Patients' Satisfaction Regarding Nursing Care Provided in Hemodialysis Unit

Hend Magdy Sayed[1], Reda Dardier Hussein Awad[2], Mona Mohammed Ibrahim[3]

[1]Nursing specialist at Beni-Suef health insurance hospital, (B.Sc. Nursing)

[2]Lecturer of Medical Surgical Nursing Department Faculty of Nursing – Beni-Suef University

[3]Assistant Professor of Medical Surgical Nursing Department Faculty of Nursing – Beni-Suef University.

ABSTRACT

Background Patients undergoing hemodialysis require specialized nursing care, including the establishment of therapeutic and interpersonal relationships, treatment of physical symptoms, and attention to the functional limitations and educational needs of those patients. **The aim of the study was to** assess patients' satisfaction regarding the nursing care provided in the hemodialysis unit. **The research design**: A descriptive design was used to achieve the aim of the study. **Setting**: The study was conducted at the Hemodialysis Unit of Beni-Suef University Hospital. **Sample**: A purposive sample of adult patients attended the above-mentioned settings (70) hemodialysis patients who met the inclusion criteria. **Tools:** One tool was used to collect data; it included two parts: Part I: Structured interview questionnaire that included Socio-demographic data and medical data of the studied patients. Part II: Self-reporting questionnaire included five parts. **The results** revealed that most (98.6%) of the studied patients had satisfied regarding nursing care provided in the hemodialysis unit. Regarding the dimensions of care (85.7%, 80%, and 90%, respectively), the majority of the studied patients had satisfied with physical, psychological, and nursing health teaching, and (61.4%) of them had dissatisfied about social care, while half of the study (50%) had dissatisfied regarding spiritual care. **Conclusion**: Almost the most of the studied patients were satisfied, and the minority of them was highly satisfied regarding the nursing care provided in the hemodialysis unit. **Recommendations:** A training program must be provided for all dialysis nurses to improve their relationship and communication with hemodialysis patients to enhance their satisfaction.

Keywords: Hemodialysis Unit, Nursing Care, Patients' Satisfaction.

INTRODUCTION

Chronic kidney disease (CKD) has emerged as one of the most prominent causes of death and suffering in the 21st century. The number of patients affected by CKD has also been increasing, affecting an estimated 800 million individuals worldwide in 2022 **(Bello, et al. 202٤).** It can cause economic burden to societies and health care systems. In the United States more than 500,000 individuals suffer from CKD. The progression of CKD to this incurable disease remains a significant cause of poor quality of life and significant mortality **(Alharbi, et al. 2023).**

Hemodialysis (HD) is the most commonly used treatment method for kidney failure; it is a treatment option that cleans the blood from excess waste products and removes excess fluid. The hemodialysis machine removes the patient's blood by a central venous catheter (CVC) that is placed in a large blood vessel or a surgically created arteriovenous fistula (AVF) or arteriovenous graft (AVG). The blood passes through an artificial kidney or dialyzer where excess water and waste products are removed (**ElSayed, et al. 2023).**

Hemodialysis is not a curative measure; it alleviates many serious and sometimes lethal adverse outcomes of CKD. Patients undergoing HD have a higher hospitalization rate than the general population which in turn, triggers another set of problems such as anemia, CKD mineral bone disease, vascular accessrelated complications, and hypertension. The preferred renal replacement treatment is HD, which partially replaces the functions of the kidney, particularly in blood filtration and fluid elimination (**Monardo, et al. 2021).**

Hemodialysis treatments increase the average life expectancy of CKD patients, but they also have various adverse effects such as pain, cramps, nausea, vomiting, and hypotension, among other complications that negatively impact the patient's quality of life (QoL). Complications affect the physical level, as well as the psychosocial and spiritual levels, demanding person-centered care from health professionals. Only by understanding the full complexity of CKD can effective treatments be provided, thereby contributing to patient QoL (**Rodrigues & Costeira, 2024).**

The nurses must have different skills that equipped them to communicate and cooperate with families who help in the prevention of social, physical, and psychological problems as early as possible. Patients undergoing hemodialysis require specialized nursing care, including the establishment of a therapeutic and interpersonal relationship, treatment of physical symptoms, and attention to the functional limitations, mental disorders, and educational needs of those patients (**Kamal Eldin Ali, et al. 2024).**

Increasing patients' satisfaction through nursing care is essential to improve health outcomes. Moreover, patients satisfied with nursing care tend to strictly adhere to a treatment regimen, which positively affects their health. Patient satisfaction with nursing care is important in maintaining health care costs and preventing their increase. Focusing on the quality of nursing care is vital because nurses are on the frontline with patients and are predominant in the health care field. Nurses constitute around 50% of the health workforce globally. Alongside this process, understanding patients' satisfaction with nursing care can help nurses and hospital managers have a better understanding of patients' satisfaction and dissatisfaction factors that might affect the overall quality of nursing care (**Alharbi et al., 2023).**

SIGNIFICANCE OF THE STUDY

Chronic kidney disease is a debilitating condition that significantly impacts the physical and psychosocial well-being of patients. (**Kamal Eldin Ali, et al. 2024).** Hemodialysis is the standard treatment and life-saving therapy for patients with CKD. It attempts to bring about an interior environment and homeostasis restoration (**Ibrahim, et al. 2023).**

In Egypt, the estimated yearly incidence of CKD is 74 cases per million, with a total of 264 cases per million of the population (pmp) undergoing dialysis (**Soliman, et al. 2024).** By the year in 2022 the total numbers of hemodialysis patients were 61patients and by the end of the year in 2023 total numbers of the patients were 70 that attended in hemodialysis unit at Beni-Suef University Hospital.

Patients undergoing hemodialysis encounter many problems based on the blood flow rate and solutes removal rate including hypotension, nausea, vomiting, muscle spasm, headache, and chest pain. Hemodialysis leads to life style changes for

families and patients. Patients' satisfaction reflects patients' perceptions and needs towards health service utilization. **(Kameel Zatton, et al. 2023).**

The quality of health services in the hemodialysis unit is a comprehensive assessment or impression felt by patients in the hemodialysis unit regarding the entire service process carried out by health service providers. A high rating will create trust and motivate patients to meet patient expectations according to predetermined standards , resulting in patients feeling very satisfied after receiving medical services **(Sihaloho, et al. 2024).**

AIM OF THE STUDY

The aim of this study is: To assess patients' satisfaction regarding nursing care provided in hemodialysis unit.

