

Self-Care Activities of Adolescents Undergoing Hemodialysis

Eman Abdelfattah Hassan¹, Hanaa Diab Khalafallah²

¹. Lecturer of Pediatric Nursing, Pediatric Nursing Department, Faculty of Nursing, Cairo University, Egypt

². Lecturer of Pediatric Nursing, Pediatric Nursing Department, Faculty of Nursing, Cairo University, Egypt

Corresponding Author: Eman Abdelfattah Hassan

Abstract

Background: Adolescents undergoing hemodialysis face unique and complex self-care activities as well as physical, psychological, social, spiritual and family challenges that lead to change the quality of life (QOL) for this teenager group.

Aim: the aim of the current study was to assess self-care activities of adolescents undergoing hemodialysis.

Design: a descriptive research design was utilized to fit the aim of the current study.

Setting: the study was conducted in the pediatric nephrology unit (PNU) at Cairo University Children Hospital.

Sample: a convenient sample of 100 adolescent undergoing hemodialysis were participated in the current study.

Data collection tools: data were collected using the following tools: structured interview questionnaire, self-care assessment scale (SCAS): to assess self-care activity as well as physical, psychological, social, spiritual, school performance.

Results: the results revealed that, majority of the studied adolescents undergoing hemodialysis had lower weighted mean level in all self-care activities as well as physical, emotional, social, spiritual, and school performance and there was statistically significant correlation between the adolescents' educational level and the duration of dialysis with total scores of self-care.

Conclusion: the study findings of the current study presented a lower level of self-care activities in adolescents with CKD undergoing hemodialysis in all physical, psychological, emotional, social and spiritual and school performance

Recommendation: designed educational self-care program should be implemented to help hemodialysis adolescents and their families to understand the importance of self-care activities for improve their QOL.

Keywords: Adolescents, Hemodialysis, Self-care activities, Quality of life.

Date of Submission: 29-08-2019

Date of Acceptance: 14-09-2019

I. Introduction

Adolescents undergoing hemodialysis experience many problems including sleep disorders, peripheral neuropathy, infection, psychological stress, anxiety and depression as well as cognitive changes that effect on all life concern aspects [1]. Likewise, several studies have shown that children undergoing hemodialysis have poor self-care activities compared to other normal children in society [2].

Regard to physical and psychological problems in hemodialysis for adolescents, in all or some parts of their daily activities, they are dependent on others and in fact they do not have full self-care ability and need others' help to meet their needs [3]. As recommended by [4], defines self-care as the ability of individuals, families and communities to promote, maintain health, and prevent disease and to cope with illness with or without the support of a health care provider. Self-care encompasses several issues including hygiene, nutrition, lifestyle, environmental and socio-economic factors.

Chronic kidney disease (CKD) is a pathological process with multiple causes that results in irreversible decrease of nephrons function, where kidney function is not sufficient, throughout the world we are faced with an increased incidence of kidney failure and hemodialysis is one of the most common treatment [5]. Kidney disease is the nine-leading cause of death in the world and more than thirty children and adolescents in every 100,000 develop kidney failure [6].

The absence of a national registry, the exact incidence and burden of CKD in children and adolescents is not known and from the highest percentage of them had reached end-stage renal disease (ESRD), 93.5% were treated by hemodialysis in different university hospitals and only 6.5% were treated by peritoneal dialysis [7]. Furthermore, [8] emphasized that chronic kidney failure management is complex and multidisciplinary requires such as multiple medications, invasive procedures and weekly hemodialysis for 4 to 5 hours and nutritional supplementation.

Given the critical role of nurses in the rehabilitation of adolescent undergoing hemodialysis, they can improve children and adolescent's ability to perform daily activities and decrease their socioeconomic and psychological problems. Also, nurses have compensatory roles in providing these needs, which could be assess the ability of self-care in adolescents [9]. The dialysis nurse as a primary caregiver also has an important role in providing ongoing assessment, recognizing some complaints, supporting the medical plan, providing informed and concerned care to psychologically support this group and their families [10].

