Assessment of Self-Management among Chronic Renal Failure Patients at Ismailia General Hospital

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Abstract

Background: Patients with chronic renal failure (CRF) face multifaceted problems arising from complications of the disease require effective self-management. So Self-Management among Chronic Renal Failure Patients is necessary for reducing financial burden, minimize negative disease effects, and delay disease progression. **Aim:** The study aimed to assess self-management among chronic renal failure patients at Ismailia General Hospital. **Research design:** A descriptive design was used. **Subjects:** purposive sample of 309 chronic renal failure patients recruited from General hospital in Ismailia governorate **Tools:** Three tools were used to collect data, Interviewing questionnaire, the Hemodialysis Self- Management scale and the Hospital Anxiety and Depression Scale (HADS). **Results:** of this study indicate that most (92.6%) of the studied patients have low level of self-management, about less than three quarters (71.8%) of studied patients had unsatisfactory level of knowledge regarding to chronic renal failure patients. the highest mean of self-management was 2.63±.75 regarding to diet and hemodialysis while the lowest mean was 2.43±.8 regarding to fluid control **Conclusion:** This study shows that most of the studied patients have low level of self-management and there was significant negative correlation between total studied patients' self-management score and total anxiety Also there was significant negative correlation between total studied patients' self-management score and total depression **Recommendations:** improve self-management is necessary in chronic renal failure patients by performing Self-management program, which is essential to move towards targeting and tailoring of self-management interventions.

Key words: Chronic Renal failure, Hemodialysis Self-management

1. Introduction

Patients with chronic renal failure (CRF) face multifaceted problems arising from complications of the disease require effective self-management **(Wu, et al., 2017)**. chronic renal failure is a slow and gradually progressive disease. It means kidney function not enough to meet the needs of daily life. Contributing to the mortality associated with end stage renal disease are the comorbidities such as diabetes, hypertension, heart failure and anemia. It also associated with compromised quality of life and unintended hospitalization with a high burden of disease **(Gela & Mengistu, 2018)** A high prevalence of CRF is reported in United States (U.S), Japan and Taiwan about 1500 people per million population**(Khan, et al., 2020).** And

about 800 pmp in the European Union. In developing countries, the figures vary from less than 100 pmp in sub-Saharan Africa and India to about 400 pmp in Latin America and the rate is high in the developed country than the developing country due to Small budgets for health care and Severe shortage of health-care workers in developing countries due to the migration of health and medical personnel to industrialized countries in search of better jobs which cause inaccurate results **(van der**, **et al., 2019)** .

Self-management is defined as "the ability of individual's to manage the symptoms, lifestyle changes, treatment and psychosocial and physical consequences of health conditions **(Engelen, et al., 2020)**. Self-management in taking care of CRF patients helps reduce financial burden, minimize negative disease effects, and delay disease progression **(Rai, et al.,2019)**. self-management refers to the tasks that individuals living with a chronic condition must undertake. These tasks include medical or behavioral management, such as taking medications, or maintaining a special diet; role management, including creating and maintaining new healthful behaviors; and emotional management, which requires dealing with feelings of frustration, anger,

fear, depression, anxiety as well as adjusting to life with a chronic illness**(Wembenyui 2017).**

Nephrology nursing is a specialist area and therefore requires those caring for individuals with renal disease to hold specialist knowledge and expertise **(Garvey and McCarron 2018)**. Nursing intervention has been progressively identified for improving self management of patients' compliance with dialysis. Such interventions, including education, training, and behavioral introduction, which help patients gain more knowledge of dialysis and develop healthy life habits, further improve their compliance with this treatment **(Wang, et al.,2018).**

Significance of the study:

Chronic renal disease is emerging as a global threat to human health and renal failure deserve attention due to high morbidity and mortality rate. So there is a need to assess self-management among chronic renal failure patients. Because if the patient is unable to maintain a good self-management will lead to increase risk of morbidity, mortality and complications**(Rai, et al., 2019)**.While a good self-management will lead to increase the patient autonomy ,

reduce the number of hospital visits, and improve individual physiological functioning, wellbeing, quality of life, slow down complications and improve the adaptation with the renal disease ,So the study was carried out to determine Self-Management among Chronic Renal Failure Patients at Ismailia General Hospital.

