress to end-stage renal disease (ESRD). End stage renal disease is a devastating disorder

associated with excessive mortality, cardiovascular morbidity, and specific problems occur in children, (such as impaired growth and psychosocial adjustment), all of which severely impact upon the quality of life in children and their families over time. It is a permanent condition that requires dialysis or kidney transplantation to sustain life (**Behrman et al., 2011**).

The number of children with chronic kidney disease is rising markedly, and CKD is now being recognized as a major public health problem worldwide. In North America, up to 11% of the pediatric population (19 million) may have chronic kidney disease (**Greenbaum et al., 2009**). Surveys in Australia, Europe, and Japan describe the prevalence of CKD in children to be 6 – 16% of their respective populations (**Ree, 2015**).

The role of mothers is optimizing the innate potential of a child through parenting, care giving and stimulation. Therefore, assessing ability of mothers to care for their children with CKD becomes an important for child's health, enabling survival, improving the life quality of children and achieving optimal growth and development in the physical, mental, emotional and social domains (**Soetjningsih and Gde, 2014**).

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. 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 mother-centered empowerment program will help mothers to improve disease control, its better management and improve physical and mental functions of their children and prevention of disease complications. By that, the children can resume their normal activities and their quality of life will be improved.

Aim of the study:

The study aimed to assess knowledge and practice of mothers having children with chronic kidney disease.

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. All the gathered data was treated confidentially and was for research purpose only. 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.

Research Questions:

What are the level of knowledge and practice of mothers having children with CKD?

Subjects and methods:

Research design: Descriptive design was used for this study.

Setting: This study was conducted at Children's Hospital affiliated to Ain Shams University Hospitals (Hemodialysis unit and conservative nephrology out-patient clinic).

Sample size of this study included the following:

A convenient sample composed of 40 children with chronic kidney disease (stage 5) who are on regular hemodialysis in the hemodialysis unit and their mothers.

A convenient sample composed of 15 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 at previous mentioned setting.

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 and consists of the following:

Questionnaire sheet: to gather data in relation to:

Part I: Socio-demographic data related to mothers of children with

chronic kidney disease such as age, level of education, working status and marital status.

Part II: Socio-demographic data related children with chronic kidney disease such as age, gender, number of siblings, birth's order and level of education.

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

Part IV: Mothers' knowledge about nutrition, fluids and medications of children with chronic kidney disease such 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- Checklist: used to assess reported practice of mothers regarding to care of their children with chronic kidney disease and was adapted from (**Bowden and Greenberger, 2012**), and modified by the researcher to suit the nature of study and reviewing from the researcher supervisors such as weight, temperature measurements, range of motion exercise and 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%.

The study was carried out in three phases:

Phase (1): 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: was conducted to evaluate the validity and applicability of the tools which was used in data collection. It was conducted on 10% of the study subjects which constitute (7 children and their mothers) in order to evaluate the research plan, clarity and applicability of the study tools. According to the obtained results from the pilot study, the necessary modifications were done. The subjects of pilot study were excluded from the study subjects.

Phase (2): Implementation phase (Study Procedure):

- **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 p.m. The empowerment program consumed 13 weeks (3 days per week). The researcher directed empowerment program for mothers only as there were some reasons which make it was hard to provide children also with empowerment program; these reasons were, the children started hemodialysis sessions early in the day (7 a.m.) which was difficult to explain program for them before the sessions. Furthermore, during and after the sessions, the children were very tired, inattentive and weren't able for learning.

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 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 empowerment program started after collection of questionnaire and observation sheets as well as quality of life and empowerment scales 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 sessions for mothers regarding to care of their children with chronic kidney disease through use of several teaching aids such as group discussion, question and answer, role-playing, brain storming, demonstration and re-demonstration as well as distribution of explanatory related booklet at the deging of sessions.

The knowledge was introduced for the mothers through seven sessions. Two sessions were held by the researcher to demonstrate the practical skills

Results:

Table (1): Regarding the studied mothers' characteristics, this table, showed that, about one third (34.5%) of the studied mothers were in age group from $25 < 35$ years, where $X \pm SD$ 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.

Table (2): Concerning the studied children characteristics, table (2) revealed that, near to half (43.6%) of the studied children were in the age group $13 \leq 18$ years, with $X \pm SD$ (10.6 ± 4.2 year). It is clear from this table that, about half (50.9%) of the studied children were females, and 43.6 % were ranked as the 1st child in their families. Also, near to half (47.3%) of the studied children's were in primary education.

Table (3): Illustrated that near to one fourth of the studied children (pre-dialysis) were in stage 1 of chronic kidney disease. While near to three quarters (72.7%) of the studied children (dialysis) were in stage 5 of chronic kidney disease.