Significance of the study:

Self-care activities are considered the most important factors in controlling chronic diseases like kidney failure. Self-care activities can be so hard to follow, and often requires necessary changes in lifestyle that most of the adolescents neglected as a doctor's advice, which result in increasing the problems [11]. Following self-care practices by adolescents plays a complete role in achieving eligible outcomes. Therefore, assessing inadequacies in self-care activities among adolescents' undergo hemodialysis may facilitate interventions that are specific to the adolescents needs [12]. Functional status is an ability to perform daily activities, including social roles, physical health, intellectual status, social activities, and attitudes toward the world and against self, and emotional status [13].

Various studies have shown that children and adolescents with advanced chronic kidney failure who undergo hemodialysis have several pharmacological therapies, specific diet program and many physical and psychological disabilities, which may cause them to have problem in self-care activities [2].

Through empirical observations, literature review and clinical experience in the pediatric nephrology unit, it was noticed that children and adolescents undergoing hemodialysis are exposed to varying of physical, cognitive as well as psychological problems. Since a few studies have ever been done in determination of self-care activities among adolescents undergoing hemodialysis particularly in Egypt, the current study aimed to assess self-care activities of adolescents undergoing hemodialysis in addition to investigate its association with some demographic characteristics. Eventually, the results of the current study might generate an attention and motivation for further researches in the field of pediatric nephrology. As well as providing guidance and recommendations that should be reflected in pediatric nursing education and practice.

Operational Definition:

Self-care Activities:- daily living activities that can do to maintain better health and improve wellbeing and these activities do as part of normal routine. It includes the following five self-care activities physical, psychological/emotional, social and spiritual, school performance.

Aim of the Study:

The aim of the current study was to assess self-care activities of adolescents undergoing hemodialysis.

Research question:

What are the self-care activities of adolescents undergoing hemodialysis?

II. Methods

Research design:

A descriptive research design was utilized to fit the aim of the study.

Setting:

The study was conducted at fourth floor of pediatric nephrology unit (PNU) at Cairo University Children Hospital. This unit received children from all Egyptian regions for hemodialysis and include especial intensive care unit (ICU) for critical cases of children.

Sample:

A convenient sample of 100 adolescents undergoing hemodialysis was participated in the current study. The sample size was calculated based on the following formula (International Fund for Agricultural Institution, 2015):-

$$N = \frac{T^2 \times P(1-P)}{M^2}$$

Description: N= required sample size.

T= confidence level at 95% (standard value of 1.96).

P= estimated prevalence of adolescents in hemodialysis unit (2019) is (0.96).

M= margin of error at 5% (standard value of 0.05).

Inclusion criteria

- The adolescent's group from 12 years up to 18 years.
- The adolescent's commitment to regular hemodialysis 3 days /week.

Exclusion criteria

- Adolescents had congenital anomalies or other chronic illness.

Data collection tools: The required data was collected through the following two tools:

1- Structured interview questionnaire: to assess personal characteristic of adolescents and it involved seven (7) questions about the adolescent's characteristics (age, gender, place of residence, enrollment in school, time of school attendance, level of education and duration of dialysis).

2- Self-care Assessment Scale (SCAS): The scale adapted from [14] the tool included 50 items and modified by researchers by omission of 7 items that were not applicable for the research sample and used 43 item that asks adolescent about how they performed self-care activities. The tool was translated from English into Arabic by the researchers and the translation was judged and tested for its content validity by five experts in pediatric nursing and psychiatric nursing fields. The SCAS assess self-care activities between the ages of 12 and 18/ 21 years it consisted of five parts:

Part I: Physical Self-Care: it involved 9 items about eating healthy food, personal hygiene, exercise, wear clothes, eat regular, activity, sleep, medical appointments and rest when sick.

Part II: Psychological/ Emotional Self-Care: it included 10 items covering time off from school, hobbies, distraction, learn new things, express feeling, strengths and achievements, vacations, comfort, laugh, talk about their problem.

Part III: - Social Self- Care: it involved 8 items covering spend time with friends, call a friend, conversation, meet new people, ask for help, enjoyable activity, good time with a close friend and keep touch with old friend.

Part IV: - Spiritual Self- Care: it involved 7 items spend time in natural, pray, recognize meaning of life, morals and values, thought and reflection, participate in opinion and appreciate art.