The aim of the study: To assess self-management among chronic renal failure patients at Ismailia General Hospital.

Objectives:

1-Assess the self management among chronic renal failure patients..

2-Assess the factors affecting self management among chronic renal failure patients.

Research questions:

1-What is the self management among chronic renal failure patients?

2-What are the factors affecting self management among chronic renal failure patients?

2. Subjects and Methods

Study design: A descriptive design was used to meet aim of the study.

The sample of the study: Sample of selected by purposive sample of 309 patients with chronic renal disease in Hemodialysis Unit at Ismailia General Hospital according the following formula.

$$n = \left[\frac{Z_{\alpha/2}}{E}\right]^2 * P(1 - P)$$

n= sample size 309
   Z α/2 = 1.96

(The critical value that divides the central 95% of the Z distribution from the 5% in the tail)

   p = the prevalence of the outcome variable (.72) **Almutary,(2021)**

   E = the margin of error (=width of confidence interval) (.05).

Study setting: The current study was carried out Hemodialysis Unit at Ismailia General Hospital, Egypt**.**

Tools of data collection:

Tool (1): Structure Interviewing questionnaire:

The first tool consists of 3 parts concerned with personal characteristics, past and present medical history, hemodialysis sessions characteristics, hemodialysis complications and patient knowledge about chronic renal failure, signs and symptoms

adopted from **(Abd Allah, 2012).**

Part (I):

Patient 's socio-demographic data which composed of ten items about age, gender, marital status, educational level, occupational status, income, treatment expenses, residence ,smoking and potable water.

Part (II):

Medical history of the disease about hemodialysis sessions which composed of three items about time of first session, number of weekly sessions, duration of sessions and five items about allergy from medications or food, pervious surgeries, suffering from other diseases, taking medications to other diseases, and 15 item about hemodialysis complications.

Part (III):

Patient's knowledge about CRF and HD including seven questions (definition kidney failure, causes signs and symptoms, complications of kidney failure, treatment methods, definition and complications of hemodialysis.

Scoring system:

Each question was ranged from 0 – 1, correct answer 1 grades, and score zero for incorrect answer and don't know and satisfactory knowledge level was equal to or more than 70 % and unsatisfactory knowledge level was less than 70% **(Abd Allah, 2012).**

Tool (2): **The Hemodialysis Self-Management scale:**

the scale was used to assess self-management among chronic renal failure patients. This tool is This scale with a total of 20 questions Problem solving and communication (7 items), Fluid and weight control (3items), Diet and hemodialysis (5 items), Self-advocacy and emotion control (5 items).it was adopted from **(Cha and Kang, 2017).**

Scoring system:

Each item on 4-point scale ranging from never (1) to always (4). The scores ranged from 20 to 80, with the higher score above the mean score indicating a higher level of self-management. Satisfactory level of knowledge 70 % **(Wolide, et al.,2020).**

Tool (2): The Hospital Anxiety and Depression Scale (HADS):

Is a 14-item measure designed to assess anxiety and depression symptoms in medical patients, with emphasis on reducing the

impact of physical illness on the total score. The measure was designed to exclude items that might conflate anxiety or depression with physical health problems. This tool is adopted from **(Zigmond and Snaith, 1983).**

Scoring system:

This scale with a total of 14 questions Item number/Anxiety (7 items) and each item have 4 choices for answer scoring from 0 to 3 and total anxiety score 21, Item number/Depression (7 items) and each item have 4 choices for answer scoring from 0 to 3 and total depression score 21.

Reliability of the Tool:

It was done using Cronbach's alpha coefficient to assess the internal consistency of the self-management tool and its value was (0.905).and knowledge was (0.70).

Field work:

The researcher started by reviewing the related literature to gain more in-depth information about the subject and to be able to design the appropriate data collection tools. this took about three months. then, the developed tools were reviewed by expertise in nursing for validation, this stage was completed in two months. When the tools were finalized after pilot testing the actual field work started. After obtaining official permissions, the researcher started to explain the aim and the purpose of the study to participant patients in order to obtain their cooperation and they were reassured that the information obtained was strictly confidential.