Research questions

What is the level of patients' satisfaction regarding nursing care provided in hemodialysis unit?

SUBJECTS AND METHODS

Technical design

The technical design encompassed the research design, setting, subjects, and tools for data collection.

Research design.

A descriptive study was used to assess patients' satisfaction regarding nursing care provided in hemodialysis unit.

Setting

The study was conducted at the hemodialysis unit of Beni-Suef University Hospital, which is located the hemodialysis unit is in the ground floor. It consists of (negative virus C room for pediatric has 8 machines, negative virus C room for adult has 12 machines, acute dialysis room has 4 machines, positive virus C room has 8 machines, peritoneal dialysis has 4 machines, room for plasma phrases with 4 machines, procedure room for catheter insertion, water treatment room) total machines of unit 40.

Subjects:

1-Sample type: A purposive sample of (70) adult HD patients attended to the above mentioned settings, who met the inclusion criteria.

Inclusion Criteria:-

-Adults HD patients, of both sexes on hemodialysis.

-Alert.

- Able to communicate.

- Agree to participate in the current study.

-Free from central nervous system disorders.

Limitations of the study:

- The hemodialysis unit was overcrowded, which led to difficult communication with the studied patients.
- There was a low level of privacy during communication with the studied patients.
- Many interruptions lead to more time spent with the studied patients.

Tools of data collection:

One tool was used for collection of data. It comprised two parts:

Part I: A Structured interview questionnaire sheet:-

Part II: self- reporting questionnaire sheet:-

Part I: A Structured interview questionnaire sheet it included two parts:

*-The first part***: - Socio-demographic data:-**

This part was cover questions related to personal data such as (age, marital status, gender, place of residence, level of education, occupation, monthly family income) **(7 items)** .

-The second part: - **Medical Data**

This part was cover questions related to the past and present medical history as the presence of heredity diseases in the family or the presence of other medical diseases, pervious hospitalization & history of drug used, number & duration of hemodialysis session per week **(5 items).**

Part II: Self-reporting questionnaire sheet:

This part included questions that were answered by the study patients regarding satisfaction about different aspects of nursing care in hemodialysis unit. It was a three points likert scale that ranged from (strongly disagree, to strongly agree). This questionnaire sheet adopted from **(Ali, Salem& Salem, 2015)**. It comprised five parts:

-The first part: **physical care:** It included statement related to: Physical assessment, vascular access care, medication administration, maintains patient safety, prevention and management of HD related-complication **(67 items)**.

-The second part: **psychological care:** It included statement related to: trustful confidential relationship, using therapeutic communication techniques, dealing with patient anxiety, and acceptance of patients and humanity of care **(24 items)**.

-The third part: **Social care:** Included statement related to: orientation to person, place and time, social contact and interaction and referral to social support resources **(8 items)**.

-The forth part: **Spiritual care:** Included statement related to: meeting the spiritual needs and dealing with spiritual distress **(4 items)**.

-The fifth part: **Nursing health teaching:** It included statements related to: dietary and fluid intake, exercise, vascular access care, skin care, medication as well as follow up schedule **(28 items)**.

Scoring system:

Every participant expressed response for statements about different aspects of nursing care on a three points likert scale ranging from (1) for disagree, (2) for neutral, and (3) for agree. Agree means highly satisfied, neutral means satisfied, disagree means dissatisfied. The total score was summed and transformed to percentage. Afterwards, the patients' responses were categorized into highly satisfied, satisfied, and dissatisfied as follows:

Highly satisfied: Equal to or more than 75% of total score of patients responses to the provided care aspects.

Satisfied: Equal to or more than 50% to less than 75% of total score for patient's responses to the provided care aspect.

Dissatisfied: Less than 50% of total score for patients responses to the provided care aspect.

Operational design

The operational design includes preparatory phase, content validity, pilot study and field work.

Preparatory phase:

It included reviewing of related literature, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazine, to develop tools for data collection.

Tools Validity and reliability

Content validity:

Face and content validity of the study tools was assessed by group of five experts all of them were assistant professors of

medical surgical nursing department at Faculty of Nursing Beni-Seuf University.To measure validity of tools, comprehensiveness, accuracy and clarity in language. And necessary modification was being done.

Reliability:

The reliability of the tool was assessed through measuring their internal consistency by Cronbach Alpha Coefficient which was (0.868) indicating a good internal consistency.

Pilot study:

A pilot study was conducted in a period of three weeks on 10% from the total sample (7 hemodialysis patients) for testing the clarity, applicability, relevance and feasibility of the tool and estimates the time required for the interview, and to detect any possible obstacles that might face the researcher and interfere with data collection based on the result of pilot study, the necessary modifications and clarifications of some questions where done to have more applicable tools for data collection. The sample of patients included in the pilot study was not included in the main study sample.

Field Work

- Permission to carry out the study from responsible authorities in the faculty of nursing at Beni-Suef University after explanation of the purpose of the study was obtained.

- An official permission was obtained from the director of Beni-Suef University Hospital after explanation of the purpose of the study was obtained.

- The researcher interviewed the patient at the hemodialysis unit.

- The researcher introduced herself firstly to the patient at the hemodialysis unit and a brief explanation of the nature and aim of the study was done before each interview.

- Data collection process spanned about 6 months during the period from August 2023 until of January 2024.

- The researcher attended the hemodialysis unit of Beni-Suef university hospital from 9:00 am to 2:00 pm, 3 days per week.

- Each patient was interviewed individually after informed consent for participation in the study according to ethical issues. Once for 30: 45 minutes at the beginning of a hemodialysis session by the researcher to collect the needed data. The interview was conducted at hemodialysis unit after the patient was attached to the hemodialysis machine, vital signs were measured, and patient become physically and psychologically eases.

Data collection process spanned about 6 months during the period from August 2023 until of January 2024

Administrative design

To carry out the study, the necessary approval was obtained from the director of Beni-Suef University Hospital. Official letters were issued to them from the Dean of Faculty of Nursing Beni-Suef University after explaining the aim of the study to obtain permission for the collection of data. A written consent was taken from permission to participate in research process.

Ethical considerations:

Ethical approval was obtained from the scientific committee of faculty of medicine of Beni-Suef University before starting the study. In addition a written informed consent was obtained from each patient included in the study prior to data collection and the researcher clarified the objectives and aim of the study to the studied patients. The researcher assured maintaining anonymity and confidentiality of the subject data also

patients were informed about their rights to participate or withdraw from the study at any time.

Statistical design

After completion of data collection, the data were categorized, scored, tabulated and analyzed and relationships established using the appropriate statistical methods.