Part V: - School performance Self-Care: it included 9 items about school skills, excessive responsibilities for school work, takes assignments, learn new from school, build relationship with colleagues, take breaks during homework, balance of school and hospital attendance, success in school and achieved goal in school.

Scoring system:

The total scale scores are a summation of the 43 item scores that divided to poorly was took "1" score, sometimes was took "2" scores, often was took "3" scores, more frequently was took "4" scores and total scores were 172. For statistical purposes, (scores lower than 86) considered lower (worse) adolescent' self-care activities, (86 and more) indicating higher (greater) self-care activities.

Validity and Reliability:

The content of the data collection tools was submitted to five experts in field of pediatric nursing and psychiatric nursing fields, to test the content validity. Modifications of the tools were done according to the experts' judgment on clarity of sentences, appropriateness of content and sequence of items. Reliability was applied by testing ten adolescents, reliability coefficients' alpha between questions was 93%.

Pilot Study:

A Pilot study was carried out on 10 adolescents to test the clarity and feasibility of questions and to estimate the time required for the interview. The mild modifications were done and the sample was excluded from the total sample.

Data Collection Procedure:

An official permission to carry out the study obtained from the director of the Cairo University Children Hospital and from the head of the hemodialysis unit. The researchers introduced themselves to adolescents and their mothers. Acceptance was obtained from adolescents and their mothers in the study, according to the inclusion criteria. A clear and simple explanation was given to adolescents and their mothers about the nature of the study, its aims, benefits and study tools. The researchers interviewed with adolescents individually and collecting the data for the adolescents was conducted at the time of hemodialysis session in the morning and afternoon shifts after the connection adolescents on hemodialysis machines to prevent work interruption. The researchers went to the PNU three days per week and received approximately from five to six cases of adolescents daily. Each adolescent was asked to fill the tools and the researchers answer all adolescent questions before started. The time needed for each adolescent ranged from 25-30 minutes. Data was collected from September (2018) to March (2019).

Ethical considerations:

The written consent was obtained from the adolescents and their mothers after complete description of the purpose and nature of the study in order to obtain their acceptance as well as to gain their cooperation. The researchers informed adolescents and their mothers that all data gathered during the study were considered confidential. The researchers also informed them about their rights to withdraw from the study at any time without giving any reason.

Statistical Analysis:

The collected data tabulated and summarized. A statistical package for social studies (SPSS) version 20 was used for the statistical analysis of data. Data were computerized and analyzed using appropriate descriptive and inferential statistical tests. Qualitative data were expressed as frequency and percentage. Means and standard deviation was performed for every variable and consider weighted mean for each category and classified mean through the interval level to (low, moderate, high) to compare between every variable for self-care activities. Correlation among variables was done using Pearson correlation coefficient. The level of significance at $p < 0.05$ was used as the cut of value for statistical significance.

Self-care activities	Interval level of mean for self-care activities		
	Low	Moderate	High
(Physical, Psychological, Social, Spiritual, School performance) respectively	Lower than moderate level, equal and less than (1.50, 1.98, 1.50, 1.89, 1.68) respectively	Start from this point and lower than highest (2.41, 2.06, 2.01, 1.98, 1.79) respectively	equal and more than (2.84, 2.43, 2.24, 2.15, 1.94) respectively

III. Results

Table (1) Personal characteristics of adolescents undergoing hemodialysis in percentage distribution (n= 100).

Adolescents Characteristics	No	%
<u>Age/years</u>		
12 > 14	83	83
14 > 16	13	13
16 - 18	4	4
Mean \pm SD	13.59 \pm .894	
<u>Gender</u>		
Male	54	54
Female	46	46
<u>Place of residence</u>		
Urban	59	59
Rural	41	41

Table (1) revealed that the majority (83%) of studied adolescents their age was 12 >14 years. The mean age of adolescents was 13.59 \pm .894 years. More than half (54%) of adolescents were males and 46% of them were female. More than half (59%) of adolescents were live in urban areas.

Table (2) School attendance and duration of dialysis among adolescents undergoing hemodialysis in percentage distribution (n=100).