Data were collected through period of 6 months from beginning of January 2021 to the end of June 2021, the researcher visited the Ismailia General Hospital for 4 days a week (Saturday, Sunday, Monday, and Thursday) during morning, afternoon and evening shifts to collect the data by using the pervious mentioned tools. The questionnaire was administered to patients individually in the HD unit; the data collected approximately from three to five patients at every determined day at 20 weeks and each patient took about 30-45 minutes to complete the questionnaire.

Administrative design:

To carry out this study Formal letter was obtained for data collection from the Faculty of Nursing Dean then, an official permission from the director of

Hemodialysis Unit to obtain support in data collection.

The researcher interviewed with the patient to explain purpose of the study, benefits of the study and to get better cooperation.

Ethical considerations:

Ethical approval was obtained from the Ethical Committee with code ethics (88/8/2020), Faculty of Nursing, Suez Canal University. Official permission to conduct the study was granted from hospital administrators. At the initial interview, each patient was informed about the nature, purpose and benefits of the study and informed that, his/her participation was voluntary. The researcher assured that, the data collected, and information would be confidential and would be used only to improve their health and for the purpose of the study.

Statistical design:

Data collected through the questionnaire were coded, entered and analyzed using Statistical Package for the Social Sciences (SPSS version 20). Descriptive statistics, such as mean, standard deviation (SD), frequency, and percentage were used to report demographic data and describe

patients' complications and their knowledge. After that analysis of data were done to find out the relation between self-management and anxiety and depression using Pearson correlation was used. Also, simple linear regression was used to predict self-management from independent factors (Anxiety and depression). Anova test and independent t test was used to test the difference between demographic characteristics and self-management. Significance level of .05 was applied with $P<0.05$; there was a statistically significant difference and When $P<0.01$, there was a highly statistically significant difference.

3. Results

Table (1): Demonstrates that 54% of studied patient's ages were between 20 to less than 40 years, slightly more than half were female , 60.5% live in rural 46.3% of the studied patients were single.

Table (2): Shows that self-management high mean 2.63±.75 regarding to diet and hemodialysis followed by problem solving and communications mean was 2.56±.69, then Self advocacy and emotion control mean was 2.51±.7, while the lowest mean was 2.43±.8 regarding to fluid control.

Figure (1): Shows that the normal

level of studied patients' anxiety was 13.3 and the normal level of studied patients' depression was 9.7 while the borderline level of studied patients' anxiety was 35.6 and the borderline of studied patients' depression was 35.9. Also the abnormal level of studied patients' anxiety was 51.1 and the abnormal level of studied patients' depression was 54.4.

Table (3): Shows that there was significant negative correlation between total studied patients' self-management score and total anxiety score with r = -0.248 and with p.value was<.001. Also there was significant negative correlation between total studied patients' self-management score and total depression Score with r = -0.189 and with p.value was .001.

4. Discussion

The aim of this study is to assess self-management among chronic renal failure patients at Ismailia General Hospital. The study findings Showed that More than half of studied patient's ages were between 20 to less than 40 years Regarding demographic data This result also was consistent with study done by **Naicker., (2013)** reported that chronic kidney disease affects mainly young adults aged and This finding was disagreement with a study done by **Gela and**

Mengistu.,(2018) indicated that the level of self-management and associated factors among patients with end-stage renal disease undergoing hemodialysis in private health facilities lie between 40-60 years while The mean age of the patients was 49.86±15.58 years any this can be explained in the light of the fact that most of the end-stage kidney disease.

In opinion of the researcher this may be attributed to high blood pressure that affects young people at an early age and often due to fast food rich in salt and fat, excessive stress, smoking, addiction to painkillers where painkillers are taken when any pain or headache, which leads to kidney failure and also recurrent urine infections, which may be due to narrowing of the urethra since birth and need correction, or neglect of personal care with a lack of drinking fluids that reflect important of improving youth health.