Data were analyzed using the statistical package for social sciences (SPSS 22.0) for descriptive statistics in the form of frequencies and percentages for categorical variables.

-Mean, Standard deviation were used for continues variables. Pearson correlation coefficient (r) was used for measuring the correlation between numerical variables.

-Chi square tests χ^2 were used for correlating categorical variables. Significance level was set at $P <0.05$.

RESULTS

Table (1): illustrated that (47.2%) of the studied patients were in aged group equal to or more than 50 years old and their mean age (47.29±12.70 years) , more than half of them (58.6% , 50% & 51.4 %) respectively, were male, married and lived in urban areas. Pertaining to their education, (41.5%) of the studied patient had university education. Meanwhile, (60%) of them reported had not enough family income.

Table (2) showed that (71.4%) of the studied patients had chronic diseases other than chronic kidney disease with (44.3%) of them had hypertension. Meanwhile, (58.6%) of the studied patients were previously hospitalized, and (97.1%) had history of using sedatives.

Table (3) revealed that, (38.6%) of the studied patients had chronic kidney disease and started hemodialysis sessions since more than three years. In relation to number of HD session per week, (70%) of the studied patients had

three sessions. Meanwhile, (100%) had complications during hemodialysis with the majority of HD patient (88.6%, 82.9%, 81.4% and 81.4%) were suffering from the following complication difficult breathing, muscle cramps, chest pain and hypotension respectively.

Table (4): summarized that, overall mean score of the studied patients' satisfaction regarding physical care was (141.61±10.59) with mean percent (71.5%) indicating a stisfied. Regarding the dimensions of physical care, the highest mean score was for maintaining patient safety (13.48±1.70) with mean percent (89.9%).

Table (5): showed the overall mean score of the studied patients' satisfaction regarding psychological care was (45.14±5.29) with mean percent (62.7%) indicating a satisfied. Regarding the dimensions of psychological care, the highest mean percent was for trust confidential relationship (67.7%) while the lowest mean percent was for humanity of care (57.6%).

Table (6): illustrated that, the overall mean score of the studied patients' satisfaction regarding social care provided in hemodialysis unit was (13.27±2.50) with mean percent (55.3%) indicating a dissatisfied regarding social support. Pertaining to the dimensions of social support, the highest mean percent was for social contact and interaction (56.9%) while the lowest mean percent was for referral to social support resources (52%).

Figure (2) illustrated that, almost (98.6%) of the studied patients were satisfied and minority (1.4%) of them was highly satisfied regarding nursing care provided in hemodialysis unit.

Table (7) summarized that, the overall mean score of the studied patients' satisfaction regarding spiritual care was (6.97±1.36) with mean percent (58.1%) indicating a satisfied. Concerning the dimensions of spiritual care, the highest mean percent was for meeting spiritual needs (58.3%).

Table (8): summarized that, the overall mean score of the studied patients' satisfaction regarding nursing health teaching was (56.91±5.48) with mean percent (67.8%) indicating a satisfied. Regarding the dimensions of heath teaching, the highest mean percent was for follow up schedule (100%) while the lowest mean percent was

Figure (1) summarized that, nearly all studied patients (98.6%) had satisfied regarding nursing care provided in HD unit. Regarding the dimensions of care, the majority of the studied patients had satisfied about physical, psychological and nursing

for dietary and fluid intake (51.7%). Regarding the overall patients' satisfaction regarding nursing care provided in the hemodialysis unit, the overall mean score of the studied patients' satisfaction was (263.91±18.59) with mean percent (67.7%) indicating moderate levels of satisfaction.

health teaching (85.7%, 80% and 90%) respectively. About two thirds of the studied patient (61.4%) had dissatisfaction about social care and half of them (50%) also had dissatisfaction about spiritual care.

Table (1): The distribution of the studied patients in hemodialysis unit in relation to their socio-demographics characteristics (n=70).

Socio-demographics characteristics	No.	%
Age (years)		
− 20 < 30	9	12.8
− 30 < 40	13	18.6
− 40 < 50	15	21.4
− 50 and more	33	47.2
Mean±SD	47.29±12.70	
Gender		
− Male	41	58.6
− Female	29	41.4
Marital status		
− Single	12	17.1
− Married	35	50
− Divorced	9	12.9
− Widowed	14	20
Place of Residence		
− Urban	36	51.4
− Rural	34	48.6
Education		
− Illiterate	8	11.4
− Primary/Preparatory	7	10
− Secondary	26	37.1
− University	29	41.5
Occupation		
− Employee	21	30
− Freelancer	14	20
− Retirement	9	12.9
− House Wife	15	21.4
− Don't Work	11	15.7
Monthly Family Income		
− Enough	28	40
− Not Enough	42	60

Table (2):   The distribution of the studied patients in hemodialysis unit in relation to their past medical history (n=70).

Past medical history	No.	%
Presence of chronic diseases other than chronic kidney disease		
− Yes	50	71.4
− No	20	28.6
Types of Chronic Diseases *		
− Cardiac disease	18	25.7
− Hypertension	31	44.3
− Diabetes mellitus	19	27.1
− Cancer	2	2.9
− Liver disease	21	30
− Autoimmune disease	19	27.1
Previous Hospitalization		
− Yes	41	58.6
− No	29	41.4
History of Drugs		
− Yes	68	97.1
− No	2	2.9
Type of Drugs*		
− Sedatives	68	97.1
− Antibiotics	52	74.3
− Anti-inflammatory drugs	43	61.4
− Anticoagulant drugs	19	27.1
*This variable is not mutually exclusive		

Table (3):   The distribution of the studied patients as regarding to their recent medical history (n=70).

Recent medical history	No.	%
When did you have chronic kidney disease?		
− 6 months: Less than one year	4	5.7
− One year: Less than two years	25	35.7
− Two years: Less than Three years	14	20
− More than three years	27	38.6
When did you start hemodialysis sessions?		
− 6 months: Less than one year	5	7.1
− One year: Less than two years	25	35.7
− Two years: Less than Three years	13	18.6
− More than three years	27	38.6
Number of hemodialysis sessions per week		
− One session	5	7.1
− Two sessions	16	22.9
− Three sessions	49	70
Number of hemodialysis hours per session		
− Two hours	15	21.4
− Three hours	32	45.7
− Four hours	23	32.9

Presence of any complications during hemodialysis session		
– Yes	70	100
– No	0	0
Type of complications*		
– Chest pain	57	81.4
– Hypotension	57	81.4
– Arrhythmia	52	74.3
– Difficult breathing	62	88.6
– Muscle cramp	58	82.9
– Blood line separation	23	32.9
– Skin problems	56	80.0
– Hyperthermia	62	88.6
*This variable is not mutually exclusive		

Table (Table (4): Overall mean score of the studied patients' satisfaction regarding physical care provided in hemodialysis unit (n=70).