School attendance	No	%
<u>Enrollment in school</u>		
Yes	69	69
No	31	31
<u>Time of school attendance (N=69)</u>		
Half time	38	55.1
Go to final exam	31	44.9
<u>Level of education (N=69)</u>		
Preparatory school	64	92.8
Secondary school	5	7.2
<u>Duration of hemodialysis</u>		
< 2years.	12	12
2 to < 4 years.	34	34
4 to < 6 years.	42	42
6 years and more	12	12

Apparently, the table (2) showed that, more than two thirds (69%) of adolescents were enrolled in the school. While, 31% of them were didn't joined in school. Regarding time of school attendance, it was found that 55.1% of the adolescents went to school half time. Therefore, more than two fifth of them went to school in final exam only. The vast majority (92.8%) of adolescents were in preparatory school level and only 7.2% of them were joined in secondary school. Regarding to duration of hemodialysis, more than two fifth (42%) of adolescents had undergone hemodialysis for 4 to 6 years.

Table (3) Physical self-care activity for adolescents undergoing hemodialysis in percentage distribution (n=100).

Physical self-care	Responses								Mean	SD	Rank
	Poorly		Sometimes		Often		Frequently				
	N	%	N	%	N	%	N	%			
Eat healthy food	45	45	20	20	11	11	24	24	2.97	1.43	2
Take care of personal hygiene	73	73	17	17	5	5	5	5	2.05	1.09	6
Share in exercise	83	83	12	12	5	5	0	0	1.68	.874	9
Wear clothes that help to feel good	62	62	22	22	5	5	11	11	2.41	1.22	5
Eat regularly	64	64	12	12	7	7	17	17	2.53	1.38	4
Participation in fun activities	75	75	8	8	16	16	1	1	1.87	1.16	8
Get enough sleep	42	42	24	24	14	14	20	20	2.96	1.36	3
Go to preventative medical appointments	77	77	11	11	7	7	5	5	1.97	1.13	7
Rest when sick	36	36	10	10	28	28	26	26	3.26	1.47	1
Weighted mean									2.31		
SD									.459		

It is clear from table (3) regarding to physical self-care it was found that more than two fifth (45%) of adolescents had poor practices regarding eating healthy food neither sometimes, often, frequently had (20%, 11%, & 24% in order) of them eat healthy food. Less than three quarters had poor practices for personal hygiene compared to sometimes, often, frequently was (17%, 5%, & 5% respectively) had improved personal hygiene. The majority of adolescents poorly joined in exercise about 12% sometimes and 5% often shared in exercise. Less than two thirds of adolescent had poorly worn clothes that help me feel better and eating regularly, neither less than one quarter of them do it. The study results proved that more than three quarters of adolescent had poor participation in fun activities and went to preventative medical appointments, while sometimes, often, frequent of them were sometimes doing it. 26% of them frequently rest when sick and only about 36% of adolescent poorly it rested.

The same table indicated that the highest average of physical self-care was (3.26 ± 1.47, 2.97 ± 1.43, 2.96 ± 1.36). While, moderate average was (2.53 ± 1.38, 2.41 ± 1.22,) and lowest average was (2.05 ± 1.09, 1.97 ± 1.13, 1.97 ± 1.13, 1.87 ± 1.16, 1.68 ± .874). The weighted mean and SD were 2.31 ± .459 which indicating of lower level of adolescent' physical self-care activities.

Table (4) Psychological/emotional self-care activities for adolescents undergoing hemodialysis in percentage distribution (n=100).

Psychological/ Emotional self-care	Responses								Mean	SD	Rank
	Poorly		Sometimes		Often		Frequently				
	N	%	N	%	N	%	N	%			
Take time off from school homework	62	62	10	10	17	17	11	11	2.40	1.41	4
Participate in hobbies	76	76	19	19	4	4	1	1	1.94	.896	8
Get away from distractions by used technology (phone, email)	52	52	15	15	12	12	21	21	2.69	1.54	1
Learn new things unrelated to school homework	74	74	19	19	3	3	4	4	2.06	.993	6
Express feeling in a healthy way talking	72	72	16	16	7	7	5	5	2.06	1.13	5
Recognize own strengths and achievements	72	72	25	25	3	3	0	0	1.94	.862	9
Go to vocation or day- trips	75	75	12	12	10	10	3	3	2.03	1.08	7
Do something comforting (re-watch a favorite movie)	53	53	19	19	8	8	20	20	2.66	1.47	2
Find reasons to laugh	58	58	22	22	9	9	11	11	2.44	1.29	3
Talk about their problem	79	79	12	12	4	4	5	5	1.88	1.09	10
Weighted mean									2.21		
SD									.308		