Considering patients gender, The study findings Showed that slightly More than half of studied patient's results were female This result also was consistent with study done by **Olim, et al., (2018)** indicated that slightly more than half were female, This result also consistent with study done by **Joo, Kim et al. (2020),** reported that the average age of

the women in the sample was higher than the men . But This finding was disagreement with a study done by **El Minshawy, et al., (2014)** who illuminated that the prevalence of ESRD in males was almost twice that of females, In the same line study done by **Yamamoto, et al., (2020)** who clarified that most of the patients under hemodialysis were male. This difference may be due to different place of setting in each study.

The study findings Showed that Less than two thirds lived in rural more than one third in urban of the studied patients this was consistent with result done by **Nakanga, et al. (2019)** reported that The rural area had higher prevalence of chronic renal failure patients than the urban location Sub-Saharan Africa in the same line the study done by **Kaze, et al. (2015)**which conducted in the health district of Cameroon revealed that the prevalence of CKD in rural area was more than in urban participants, This finding was disagreement with **Maripuri, et al. (2012)** reported that Majority was urban; and minority was rural, In opinion of the researcher this may be attributed to poor awareness level among the people and poor diet , that reflect lack of medical care and follow up.

Concerning the studied patient's results showed that self-management highest mean regarding to diet and hemodialysis followed by problem solving and communications mean, then Self advocacy and emotion control mean while the lowest mean was fluid control. so, regarding to score of participants about fluid control, the study results showed low mean score, this finding might be due to the difficulty of this type of patients to control fluid intake as a result of symptoms of fluid and electrolyte disturbance management and need to have fluid control. so this study were consistent to **Ramezani, et al. (2019)** who reported that the lowest mean score was Fluids control that indicate increasing awareness and persistent orientation about fluid control to improve self-management.

The most common problem was that patients not comply with fluid intake restrictions, thus requiring effective education to increase knowledge, also fluid control help the patient to feel comfortable before, during and after dialysis sessions. Even though dialysis gets rid of excess fluid and waste in the body, it's not as effective as healthy kidneys that work 24 hours a day, seven days a week. Most people on hemodialysis get treatments three times a

week for about three or more hours at a time. This means, in the days between dialysis treatments, the human body holds on to excess fluid and waste the kidneys cannot remove **(Chan, et al. 2012).**

Increasing the fluid over than normal fluid allowance might cause swelling and increase blood pressure, which related to heart work harder. and too much fluid can build up in the lungs, making it difficult to breathe and lead to imbalance fluid electrolyte so the hemodialysis patients need to increase awareness about fluid control strategies to control the fluid, Patients with CKD develop fluid overload early and they have an impaired ability to concentrate or dilute urine. Studies on critically ill patients have shown that any weight gain together with the formation of organ edema is closely related to the development of renal failure. and optimal management of fluid and sodium imbalance in dialysis patients consist in adjusting salt and fluid removal by dialysis and by restricting salt intake and fluid gain between dialysis sessions **(Canaud, et al. 2019).**

Concerning the mean score regarding to diet and hemodialysis, the study results revealed high mean score relating to good

problem solving, communication and self-advocacy , These results indicate the higher educational level of the sample and long-term illness that needs the patients to permanently take care of their conditions while the current finding was disagreement with previous study done by **Rai, et al. (2019)** reported that lowest Mean score was diet and that reflect continuing demonstration adequate strategies to self-management, leading to improve self-management outcomes.

As regarding to self-management scale, the self-advocacy and emotional control the current study illuminated that the participant had high mean score, this can be interpreted by the fact that chronic patients and especially chronic renal failure or end stage renal disease need to report their emotions, experiences during dialysis sessions to trustful health care providers, this interpretation with supported by **Goh and Griva, (2018)** who reported that Helping families cope with the emotional and social issues associated with end stage renal disease was just as important as treating the patients' health status.

In the same context the study result showed that high mean score regarding to

problem solving and communication and this might be explained by the urgent need of study participants to effectively communicate and solve problems due to burden of disease to coexist and follow the health status, on the same line patients must be able to report their symptoms, problems, experiences, and must receive information, answers, support and guidance .so the effective communication was agreement between a patient and health care professional that respect the patient's wishes and believes, so it's important to communicate specific information that patents can translate to a good self-management, this interpretation with supported by **Shiraly, et al. (2021)** who reported that there was high mean score regarding to problem solving and communication.