Variables	Range	Mean±SD	Mean (%)	Rank
Physical Assessment				
– Before hemodialysis session	19 – 57	31.88±4.36	55.9	13
– During hemodialysis session	4 – 12	7.80±1.55	65	10
– After hemodialysis session	5 – 15	9.54±1.67	63.6	11
– Overall Physical Assessment	28 – 84	49.22±6.20	58.6	12
Vascular Access Care	10 – 30	24.72±3.95	82.4	3
Medication Administration	3 – 9	7.34±0.97	81.6	4
Maintaining Patient Safety	5 – 15	13.48±1.70	89.9	1
Prevention of Complication				
– Prevention of Hypotension	5 – 15	11.24±1.56	74.9	8
– Prevention of Muscle Cramp	4 – 12	8.68±1.58	72.3	9
– Prevention of Arrhythmia and Chest Pain	5 – 15	11.32±2.15	75.5	7
– Prevention of Headache	1 – 3	2.34±0.56	78	6
– Prevention of Bloodline Separation	5 – 15	13.22±1.57	88.1	2
– Overall Prevention of Complication	20 – 60	46.82±4.04	78.1	5
Overall Physical Care	66 – 198	141.61±10.59	71.5	

Table (5): Overall mean score of the studied patients' satisfaction regarding Psychological care provided in hemodialysis unit (n=70).

Variables	Range	Mean±SD	Mean (%)	Rank
Psychological Care dimensions				

	Range	Mean±SD	Mean (%)	Rank
Trustful confidential relationship	4 – 12	8.12±1.45	67.7	1
Therapeutic communication				
– Empathy	3 – 9	5.95±1.49	66.1	2
– Active listening	1 – 3	1.91±0.63	63.7	5
– Silence	2 – 6	3.75±0.98	62.5	6
– Clarification	1 – 3	1.93±0.55	64.3	4
– **Overall communication**	7 – 21	13.52±2.77	64.4	3
Dealing with patient anxiety	6 – 18	10.95±1.61	60.8	8
Acceptance of patients	4 – 12	7.34±1.43	61.2	7
Humanity of Care	3 – 9	5.18±1.12	57.6	9
Overall Psychological Care	24 – 72	45.14±5.29	62.7	

Table (6): Overall mean score of the studied patients' satisfaction regarding social care provided in hemodialysis unit (n=70).
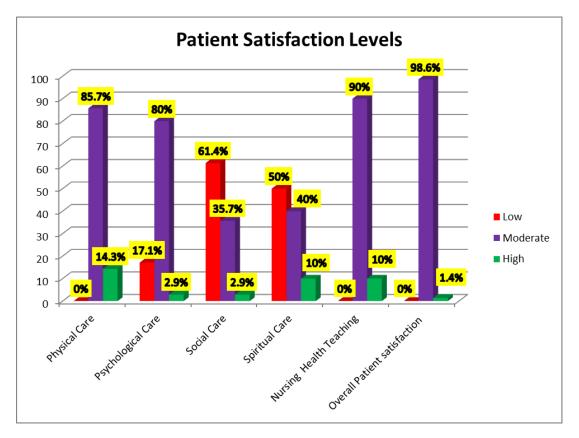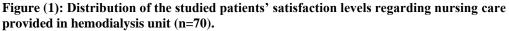
Variables	Range	Mean±SD	Mean (%)	Rank
Social Care dimensions				
– Orientation to time, place & persons	3 – 9	5.01±1.67	55.7	2
– Social contact and interaction	3 – 9	5.12±1.17	56.9	1
– Referral to social support	2 – 6	3.12±1.07	52	3
Overall Social Care	8 – 24	13.27±2.50	55.3	

Table (7): Overall mean score of the studied patients' satisfaction regarding spiritual care provided in hemodialysis unit (n=70).

Variables	Range	Mean±SD	Mean (%)	Rank
Spiritual Care Dimensions				
– Meeting Spiritual Needs	2 – 6	3.50±1.10	58.3	1
– Dealing with spiritual stress	2 – 6	3.47±1.16	57.8	2
Overall Spiritual Care	4 – 12	6.97±1.36	58.1	

Table (8): Overall mean score of the studied patients' satisfaction regarding nursing health teaching provided in hemodialysis unit (n=70).

Variables	Range	Mean±SD	Mean (%)	Rank
Nursing Health Teaching				
− Dietary and fluid intake	6 – 18	9.31±1.81	51.7	6
− Exercise	3 – 9	6.02±1.59	66.9	3
− Vascular access care	8 – 24	18.25±2.95	76	2
− Skin care	4 -12	7.10±1.64	59.2	5
− Medication	4 – 12	7.21±1.81	60.1	4
− Follow up schedule	3 – 9	9.00±0.00	100	1
Overall Nursing Health Teaching	28 – 84	56.91±5.48	67.8	
Overall Patient Satisfaction	130 - 390	263.91±18.59	67.7	

Figure (1): Distribution of the studied patients' satisfaction levels regarding nursing care provided in hemodialysis unit (n=70).

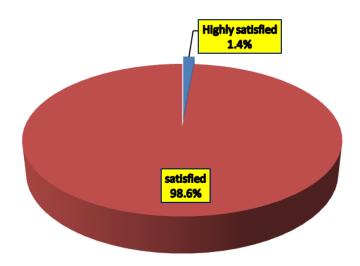# Overall patients' Satisfaction

Figure (2): Distribution of the studied patients' total satisfaction levels regarding nursing care provided in hemodialysis unit (n=70).

DISCUSSION

Hemodialysis (HD) has served as the primary modality for blood purification and ultrafiltration in patients diagnosed with end stage kidney disease. Hemodialysis procedures are considered as a supportive management for kidney failure. The number of people with end-stage renal disease is rising all around the world, and the number of people who need hemodialysis is rising as well. Approximately 2.5 million people worldwide received chronic renal failure **(Besely, et al. 2019).**

Patients on hemodialysis spend significant amount of time in dialysis center, the satisfaction with care provided there has an important impact on quality of their lives and it improves patient-outcome. Better communication of staff with patients, plays important role for better results. Care provided at hospital is not only limited by doctors but nurses, paramedical staff, technician and managers all play a vital role. Moreover, education level, earning and family support, age, marital status all affect patients adherence to treatment and satisfaction **(Iqbal, et al. 2021).**

Socio-demographic characteristics of the studied patients.