Table (4): It was found that, the more than half (54.5% and 58.2%) of studied mothers had unsatisfactory knowledge about definition and treatment of chronic kidney disease. It is also clear from this table that, 69.1%, 45.5% and 78.2% of the studied mothers had unsatisfactory knowledge about causes, manifestations and complications of chronic kidney disease respectively.

Table (5): It is revealed from the table that, about two thirds (61.8%, 67.3% and 63.6%) of studied mothers had unsatisfactory knowledge about type of dietary program, problems result from non-compliance to dietary program and recommended ways to remove extra potassium from vegetables. Also, it is clear from this table that 81.8% and 89.15% of the studied mothers had unsatisfactory knowledge regarding foods high with potassium and recommended ways to eliminate sodium in food respectively.

Table (6): It is clear from this table that, more than half (56.4%, 62.5%, 54.5% and 58.2%) of the studied mothers had unsatisfactory knowledge regarding standards for fluid intake estimation, standards measurement, standards for urine estimation and complications of over fluids intake respectively. Also, about all (98.2%) of the studied mothers nearly had unsatisfactory knowledge as regards recommended ways to eliminate fluids intake.

Table (7): It was found that, more than three quarters (78.2%) of the studied mothers had unsatisfactory knowledge regarding purpose of giving prescribed medication. Also, 29.1% of the studied mothers reported their children are compliant for prescribed medication. In relation to use of medications, the studied mother reported the minority (10.9%) of their children use medication.

Table (8): It is clear from this table that a very high statistically significant difference was observed pre/ post intervention regarding total mothers' knowledge about chronic kidney disease pre/post intervention of empowerment program, with (P value = 0.001).

Table (9): It was observed that about one third (30.9% & 34.5%) of the studied mothers had satisfactory practice about measurement of weight and temperature respectively. Also, it is indicated from this table that, 9.1% and 25.5% of the studied mothers had satisfactory practice in relation to range of motion exercise and coughing and breathing exercise respectively.

Table (10): It was obvious that 69.1% of the studied mothers had unsatisfactory level of total reported practice.

Table (11): This table illustrated that there was statistically insignificant difference between the studied mothers' knowledge and their characteristics namely place of residence, occupation and level of education except for age of the studied mothers showing a high statistically significant difference pre/post intervention of empowerment program (p value= .0006).

Table (12): This table showed that there was statistically insignificant difference between the studied mothers' reported practice and their characteristics namely; age, place of residence and current occupation except for level of education of the studied mothers where there was a statistically significant difference pre/post intervention of empowerment program with (p-value= .045).

Discussion

This study was designed to assess mothers' knowledge and practice regarding chronic kidney disease as well as assess knowledge and practice of mothers having children with chronic kidney disease.

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 chronic kidney disease, medical regimen, avoidance of infection, rest and exercise as well as when to call physician (**Abd Elaziz et al., 2013**). The mother is the first and foremost environmental factor who contributes to the child's care. They become nurses, pharmacists and physician for their children.

Regarding characteristics of the studied mothers, the results of the present study revealed that, about one third of the studied mothers were in age group from 25 < 35 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 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. 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.

Also, this study showed that near to half of the studied mothers had primary education. This result is in agreement with **(El-Sayed, 2014)** who found that more than one third of the studied mothers were able to read and write. On contrary **(Arlene et al., 2010)** 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 result was similar to a study done by **(Metwaly, 2010)** who noted in the study which 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. 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.

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 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 mentioned that, slightly more than half of the studied children were females. However, this finding is not in agreement with a study done by **(Debora et al., 2014)** who studied the a predictive model of progression of chronic kidney disease to ESRD in a pre-dialysis pediatric interdisciplinary program and **(Gerson et al., 2010)** who found in a study about, the health related quality of life of children with mild to moderate chronic kidney disease, that, about two thirds of the studied children were males.

The result of the present study revealed that, near to half of the studied children was the first child in the family. It can be explained as the first child may reflect lack of awareness and experiences of parents with importance of periodic checkup, follow up and early discovery of diseases. On contrary, **(El- Sayed, 2014)** who found that the second child was the highest percentage affected, as it constituted about more than half of children in the study.

As regards the studied children education, the current finding revealed that near to half of them had primary education. This finding was in agreement with **(Janaina et al., 2015)** who studied the anxiety, depression, resilience and quality of life in children and adolescents with pre-dialysis chronic kidney disease, found that more than half of the studied children delayed educational attainment. Also, **(Matta et al., 2014)** reported in a study about cognitive alterations in chronic kidney disease that high frequency of patients with delayed educational attainment may be indicative of possible cognitive impairment related to chronic kidney disease.