Concerning the studied patients' results showed that majority of the studied patients have low level of self-management while minority have high level of self-management This finding was consistent with **Gela and Mengistu., (2018)** reported that more than half of the patients had low levels of self-management, in the same line, this results were consistent with **Muliani, et al. (2021)** showed that less than two thirds' patients had low level of self-management this might be

related to the patients ability to manage their self may also less because they were not familiar with disease or treatment., so in point of view researcher require close attention to improve the level of self-management.

On the other hand study done by **Lai, Wu et al. (2021)** which showed that majority of the studied patients had high level of self-management while minority had low level of self-management in the same context study done by **Noviana and Zahra (2022)** who reported that more than half had good self-management. In the same vein study done by **Emaliyawati and Sriati, (2018)** who reported that the self-management behavior was in a good category and reported that more than half of the patients had high levels of self-management . It may be because of the patient entrusted health workers, friends, and families who have more control to treat patients than themselves.

Concerning Patient Hospital Anxiety and Depression Shows that less than quarter of studied patients' had anxiety and less than quarter of studied patients had depression while more than one third of studied patients' had borderline level anxiety and more than one third of studied patients' had borderline

depression. Also, more than half of studied patients' anxiety had abnormal level and more than half of studied patients' depression had abnormal level. This finding was consistent with study done by **Mosleh and Alenezi, (2020)** reported that less than quarter of studied patients had depression and less than quarter of studied patients had anxiety symptoms. In the same line This finding was consistent with study done by **Goh and Griva, (2018)** reported that less than quarter of the patients in this study had depression, and one third of the patients had borderline depression.

In addition to that this finding was consistent with study done by **Semaan, et al. (2018)** reported that one third of the sample had borderline levels of anxiety and depression. But finding was disagreement with study done by **Goh and Griva, (2018**) reported that less than one quarter had borderline anxiety, in addition to that This finding was disagreement with study done by **Rahimi, et al. (2019)** reported that less than half had borderline level anxiety and more than half of studied patients' had borderline depression, while less than half had abnormal depression .

This study showed that there was significant negative correlation between total studied patients' self-management score and total anxiety, also there was significant negative correlation between total studied patients' self-management score and total depression Score. This finding was consistent with study done by **Li, et al.,(2014**) reported that there was negative correlation between patients' self-management and total anxiety, and total depression respectively.in the same line This finding was consistent with study done by **Bos-Touwen et al., (2015)** shown that having anxiety and depression is negatively associated with self-management. Similar to the studied result **Gela& Mengistu., (2018)** reported that, anxiety, and depression have strong association with self-management. As there was a statistically significant negative association between self-management and anxiety and depression.

In addition to that this finding was disagreement with study done by **Natashia et al., (2019)** reported that Anxiety was the only psychological subscale that had a positive correlation with the total self-management behavior score. This implies the need to develop strategies to decrease anxiety and depression in order to enhance hemodialysis self-management. While the results done by **Lin et al., (2017)** revealed that the self-

management program significantly enhanced the effects of self-management on outcomes of medical, role, and emotional management and health-related quality of life in patients with chronic kidney disease. And revealed a small effect of self-management on inter-dialytic weight gain; medium effects on self-efficacy, depression, and health-related quality of life; and a large effect on anxiety.

5. Conclusion

Regarding to the studied patients self-management among chronic renal failure this study showed that most of the studied patients had low level of self-management and about three quarters of the studied Patients had unsatisfactory level of knowledge, and more than quarter of the studied patients had satisfactory level of knowledge regarding to chronic renal failure patients, regarding to factors affecting self-management among chronic renal failure patients showed that there was significant negative correlation between total studied patients' self-management score and total anxiety and depression.

6. Recommendations

Improve self-management is necessary in chronic renal failure patients by performing Self-management program, so, the results of this study projected the following recommendation:

- Booklet, posters and handout should be available for patients in the hospital departments of renal dialysis with simple language and updated knowledge about chronic renal disease.

- continuous monitoring self management

- perform coping strategies to reduce anxiety and depression to the patients from hemodialysis

- Develop more future researches to investigate psychological, social needs and effect of them on patients' health status and compliance.