In relation to patients' age: the current study revealed that, nearly half of the studied patients were aged equal to or more than 50 years old with their mean ages were (47.29±12.70 years), in the researcher point of view this might be related to that, most of hemodialysis patients had chronic kidney failure which need long time for occurrence. This study finding was supported by **(Ramdan, et al. 2021)** who conducted a study and reported that less than half of the studied patients in Minia University their age group were 40-60 years. Also, this result was on the same line with **(Ahoui, et al. 2019)** who carried out a study and mentioned that more

than one third of the studied patients their age group was ≥ 55 years.

Also, the present study summarized that, more than half of the studied patients were male, married and lived in urban areas. This study finding was in agreement with **(Al-Khazaali, et al. 2021)** who conducted a study found that the highest percentage of the studied patients were males, married and living in urban areas. Also, this study finding was agreed with **(Alharbi, et al. 2022)** in their study who stated that more than three quarters of the studied patients were married and from urban areas.

Concerning patients' past medical history, the current study reported that, nearly three quarters of the studied patients had chronic diseases other than chronic kidney disease, in the researcher point of view; this could be related to that, patients under hemodialysis more liable for other chronic diseases as hypertension. This finding was in the same line with **(Jeong, 2023),** who studied found that the majority of the studied patients had chronic comorbidities as diabetes mellitus and hypertension.

Also, the present study revealed that, less than half of the studied patients had hypertension. This study was in agreement with **(Al-Khazaali, et al. 2021)** who stated that less than one quarter of the studied patients was suffered from hypertension. In contrast, this finding was disagreement with **(Vahed & Karami, 2019)** who conducted a reported that less than three quarters of the studied patients had hypertension.

In addition the current study found that, more than half of the studied patients were previously hospitalized, and almost of them had drug history as sedatives, in the researcher point of view this might be related to that, hemodialysis has common complications as hypotension and electrolyte imbalance which increased incidence of patients for hospitalization. This result was supported by **(Jeong, 2023)** in their study who mentioned that more than half of the studied patients were hospitalized previously and received sedatives as pain killer.

Regarding recent medical history, the present study reported that, more than one third of the studied patients had chronic kidney disease and started hemodialysis sessions since more than three years, in the researcher point of view this could be related to that, almost of them had drug history as sedatives. This study finding was similar to **(Ahoui, et al. 2019,)** who found that less than half of the studied patients had chronic renal failure as cause of hemodialysis. In contrast, this study was disagreeing to **(Iqbal, et al. 2021)** who carried out a study mentioned that less than one third of the studied patients were started hemodialysis since 3≥5 years.

Meanwhile, the current study revealed that, less than three quarters of the studied patients had three dialysis sessions per week and less than half of them had three hours hemodialysis per session, in the researcher point of view this might be related to that, three dialysis sessions per week is most common among hemodialysis patients. This result was in the same line with **(Togay & Akyüz 2023)** who conducted a study most of the studied patients were received dialysis three times a week. Also, this finding was supported by **(Tayea, et al. 2022)** who carried out a study found that minority of the studied patients had <4 hrs hemodialysis period per session.

In addition, the present study found that, all of the studied patients had complications. The most common complications during sessions were difficult breathing, muscle cramps, chest pain and hypotension. This study was in agreement with **(Yerram & Misra, 2019)** who conducted a study revealed that the most clinical complications among patients undergoing hemodialysis consist of bleeding, thrombosis, hypotension, hypoxemia, cramps, bio-incompatibility and allergic reactions, arrhythmias, febrile reactions, and dialysis disequilibrium syndrome

Studied patients' satisfaction regarding physical care provided in hemodialysis unit

Concerning the studied patients' satisfaction regarding physical care provided in hemodialysis unit, the current study reported that, the majority of the studied patients had satisfied with physical care, with their overall mean score of satisfaction was (141.61±10.59) and the highest mean score of the dimensions of physical care was for maintaining patient safety (13.48±1.70), while only less than fifth of them were highly satisfied, in the researcher point of view, this might be related to that, most nurses pay great attention to infection control and patient safety to prevent changing the patients from negative to positive Virus C or causing them to suffer from other complications that patients do not need.

This finding was in accordance with **(Ambarwati & Dewi, 2024)** in their study found that most of the studied nurses had positive satisfaction regarding implementation and maintenance of patient safety. In contrast, this result was in congruence with **(Iqbal, et al. 2021)** who reported that majority of the participants were satisfied with the care provided at the dialysis center.

Contrariwise, this study was on the same line with **(Ramdan, et al. 2021)** who mentioned that about two thirds of patients have satisfied in selected Hospitals, while about one third of them have high level of satisfaction. In contrast this finding was disagreed with (**Helmy, et al. 2022)** who stated that patients were generally satisfied with the care provided in the dialysis unit; patients were most satisfied with aspects of care related to nurses.

Studied patients' satisfaction regarding psychological care provided in hemodialysis unit

In relation to the studied patients' satisfaction regarding psychological care provided in hemodialysis unit the current study revealed that, the majority of the studied patients had satisfied, with the overall mean score of the studied patients' satisfaction was (45.14±5.29), and the highest mean percent of psychological care was for trust confidential relationship, meanwhile, less than one quarter

of them had dissatisfied and only minority of them had highly satisfaction, in the researcher point of view, this might be related to that, most nurses provide psychological support for patients under hemodialysis because their psychological status can effect negatively on their physical status as their blood pressure.

Regarding the dimensions of psychological care, This result was in agreement with **(Mahmoud, et al. 2022)** who conducted a study revealed that there was a decrease in the patients' level of anxiety and increased in patients' satisfaction level regarding psychological care provided by the nurses after the application of the protocol of nursing care.

Also, this study was in congruence with **(Wu, et al. 2021)** that carried out a study mentioned that most of the studied patients were satisfied regarding emotional care provided by nurses.

This finding was disagreed with **(Al Nuairi, et al. 2022)** who conducted a study found that poor psychological support of nurses contribute in dissatisfaction of most hemodialysis patients.