Regarding stage of chronic kidney disease, it was found that, about three quarters of the studied children were in stage 5 of chronic kidney disease. In this aspect, **(Jennifer et al., 2017)** mentioned in a study which was about measurement of quality of life and attitudes towards illness in children and young people with chronic kidney disease that more than three quarters of the studied children were on dialysis. On the contrary, **(Wun et al., 2017)** who studied the assessment of dietary intake of children with chronic kidney disease, found that about half of

the studied children were in stage 3 of chronic kidney disease. Also, **(Hee et al., 2017)** found in a study about health-related quality of life of children with pre-dialysis chronic kidney disease that near to one third of the studied children were in stage 2 of chronic kidney disease.

Regarding knowledge of the studied mothers about chronic kidney disease, the result of this study revealed that there was a statistically significant difference. This result supported by **(Abd El- Magid, 2010)** who found that there was a statistically significant difference regarding compliance of the studied subjects for management plan in relation to their knowledge about renal failure in first, second and third visit.

In relation to the studied mother's total knowledge regarding chronic kidney disease and its management, the present study revealed that there was a statistically significant difference. This result in accordance with **(Bellou and Geroianni, 2014)** who stated that many 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. Additionally **(Mangione et al., 2011)** found in a study which was about, identifying children's health care quality measures that empowerment result in improvement in mother's knowledge. The finding of the current study can be explained as the mothers don't attend continuous educational program especially mothers who follow at out-patient clinic don't attend any educational program.

As regards total reported practice of the studied mothers regarding care of their children with chronic kidney disease namely, measurement of weight, temperature, range of motion exercise and coughing and breathing exercise. This result clarified that two thirds of mothers had unsatisfactory results related to total reported practice. This result was in agreement with (El- Sayed, 2014) who found that caregivers of children with chronic kidney disease need information and practical skills in order to cope effectively with the disease.

As regards the relation between the studied mothers knowledge and practice with their characteristics, the result of this study illustrated that, there

was a statistically insignificant difference in relation to the studied mothers knowledge and practice. Similarly, (El-Sayed, 2014) found that there was no relation between caregivers' knowledge and practice and their characteristics. Additionally, (Tong et al., 2012) in study about experiences of parents who have children with chronic kidney disease that there was statistical insignificance difference between characteristics of parent and their KAP. It can be contributed to the presence of serious factors which affect parent knowledge and practice such as psychological issues as parent stress or social issues as finances of the parent which may affect negatively on mothers knowledge and practice.

Table (1): Distribution of the studied mothers 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

Table (2): Distribution of the studied children with chronic kidney disease according to their characteristics (n=55)

Children characteristics	No.	%
Age (in years):		
< 10	14	25.5
10 <13	17	30.9
13 ≤ 18	24	43.6
X ±SD 10.6±4.2		
Gender:		
Male	27	49.1
Female	28	50.9
Number of siblings:		
None	8	14.5
One	7	12.7
Two	12	21.8
Three	18	32.7
Four and more	10	18.2
Birth's order:		
The first	24	43.6
The second	14	25.5
The third	7	12.7
The fourth and more	10	18.2
Level of education:		
Read and write	5	9.1
Primary	26	47.3
Preparatory	19	34.5
Leaked education	5	9.1

Table (3): Distribution of the studied children according to the stage of chronic kidney disease (n=55)

Stage of CKD		No.	%
Pre dialysis	Stage 1	12	21.8
	Stage 2	0	0.0
	Stage 3	2	3.6
	Stage 4	1	1.8
Dialysis	Stage 5	40	72.7

Table (4): Distribution of the studied mothers according to their knowledge about chronic kidney disease (n =55)

Basic knowledge of chronic kidney disease	Satisfactory		Unsatisfactory		X2	P value
	No.	%	No.	%		
Definition of chronic kidney disease	25	45.5	30	54.5	41.25	0.001
Causes of chronic kidney disease	17	30.9	38	69.1	41.57	0.001
Manifestations of chronic kidney disease	30	54.5	25	45.5	25.96	0.001
Complications of chronic kidney disease	23	41.8	32	58.2	38.31	0.001

Treatment of chronic kidney disease	12	21.8	43	78.2	47.52	0.001
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Table (5): Distribution of the studied mothers according to their knowledge about nutrition of children with chronic kidney disease (n=55)

Nutrition of children with chronic kidney disease	Satisfactory		Unsatisfactory		X2	P value
	No.	%	No.	%		
Follow dietary program	48	87.3	7	12.7	7.47	.006
Type of dietary program	21	38.2	34	61.8	49.21	0.001
Problems result from non-compliance to dietary program	18	32.7	37	67.3	29.29	0.001
Foods high with potassium	10	18.2	45	81.8	52.66	0.001
Recommended ways to remove extra potassium from vegetables	20	36.4	35	63.6	35.35	0.001
Recommended ways to eliminate sodium in food	6	10.9	49	89.1	67.23	0.001

Table (6): Distribution of the studied mothers according to their knowledge about hydration status of children with chronic kidney disease (n=55)