- The study should be performed on larger representative sample from different geographical areas in Egypt to achieve generalization of the results.

Table (1): Percentage distribution of the studied patients according to their personal and demographic characteristics (n=309)

Variables	No	%
Age (Years)		
< 20 years	24	7.8
20: < 40 years	167	54
40: < 60years	94	30.4
>60	24	7.8
Gender		
Male	148	47.9
Female	161	52.1
Residence		
Urban	122	39.5
Rural	187	60.5
Marital status		
Single	143	46.3
Married	49	15.9
Divorced	60	19.4
Widowed	57	18.4

Table (2): Mean score of self-management mean scores of hemodialysis patient (n=309)

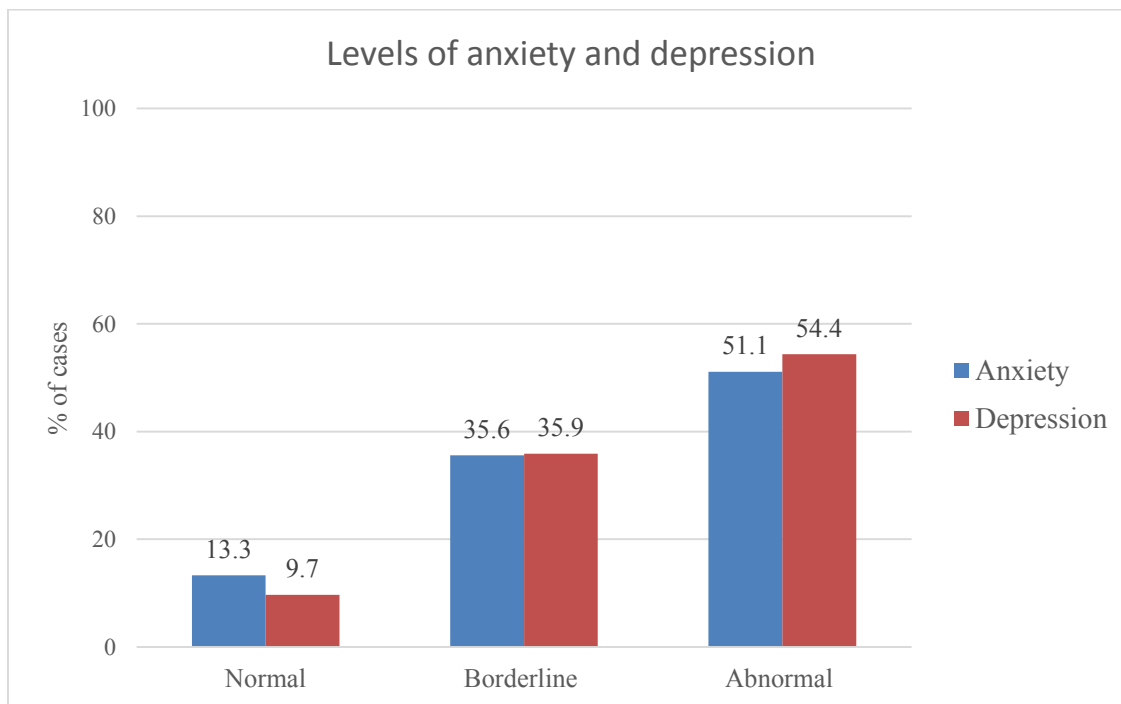| Items	Total Sample (n=309)
	Mean±SD
Factor (1): Problem solving and communications	2.56±.69
Factor (2): Fluid control	2.43±.8
Factor (3): Diet and hemodialysis	2.63±.75
Factor (4): Self advocacy and emotion control	2.51±.7
Mean of self-management subscale mean Score	2.53±.61

Figure (1): Levels of patients' anxiety and depression (n=309)

Table (3): Correlation between total studied patients' self-management scores, total anxiety and total depression scores

Items	Self-management	
	r (Pearson correlation)	Sig. (2-tailed)
Total Knowledge	.067	.186
Total anxiety Score	-0.248[*]	<.001*
Total depression Score	-0.189[*]	.001*

P value < 0.05

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