In relation to the studied patients' satisfaction regarding social care provided in hemodialysis unit

Concerning the studied patients' satisfaction regarding social care provided in hemodialysis unit, the current study reported that, less than two third of the studied patients had dissatisfied, meanwhile, more than one third of them had satisfied and minority of them were highly satisfied. With the overall mean score of satisfaction was (13.27±2.50). And the highest mean percent of social support was for social contact and interaction while, the lowest mean percent was for referral to social support resources, in the researcher point of view, this might be related to that, most nurses pay great attention to providing physical nursing care rather than social care.

This finding was agreed with **(Al atawi & Alaamri, 2021)** who conducted a

study found that help nurses boost the factors related to social support that contribute to successful functioning and consequent improvement in patient adherence. Also, this study was supported by **(Alshraifeen, et al. 2020)** who carried out a study stated that the social and financial supports improve patients' quality of life and reduce their physical problems. This result was similar to **(Alshammari, et al. 2023)** who carried out a revealed that the majority of the studied patients had poor social support.

Concerning the studied patients' satisfaction regarding spiritual care provided in hemodialysis unit

The current study reported that, half of the studied patients had dissatisfaction with spiritual care, two fifths of them were satisfied and minority of them were highly satisfied, with the overall mean score of satisfaction was (6.97±1.36), and the highest mean percent was for meeting spiritual needs, in the researcher point of view, this might be related to that, the hemodialysis nurses had many duties during the sessions so there is no enough time for provide spiritual care for patients.

This study was in accordance with **(George, et al. 2022)** who conducted a study revealed that less than one quarter of the studied patients had high social support and more than one quarter of them had moderate social support. In contrast, this result was in congruence with **(Asiri, et al. 2023)** who studied stated that more than three quarters of the studied patients had high perceived social support.

This result was supported by **(Zhang, et al. 2020)** who conducted a study mentioned that the studied patients had a moderate level of spiritual health.

. This study was similar to **(Bahar, 2023)** who carried out a study stated that less than half of the studied patients had moderate spiritual health and less than one quarter had high spiritual health. In contrast, this result was dissimilar to **(Musa, et al. 2022)** who conducted a study mentioned that the

Jordanian hemodialysis patients had a moderate level of spiritual wellbeing and religious wellbeing.

In relation to studied patients' satisfaction regarding nursing health teaching provided in hemodialysis unit

The present study revealed that, most of the studied patients had satisfied, while minority of them were highly satisfied, with the overall mean score of satisfaction was (56.91±5.48) and the highest mean percent was for follow up schedule while the lowest mean percent was for dietary and fluid intake, in the researcher point of view, this might be related to that, the hemodialysis nurses pay attention to providing health education for patients because health education positively affects patients' behaviors and practices in maintaining the AV fistula, dry weight and reducing the occurrence of complications of hemodialysis.

Concerning the overall patients' satisfaction regarding nursing care provided in the hemodialysis unit this study revealed that, more than two thirds of the studied patients had satisfied. And the overall mean score of patients' satisfaction was (263.91±18.59).

This study was similar to **(Saleh, et al. 2018)** who conducted a study stated that minority of the studied nurses had good practices regarding health education and the lowest mean was for dietary and fluid restriction.

In relation to the studied patients' satisfaction levels regarding nursing education, the present study revealed that, most of patients were satisfied with nursing education, , in the researcher point of view, this might be related to that most nurses busy in providing physical care for hemodialysis patients than providing health education. This result was supported by **(Helmy, et al. 2022)** who mentioned that majority of the studied patients were neutral regarding nurses and medical staff explanation and education regarding treatment, side effect and daily living activities.

Regarding the dimensions of care, the majority of the studied patients had satisfied about physical, psychological and nursing health teaching. About two thirds of the studied patient had dissatisfied about social care and half of them also had dissatisfied about spiritual care. This finding was similar to **(Door & Mukhtar, 2019)** who stated that three quarters of the studied patients had satisfied regarding direct nursing care and physical environment. Also, this study was agreed with **(Balouchi, et al. 2021)** who conducted a study mentioned that most patients were dissatisfied regarding social and spiritual support.

In contrast, this study results were in disagreement with **(Iqbal, et al. 2021)** who stated that most of patients were satisfied with the psychological and emotional support. Also, these study findings were disagreed with **(Nabili & Bastani, 2020)** who conducted a mentioned that majority of the studied patients were satisfied regarding psychological care, communication and physical care.

In relation to the studied patients' satisfaction levels regarding nursing care provided in hemodialysis unit, the present study found that, almost of the studied patients were satisfied and minority of them were highly satisfied regarding nursing care provided in hemodialysis unit, in the researcher point of view, this could be related to that, patients look forward to a better level of care and more attention from all aspects of nursing provided by nurses.

This study was in accordance with **(Parimala & Sofia 2021)** who carried out a study revealed that less than one quarter of the studied patients were satisfied regarding nursing care. In contrast, this result was in congruence with **(Helmy, et al. 2022)** who reported that most of the studied patients were satisfied with aspects of care related to nurses. Also, this study results were disagreed with **(Sharma, 2018)** who conducted a study mentioned that more than two thirds of the studied maintenance hemodialysis patients were satisfied with the care.

CONCLUSION

Based on findings of the present study, it can be concluded that, the majority of the studied patients had satisfied about physical, psychological care and nursing health teaching. Meanwhile, about two thirds of the studied patients had dissatisfied regarding social care, also half of them had dissatisfied regarding spiritual care. So, almost of the studied patients were satisfied regarding nursing care provided in hemodialysis unit, In contrast, minority of them were highly satisfied regarding nursing care provided in hemodialysis unit.

Also, there was strong positive correlation between physical, psychological, social care, health teaching, and overall patient satisfaction. In contrast, there was no statistical significant relation between all patients' personal characteristics and their level of satisfaction.

RECOMMENDATIONS

Based on the findings of the present study, the following can be recommended:

- Great emphasize should be directed toward the educational aspects at hemodialysis unit by providing educational posters, guidelines, pamphlets and manuals and it is provided modern educational nursing team at hem-dialysis enhance health education.

- Training program must be provided for all dialysis nurses to improve their relationship and communication with hemodialysis patients to enhance patients' satisfaction.

- In order to improve patient satisfaction with nursing care and overall health care services, the hospital needs t o provide the renal unit with more dialysis equipment.

- Administrators, practitioners and evaluators of health care service of the hospital should give attention to

enhance the level of patients' satisfaction.

- The government and all other concerned bodies should emphasis on the means of support or way to subside the costs for dialysis up to making for free.

- Future studies should target diverse populations in order to test whether similar factors are similarly important for hemodialysis patients' satisfaction regarding nursing care.