Apparently, table (4) showed that nearly two thirds (62%) of adolescents had poor time off from school homework. While, sometimes, often, and frequently (10%, 17% & 11% respectively) were toke homework time off. More than three quarters of adolescents (76%) poorly participated in hobbies, went to vocation or day- trips and talk about their problem. Therefore, less than one quarter of adolescents, they sometimes participate in this activities. 52% of adolescents had poorly get away from distractions by used technology. While, sometimes,

often, and frequently (15%, 12% & 21% respectively) were used technology as phone. Less than three quarters of adolescents were poorly learned new things unrelated to school homework, express feeling in a healthy way talking and recognize own strengths and achievements. However, less than one quarter of them regarding to sometimes, often, frequently they work to improve these elements. Related to adolescents do something comforting and find reasons to laugh less than one quarter related to this item they were doing.

The same table revealed that the highest average of psychological/ emotional self-care was (2.69 + 1.54, 2.66 +1.47, 2.44+ 1.29).Although, moderate average was (2.40 + 1.41, 2.06 +1.13, 2.06+.993) and lowest average was (2.03 + 1.08, 1.94 +.896, 1.94 + .862, 1.88 + 1.09). The weighted mean and SD were 2.21+.308 which indicated of moderate level of adolescents psychological/ emotional self-care activities.

Table (5) Social self-care activities for adolescents undergoing hemodialysis in percentage distribution (n=100).

Social self-care	Responses								Mean	SD	Rank
	Poorly		Sometimes		Often		Frequently				
	N	%	N	%	N	%	N	%			
Spend time with friends who like	73	73	14	14	11	11	2	2	2.12	1.02	3
Call a friend	89	89	5	5	3	3	3	3	1.61	.941	6
Have stimulating conversations	60	60	30	30	8	8	2	2	2.21	1.03	2
Meet new people	72	72	18	18	7	7	3	3	2.01	1.06	5
Ask others for help if needed	75	75	5	5	8	8	12	12	1.28	.652	7
Do enjoyable activities with other	57	57	12	12	22	22	9	9	2.49	1.38	1
Have a good time with a close friend	69	69	19	19	11	11	1	1	2.02	1.07	4
Keep in touch with old friend	93	93	6	6	1	1	0	0	1.27	.617	8
Weighted mean									1.87		
SD									.444		

It was evident from table (5) that more than two-thirds of the adolescents had poor social activity to spend time with friends who like and meet new people. Hence, fewer of them related to sometimes, often, and frequently they do it. Majority of adolescent poorly call a friend and have a good time with a close friend. Therefore, scarce of them performed that. 60% of adolescents had poor practices regarding to stimulating conversations neither less than one quarter of they do it. 57% of adolescent had poorly enjoyable activities. While nearly one-quarter (22%) of them often had enjoyable activities. 93% of adolescent poor keep in touch with old friend. Then, fewer percentages of them do that. More than three quarters of adolescents frequently ask others for help if needed.

The same table proved that the highest average of social self-care was (2.49+ 1.38) While, moderate average was (2.21 +1.03, 2.12+ 1.02, 2.02 +1.07, 2.01+1.06) and lowest average was (1.61 + .941, 1.28 + .652, 1.27 + .617). The weighted mean and SD were 1.87+.444 which indicated of lower level of adolescent social self-care activities.

Table (6) Spiritual self-care activities for adolescents undergoing hemodialysis in percentage distribution (n=100).