Hydration status of children with chronic kidney disease	Satisfactory		Unsatisfactory		X2	P value
	No.	%	No.	%		
Amount of fluid intake	6	10.9	49	89.1	88.36	0.001
Standards for fluid intake estimation	24	43.6	31	56.4	43.16	0.001
Standards measurement n= 24	9	37.5	15	62.5	43.16	0.001
Standards for urine estimation	25	45.5	30	54.5	34.55	0.001
Standards measurement n= 25	17	68.0	8	32.0	2.97	0.084
Complications of over fluids intake	45	81.8	10	18.2	11.00	0.001
What are complications	23	41.8	32	58.2	38.31	0.001
Recommended ways to eliminate drinking water	1	1.8	54	98.2	78.21	0.001

Table (7): Distribution of the studied mothers according to their knowledge about treatment of children with chronic kidney disease (n=55)

Treatment of children with chronic kidney disease	Satisfactory		Unsatisfactory		X2	P Value
	No.	%	No.	%		
The purpose of giving prescribed medication	12	21.8	43	78.2	39.65	0.001
Compliance of child for prescribed medication	39	70.9	16	29.1	18.72	0.001
Degree of compliance to prescribed medication	19	34.5	36	65.5	40.22	0.001
Use of medication	6	10.9	49	89.1	88.36	0.001

Table (8): Distribution of the studied mothers regarding their total knowledge about chronic kidney disease (n=55)

Total knowledge about chronic kidney disease	No.	%	X2	P-value
Satisfactory	16	29.1	43.78	0.001
Unsatisfactory	39	70.9		

Table (9): Distribution of the studied mothers according to their reported practice (n=55)

Mothers' practice	No.	%	X2	p-value
Measurement of weight				
Satisfactory	17	30.9	14.55	0.001
Unsatisfactory	38	69.1		
Measurement of temperature				
Satisfactory	19	34.5	21.29	0.001
Unsatisfactory	36	65.5		
Range of Motion exercise (ROM)				
Satisfactory	5	9.1	53.37	0.001
Unsatisfactory	50	90.9		
Coughing & breathing exercise				
Satisfactory	14	25.5	32.82	0.001
Unsatisfactory	41	74.5		

Table (10): Distribution of the studied mothers regarding their total reported practice (n=55)

Level of practice	Pre- intervention		X2	p-value
	No.	%		
Satisfactory	17	30.9	22.84	0.001
Unsatisfactory	38	69.1		

Table (11): Relation between the studied mothers' characteristics and their knowledge (n=55)

Level of knowledge Mothers' characteristics	Satisfactory		Unsatisfactory		X ²	P value
	No.	%	No.	%		
Age in years:						
20 < 25	6	37.5	11	28.2	14	.003
25 < 35	0	0.0	19	48.7		
35 ≤ 45	6	37.5	7	17.9		
> 45	4	25	2	5.1		
Place of residence:						
Rural	6	37.5	10	25.6	.77	.379
Urban	10	62.5	29	74.4		
Current occupation:						
Employee					1.56	.815
Professional	2	12.5	7	17.9		
Pension	1	6.2	4	10.3		
Housewife	0	0.0	1	2.6		
	13	81.2	27	69.3		
Level of education:						
Primary					6.24	.182
Preparatory	7	43.8	17	43.6		
Secondary	3	18.8	3	7.7		
High education	2	12.5	1	2.6		
Technical vocational education	0	0.0	7	17.9		
	4	25	17	28.2		

Table (12): Relation between the studied mothers' characteristics and their level of reported practice (n=55)

Level of practice Mothers' characteristics	Satisfactory		Unsatisfactory		X ²	P value
	No.	%	No.	%		
Age in years:						
20 < 25	4	25	13	33.3	2.67	.444
25 < 35	4	25	15	38.5		
35 ≤ 45	5	31.2	8	20.5		
> 45	3	18.8	3	7.7		
Place of residence:						
Rural	4	25	12	30.8	.183	.669
Urban	12	75	27	69.2		
Current occupation:						
Employee	5	31.2	4	10.3	8.18	.085
Professional	0	0.0	5	12.8		
Pension	1	6.2	0	0.0		
Housewife	10	62.5	30	77		
Level of education:						
Primary	7	43.8	17	43.6	3.37	.497
Preparatory	1	6.2	5	12.8		
Secondary	2	12.5	1	15.4		
University	1	6.2	6	25.6		
	1	6.2	6	25.6		
Technical vocational education	5	31.2	10	25.6		

Conclusion

The results of the present study concluded that there was a relation between the studied mothers' knowledge and their ages. Meanwhile, there was a relation between the studied mothers' practices and their level of education.

Recommendations

Accordingly, the following important recommendations are proposed: Establishment of in-service educational program to provide continuous education for mothers aiming to improve their knowledge, practice regarding care of their children with chronic kidney disease

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