- Replication of the same study on larger probability sample at different geographical locations for data generalizability.

REFERENCES

Ahoui, S., Vigan, J., Agboton, B. L., Eteka, E., et al. (2019): Hemodialysis patients' satisfaction and associated factors in national teaching hospital hemodialysis center, Cotonou (Benin). Open Journal of Nephrology, Vol,09(04),PP:(127-138). doi:10.4236/ojneph.2019.94013.

Al atawi, A. A., & Alaamri, M. M. (2021): The relationship between perceived social support and adherence to treatment regimens among patients undergoing hemodialysis. *Evidence-Based Nursing Research*, Vol,*4*(1), P:17. doi:10.47104/ebnrojs3.v4i1.231.

Alharbi, H. F., Alzahrani, N. S., Almarwani, A. M., Asiri, S. A., & Alhowaymel, F. M. (2023): Patients' satisfaction with nursing care quality and associated factors: A cross-section study. Nursing open, Vol,10(5), PP:(3253-3262).

Al Nuairi, A., Bermamet, H., Abdulla, H., Simsekler, M. C., et al. (2022): Identifying patient satisfaction determinants in hemodialysis settings. *Risk Management and Healthcare Policy*, Vol,*15*, PP:(1843-1857). doi:10.2147/rmhp.s372094.

Al-Khazaali, I. A., Hameed, D. M., & Eidan, A. J. (2021): Quality of Healthcare Services toward Hemodialysis Unit in Al Diwaniyha Government. *Annals of R.S.C.B*, Vol,*25*(4), PP:(16979-16986). Retrieved from http://annalsofrscb.ro/index.php/journal/article/download/7432/5517/13253.

Alshammari, B., Alkubati, S. A., Pasay-an, E., Alrasheeday, A., Madkhali, N., Edison, J. S., & Alshammari, F. (2023): The influence of social support on sleep and fatigue level among patients receiving hemodialysis in Saudi Arabia: A cross-sectional correlational design. *Frontiers in Psychology*, P:*14*. doi:10.3389/fpsyg.2023.1272500.

Alshraifeen, A., Al-Rawashdeh, S., Alnuaimi, K., Alzoubi, F., et al. (2020): Social support predicted quality of life in people receiving haemodialysis treatment: A cross-sectional survey. *Nursing Open*, Vol,*7*(5), PP:(1517-1525). doi:10.1002/nop2.533.

Ambarwati, D., & Dewi, A. (2024): The implementation of patient safety goals for patients' satisfaction in the hemodialysis unit. *Jurnal Administrasi Kesehatan Indonesia*, Vol,*12*(1), PP:(25-36). doi:10.20473/jaki.v12i1.2024.25-36.

Asiri, W. A., Asiri, A. A., Almutlaq, A. H., Almutairi, K. H., et al. (2023): Social support, religiosity, and quality of life among haemodialysis patients in Aseer region, Saudi Arabia. *Middle East Current Psychiatry*, Vol,*30*(1). doi:10.1186/s43045-023-00306-4.

Bahar, A. (2023): Depression and Spiritual Well-Being of Hemodialysis Patients:

A Sectional Study. *J Contemp Med*, Vol,*13*(4), PP:(593-598). Retrieved from https://dergipark.org.tr/en/download/article-file/3027478 Accessed in April 2024.

Balouchi, A., Ebadi, A., Parvizy, S., & Sharif Nia, H. (2021): Patient perceived quality of nursing care in hemodialysis. *Healthcare in Low-resource Settings*, Vol,*8*(1). doi:10.4081/hls.2021.9320.

Besely, W. N., Faheim, S. S., & Amr, E. F. (2019): Effect of Implementing A Health Education Program For Nurses on Satisfaction Level of Patients Undergoing Hemodialysis. *Journal of Nursing and Health Science*, Vol,*7*(4), PP:(45-57). Retrieved from https://asalexu.journals.ekb.eg/article_354344_102b94c726c84cc0a24e5177a5cdee36.pdf.

Bello, A. K., Okpechi, I. G., Levin, A., Ye, F., et al. (2024): An update on the global disparities in kidney disease burden and care across world countries and regions. The Lancet Global Health, Vol,12(3), PP:(e382-e395).

Door, Z. H., & Mukhtar, H. F. (2019): The Satisfaction of Patients on Maintenance Hemodialysis Concerning the Provided Nursing Care in Hemodialysis Units. *Journal of Nursing and Health Science*, vol,*8*(6), PP:(25-35). Retrieved from https://www.iosrjournals.org/iosr-jnhs/papers/vol8-issue6/Series-12/D0806122535.pdf

El Kass, S. M. A., El-Senousy, T. A., &Jumaa, N. A. (2020): Factors Affecting Quality of Life among Patients Undergoing Hemodialysis Program in Gaza Strip. International Journal of Caring Sciences, Vol,13(2),PP:(1221–1229). https://search.proquest.com/scholarlyj

ournals/factors-affecting-quality-life-among-patients/docview/2462488073/se-2?accountid=25704

ElSayed, N. A., Aleppo, G., Aroda, V. R., Bannuru, R. R., et al. (2023): 11. Chronic Kidney Disease and Risk Management: Standards of Care in Diabetes—2023. *Diabetes Care*, Vol,*46*(Supplement_1), PP:(S191-S202).

George, S., Zaidi, S. Z., & Kazmi, S. S. (2022): Stress, anxiety and perceived social support among hemodialysis patients with chronic kidney disease. *International journal of health sciences*, PP:(9494-9507). doi:10.53730/ijhs.v6ns1.7184.

Helmy, N. H., Hussein, A., Kamal, M., Minshawy, O. E., & Wahsh, E. A. (2022): Hemodialysis patients' satisfaction with dialysis care: A cross-sectional prospective study conducted in a non-profitable care facility, Minia Egypt. *BMC Nephrology*, Vol,*23*(1). doi:10.1186/s12882-022-03010-3.

Iqbal, M. S., Iqbal, Q., Iqbal, S., & Ashraf, S. (2021): Hemodialysis as long term treatment: Patients satisfaction and its impact on quality of life. Pakistan Journal of Medical Sciences, Vol,37(2). doi:10.12669/pjms.37.2.2747.

Ibrahim, M. E. T., Gouda, D. K., Ali El-sayed, S. S., & Abd-Elmaksoud, S. F. (2023): Depression among Egyptian End Stage Renal Disease Patients Under Maintenance Hemodialysis. *Benha Journal of Applied Sciences*, vol,*8*(1), PP:(9-18).