Spiritual self-care	Responses								Mean	SD	Rank
	Poorly		Sometimes		Often		Frequently				
	N	%	N	%	N	%	N	%			
Spend time in nature	80	80	14	14	2	2	4	4	1.89	.777	7
Pray	12	12	8	8	77	77	3	3	1.92	1.15	6
Recognize the things that give meaning for life	72	72	22	22	6	6	0	0	1.97	.915	5
Act in accordance with morals and values	64	64	1	1	10	10	25	25	2.29	.924	1
Set a time for thought and reflection	68	68	18	18	13	13	1	1	2.14	1.05	2
Participate in opinion	74	74	19	19	7	7	0	0	1.98	.909	4
Appreciate art such as (music, film, literature)	71	71	25	25	2	2	2	2	2.00	.932	3
Weighted mean									1.82		
SD									.120		

It is clear from table (6) regarding to spiritual self-care that the majority (80%) of adolescents had poorly spend time in nature. While, fewer of them related to sometimes, often, and frequently they do it. More than three quarters of them often pray corresponding to only 12% of them poorly performed. More than two thirds of adolescents had poor recognized the things that give meaning for life, set a time for thought and reflection, Participate in opinion and appreciate art. Therefore, (22%, 18%, 19%, & 25%) respectively of them

sometimes did it. Less than two thirds (64%) of adolescents were poorly act in accordance with morals and values. Thus, one quarter of them (25%) frequently did.

The same table showed that the highest average of spiritual self-care was (2.29+ .924) While, moderate average was (2.14 +1.05, 2.00+ .932, 1.98 +.909) and lowest average was (1.97 + .915, 1.92 + 1.15, 1.89 + .777). The weighted mean and SD was 1.82+.120 which indicating of lower level of adolescents spiritual self-care activities.

Table (7) School performance of self-care for adolescents undergoing hemodialysis in percentage distribution (n=100).

School performance self-care	Responses								Mean	SD	Rank
	Poorly		Sometimes		Often		Frequently				
	N	%	N	%	N	%	N	%			
Improve school skills	72	72	23	23	5	5	0	0	1.93	.912	2
excessive responsibilities for school work	79	79	14	14	7	7	0	0	1.76	.944	7
Takes assignments are interesting in school	81	81	14	14	4	4	1	1	1.75	.914	8
Learn new things from school	76	76	16	16	6	6	2	2	1.85	1.02	3
Build relationships with colleagues in school	75	75	19	19	5	5	1	1	1.85	.967	4
Take breaks during homework	44	44	13	13	11	11	32	32	2.12	1.28	1
Maintain a balance between school and hospital attendance	82	82	11	11	3	3	4	4	1.77	1.03	6
Keep a comfortable space that allows success in school	81	81	15	15	3	3	1	1	1.79	.879	5
I need some benefits to achieved goal in school	89	89	8	8	3	3	0	0	1.48	.771	9
Weighted mean									1.61		
SD									1.49		

Table (7) reflected that more than two-thirds of the adolescents poorly improve school skills. Therefore, nearly one quarter sometimes improved it. More than three-quarters of them poorly excessive responsibilities for school work and learn new things from school work. Hence, fewer percentage of adolescents improves it. Three quarters of adolescents (75%) poorly build relationships with colleagues in school neither sometimes, often, frequently had (19%, 5%, & 1% in order) of them can build relationships with other colleagues. On the same line, the majority of them had poorly takes assignments are interesting in school, maintain a balance between school and hospital attendance, keep a comfortable space that allows success in school and need some benefits to achieved goal in school. So, sometimes of them can do it. 44% of adolescents poorly take breaks during homework. Although, sometimes, often, frequently had (13%, 11%, & 32%) take breaks during homework.

The same table revealed that the highest average of school performance self-care was (2.12 + 1.28) While, moderate average was (1.93 +.912, 1.85+ 1.02, 1.85 +.967, 1.79 +.879) and lowest average was (1.77 + 1.03, 1.76 + .944, 1.75 + .914, 1.48 + .771). The weighted mean and SD were 1.61+1.49 which indicating of lower level of adolescents' school performance self-care activities.

Table (8) Level of Self-care activities of adolescents undergoing hemodialysis in percentage distribution (n=100).

Self-care activities levels	No	%	Minimum	Maximum	Mean± SD
Higher level	42	42	87	169	1.58± .496
Lower level	58	58	50	85	

Table (8) indicated that less than two thirds of adolescents had lower level of self-care activities and 42% of them had higher level of self-care activities with mean difference was 1.58±.496.

Table (9) Correlation between personal characteristics and total scores of self-care activities of Adolescents.