Jeong, E. (2023): Impact on health outcomes of hemodialysis patients based on the experience level of registered nurses in the hemodialysis department: A cross-sectional analysis. Frontiers in Health Services, 3. doi:10.3389/frhs.2023.1154989.

Karaca, A., & Durna, Z. (2019): Patient satisfaction with the quality of nursing care. *Nursing Open*, Vol,*6*(2), PP:(535-545). doi:10.1002/nop2.237.

Kamal Eldin Ali, F., Sayed Abdelaziz, F., & Mohammed Elmawafie, S. (2024): Assessment of Anxiety and Stress Levels in Children Undergoing Hemodialysis. *Egyptian Journal of Health Care*, Vol,*15*(1), PP:(82-102).

Kameel Zatton, H., Mohamed Taha, N., & Ali Metwaly, E. (2023): Effect of Educational Guidelines on Knowledge, health care practices and Dependency Level for Patients Undergoing Hemodialysis. Egyptian Journal of Health Care, Vol,14(1), PP:(594-610).

Mahmoud, A. A., Ragheb, M. M., Mohamed, S. S., & Ibrahim, R. A. (2022): Effect of implementing nursing care protocol on critical patients' safety outcomes. *Journal of Nursing Science Benha University*, Vol,*3*(1), PP:(770-790). doi:10.21608/jnsbu.2022.215389.

Monardo, P., Lacquaniti, A., Campo, S., Bucca, M., et al. (2021, May): Updates on hemodialysis techniques with a common denominator: The personalization of the dialytic therapy. In Seminars in dialysis (Vol. 34, No. 3, pp:(183-195).

Musa, A. S., Elbqowm, O., AlBashtawy, M., Al Qadire, M. I., et al. (2022): Spiritual wellbeing and quality of life among hemodialysis patients in Jordan: A cross-sectional correlational study. *Journal of Holistic Nursing*, Vol,*41*(3), PP:(220-232). doi:10.1177/08980101221083422.

Nabili, A., & Bastani, F. (2020): Evaluate quality of nursing care from the viewpoint of elderly patients under hemodialysis in selected Medical Education Centers of Iran University of Medical Sciences. *IJNR*, Vol,*15*(3),

PP:(10-21). Retrieved from https://ijnr.ir/article-1-2391-en.html.

Parimala, L., & Sofia, M. (2021): Assessment of satisfaction level and quality of life among haemodialysis patient's on dialysis therapy. *Medico-Legal Update*. doi:10.37506/mlu.v21i1.2400.

Ramdan, D., Abd Elrhman, S., & Abdel-ELRahman, T. (2021): Relationship between nurses' motivation and patients' satisfaction in dialysis units in Minia city. *Minia Scientific Nursing Journal*,Vol, *010*(1), PP:(55-67). doi:10.21608/msnj.2021.98250.1004.

Rodrigues, R., & Costeira, C. (2024): Pain Assessment in Patients during Hemodialysis Treatment: Quality Improvement Project. *Nursing Reports*, Vol,*14*(2), PP:(1370-1387).

Saleh, M. S., Ali, J., & Afifi, W. M. (2018): Nurses Compliance to Standards of Nursing Care for Hemodialysis Patients : Educational and Training Intervention. *JMU*, Vol,*4*(8), PP:(42-49). Retrieved from https://www.semanticscholar.org/paper/Nurses-Compliance-to-Standards-of-Nursing-Care-for-Saleh-Ali/799cf1c4fcfc1c3c278654ebdb2a38ac9744bb9f.

Soliman, A. E., Magdy, S., Ayoub, H. S., & Ebid, A. H. I. (2024): Short versus long-acting erythropoiesis-stimulating agents for anemia management in Egyptian hemodialysis patients. Qatar Medical Journal, Vol,2024(1), P:16.

Sihaloho, E. N., Aulia, D., & Arruum, D. (2024): The Influence Of Service Quality On The Satisfaction And Loyalty Of Hemodialysis Patients At Mitra Medika Amplas Hospital, Medan. International Journal of Health, Education & Social (IJHES), Vol, 7(7), PP:(1-20).

Salmani, Z., Shiri, H., Mofrad, M. N., & Nasiri, M. (2020): The effect of nursing communication skills training on satisfaction of patients undergoing hemodialysis. *Journal of Pharmaceutical Research International*, PP:(1-8). doi:10.9734/jpri/2019/v31i630383.

Sharma, M. (2018): Satisfaction with care in hemodialysis unit among maintenance hemodialysis (MHD) patients. *JLMJ*, Vol,*8*(1), PP:(1-4). Retrieved from https://www.semanticscholar.org/pape r/SATISFACTION-WITH-CARE-IN-HEMODIALYSIS-UNIT-AMONG-Sharma/609d7fc350fd56e73549b96e0 dcb6b7e55c6f5ef.

Tayea, K., Hussein, M., Khalil, B., & El Wasif, S. (2022): Effect of hemodialysis long life program on the quality of life of patients with end stage renal disease. *Egyptian Journal of Health Care*, Vol,*13*(2), PP:(857-871). doi:10.21608/ejhc.2022.235596.

Togay, E., & Akyüz, H. Ö. (2023): Examinations of effects of socio-demographic features and disease-related data of patients with hemodialysis on the quality of life. *Scientific Reports*, Vol,*13*(1). doi:10.1038/s41598-023-43473-4.

Vahed, N., & Karami, R. (2019): Comparison of Marital Satisfaction in Hemodialysis and Peritoneal Dialysis Patients. *Quarterly of Clinical Psychology Studies*, Vol,*10*(37), PP:(109-127). Retrieved from https://jcps.atu.ac.ir/article_11501_221620 4269a4438adb5b0320ab3b8ceb.pdf

Wu, T., Gao, M., Shi, J., Xu, L., et al. (2021): Study on the application and efficacy of responsibility nursing in dialysis care. *Journal of Healthcare Engineering*, *2021*, PP:(1-6). doi:10.1155/2021/2210191.

Yerram, P., & Misra, M. (2019): Technical and clinical complications of intermittent hemodialysis in the intensive care unit. Critical Care Nephrology, Pp:(933-941).e3. doi:10.1016/b978-0-323-44942-7.00154-0.

Zhang, Y., Xue, G., Chen, Y., An, K., & Chen, L. (2020): Factors related to spiritual health in Chinese haemodialysis patients: A multicentre cross-sectional study. Nursing Open, Vol,7(5), PP:(1536-1543). doi:10.1002/nop2.535.