Personal Characteristics	Total scores of self-care activities	
	r	p
Age	.088	.383
Gender	- .131	.195
Place of residence	.093	.355
Educational level	.203	.043*
Duration of hemodialysis	-.250	.002*

* Significant at p < 0.05

Table (9) demonstrated that there was statistically significant positive correlation between educational level and duration of hemodialysis with total scores of self-care activities at $p < 0.05$. There were no statistically significant correlations between age, gender, residence with total scores of self-care activities.

IV. Discussion

The study findings showed lower level of self-care activities among adolescents undergoing hemodialysis in pediatric nephrology unit of the study settings. The assessment of self-care activities to these children proved to be effective in improving their self-care abilities and practices, with a positive impact on QOL. This leads to answer the set research question.

The study revealed that the majority of adolescents their mean age was $13.59 \pm .894$ years and less than two thirds lived in urban areas. These results were agreement with the study by [7], who reported that the mean age of the studied children was 14.73 ± 4.56 years and the majority of children lived in urban areas. The present study showed that more than half of the studied adolescents were males. This finding was contradicted with the study by [15], who reported that there was a high prevalence of kidney disease among females.

As mentioned in the current study, majority of adolescents in preparatory school level. Over all, more than half of them went to school half time and two fifth went only at final exam. This could be partially explained by irregular attendance at school due to adolescent's compliance to regular hemodialysis protocol at three days per weeks. Regarding to duration of hemodialysis the study showed that, more than two fifth of adolescents had undergone hemodialysis for 4 to 6 years. In contrast, the study about hemodialysis in children, 11 years in a single center in Egypt by [16] found that mean dialysis duration /month was 42 ± 8 .

As mentioned in the current study that, more than two fifth of adolescents had poor physical self-care activities regarding eating healthy food neither sometimes, often, frequently of them eat healthy food. From the researchers point of view children undergoing dialysis may be usually feel that they are deprived of their favorite foods, that reflects the emotional and behavioral attitudes of children toward restricted foods; this may be attributed to the difficulty of controlling their nutritional habits. Moreover, previously review literatures commented by [17] that, a major health problem in school age children and adolescents is maintaining proper nutrition to establish a healthy body, preventing nutritional diseases, and contributing to physical, cognitive and psychosocial well-being.

In addition, less than three quarters of studied adolescents had poor personal hygiene compared to less of them sometimes have practice personal hygiene and weighted mean and SD was $2.31 \pm .459$ which indicating of lower level of adolescent physical self-care activities. Thus, may be due to adolescent's dependency on their caregiver due to chronicity of the disease and maintenance of hemodialysis. In the same context, a study conducted by [6] found that more than three quarters of the studied children and adolescents under regular hemodialysis are rarely practice personal hygiene.

Unfortunately, majority of adolescents undergoing hemodialysis poorly joined in physical exercise. There are many potential reasons for this observation, including the presence of anemia, which leads to exercise intolerance, being easily fatigued, and dyspnea. Similarly, the study about assessment of physical and psychosocial status of children with ESRD under regular hemodialysis by [15] found that, more than three quarters of the studied children under regular hemodialysis are hypoactive and rarely practice physical activities

The study results proved that almost of adolescents undergoing hemodialysis had poor participation in fun activities. Adolescence is a phase of rapid physical and emotional growth in which children are able to assume responsibility for their own needs, share different tasks, and participate in different household activities leading to children's maturation energy expansion [18]. From the researchers point of view that practicing regular fun activities could be improves physical, psycho- emotional, behavioral, and social wellbeing, as well as self-confidence.

Also, our findings indicated that more than three quarters of studied adolescents had poorly gone to preventative medical appointments. Hence, fewer of them were sometimes gone. This result may be due to inadequate parental supervision or in effective parent–patient or physician–patient communication, and depression/anxiety, all this factors contributing to noncompliance to follow preventive medical appointments. This finding was congruent with [19] mentioned that adolescents have the highest rates of non-adherence to medical treatment in pediatric nephrology unit.

The current study revealed that poorly percentage of some items of psychological and emotional self-care activities. While, the weighted mean and SD was $2.21 \pm .308$ which indicating of moderate level of adolescents psychological/ emotional self-care activities. These findings may be related to the deficit of knowledge about changes of emotional development for adolescent and adversely affecting of disease for this group. Thus, a moderate level of weighted mean could be too related to family support and faith in the concept of disease.

Regarding social self-care activities, more than two-thirds of the studied adolescent's had poor social activity in spend time with people who like and meet new people Hence, fewer of them related to sometimes,

often, and frequently they do it. Majority of adolescents poorly call a friend and more than half of them had poor practices regarding to stimulating conversations. The weighted mean and SD were 1.87 ± 0.444 which indicating of lower level of adolescents' social self-care activities. These results are in agreement with previously published study by [20] who reported that thus, children undergoing maintenance hemodialysis suffer continuously from stressful health problems that adversely affect all aspects of life especially social interaction and relationship with others. In the same context, [21] studied the spiritual behavior of adolescent under regular hemodialysis and concluded that the greater the level of religiosity and spirituality, the healthier the cognition and behaviors and the fewer the abnormal behaviors.

Regarding to spiritual self-care that the majority of adolescents had poorly spend time in nature. While, fewer of them related to sometimes, often, and frequently they do it. More than three quarters of them often pray corresponding to only twelve percent of them poorly performed. The weighted mean and SD were 1.82 ± 0.120 which indicating of lower level of adolescent' spiritual self-care activities. From the researchers view these findings may be explained by the fact that these children are always fatigued, tired, and frequently hospitalized; In spite of that, some of the adolescents thought that their disease was terminated their life.

With regard to school performance self-care, this study noticed that more than two-thirds of the studied adolescents poorly improve school skills. Therefore, nearly one quarter sometimes practice it. More than three-quarters of them poorly excessive responsibilities for school work and learn new things from school. The weighted mean and SD were 1.61 ± 0.49 which indicating of lower level of adolescent school performance self-care activities. Similar results were reported by [22] who mentioned that sick Adolescents with chronic renal failure under hemodialysis therapy were most vulnerable to disrupted school attendance, school failure and poor school achievement. Our findings may be explained by the main cause behind the disruption is regular repeated attendance at the hospital for dialysis sessions. In addition, the less performance of adolescent's school may be due to their chronic disease

The current study found that the majority of the studied adolescent's undergoing hemodialysis had lower weighted mean level in self-care activities in all physical, social, spiritual, and school performance. Similar results were reported by [23] who mentioned that adolescent with CKD and undergoing hemodialysis experience many undesired effects on the physical, psychological, emotional, and social aspects of their lives and effect on their life aspect.

Also, results indicated that less than two thirds of adolescents had lower of self-care activities and showed more than two fifth of them had higher level of self-care activities with mean difference was 1.58 ± 0.496 . There is evidence that adolescents under regular hemodialysis were poor in practicing their self-care activities which effect on daily living activities.

It is apparent from the current study there were statistically significant correlation between educational level and duration of dialysis with total scores of self-care activities at $p < 0.05$. It is indicated that adolescents who had dialysis from 4 to 6 years had lower self-care activates. This finding in a line with by [24] who found that there was a significant correlation between dialysis duration per years and the adolescent self-care performance. Moreover, our study showed that there were no a significant correlations between child age, gender and residence with total scores of self-care activities. This finding was contradicted with [25] who revealed that there was a significant association between self-care ability and some demographic characteristics including age, gender.

V. Conclusion and Recommendation

In conclusion, the findings of the current study presented a lower level of self-care activities in adolescents with CKD undergoing hemodialysis in all physical, psychological, emotional, social and spiritual and school performance. The study recommends that nurses should encourage adolescents with regular hemodialysis to improve physical self-care, social relationships and family support for adolescent especial in school achievement, so it would improve the psychological status thus improving the overall life quality. Designed educational self-care program should be implemented to help hemodialysis adolescents and their families to understand the importance of self-care activities for improve their QOL. Further studies on larger sample size are needed to generalize the results and also to clarify the relation between self-care activities and adolescents undergoing hemodialysis.

Acknowledgement

The researchers acknowledged all adolescent and their mothers who participated in this study. As well as working for the team in the pediatric nephrology unit (PNU) at Cairo University Children Hospital to facilitates work with the adolescent.

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Eman Abdelfattah Hassan. " Self-Care Activities of Adolescents Undergoing Hemodialysis" .IOSR Journal of Nursing and Health Science (IOSR-JNHS), vol. 8, no.05 , 2019, pp. 07-16.