Factors Affecting Sleep Pattern Disturbance for Hemodialysis Patients in Port Said Hospitals

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ABSTRACT

Background: Sleep pattern disturbance is a well-known disorder with a significant frequency among hemodialysis patients with end-stage renal failure. Hemodialysis is the commonest modality of renal replacement therapy in Egypt and many other countries. **Aim:** The present study aimed to explore factors affecting sleep pattern disturbance of hemodialysis patients in Port Said hospitals. **Subjects and Methods: Design:** Descriptive design was used to conduct the study. **Setting:** The study was conducted in hemodialysis units at Port Said hospitals. **Subjects:** The study consisted of a purposive sample of 193 hemodialysis patients. **Tools:** Three tools were used consisted of; **Tool I:** Structured interview to collect data about sociodemographic characteristics, medical and family history, current health status and types of sleep pattern disturbance for hemodialysis patients; **Tool II:** The Pittsburgh sleep quality index; **Tool III:** Factors affecting sleep pattern disturbance for hemodialysis patients' sheet. **Results**: The current study revealed that restless leg syndrome was the highest occurred type of sleep (77.7%), while insomnia was the lowest occurred type of sleep (18.7%) among the studied patients, while, (76.7%) had poor quality of sleep. The most factors that affect sleeping pattern disturbance among the studied patients were life style factors (78.2%) and physiological factors (68.4%). **Conclusion**: Patients were affected by physiological, psychological, medication, life style and hemodialysis factors. Whereas, the majority of hemodialysis patients were had poor sleeping quality. **Recommendations**: promoting programs that help change the life style, which helps to improve the sleep pattern of hemodialysis patients.

Key words: Factors, Hemodialysis, Sleep pattern-disturbance.

INTRODUCTION

The most popular form of renal replacement therapy (RRT) in Egypt and many other nations are hemodialysis (HD). Hemodialysis is well known for reducing numerous uremic symptoms and extending the lives of end stage renal disease (ESRD) patients who might have otherwise passed away (Megahed & Ahmed, 2021). Additionally, Hemodialysis enables individuals with renal failure to filter extra fluid, waste, and different salts from their blood and expel them from their bodies (Ham, Lim, & Lee, 2018). According to the most recent estimate for the prevalence of hemodialysis in Egypt from 2019, and it states that the incidence estimate is 0.192 per 1,000 people, a rate of 0.61 per 1,000 people (Farag & El-Sayed, 2022).

Sleep pattern disturbance is well known as a common problem that affects between 30 to 80% of hemodialysis patients with end-stage renal failure. This is a critical issue because hemodialysis patients with sleep disturbances commonly complain of subjective daytime impairments including mood disturbances, concentration problems, sleepiness, and elevated fatigue (Zheng et al., 2019). Whereas, up to 80% of patients report restless legs syndrome (RLS), sleep disturbed breathing, and poor sleep quality. Shorter sleep duration and more interruptions are linked to a significant decline in the estimated glomerular filtration rate (EGFR) and an increase in proteinuria. Short and poor-quality sleep is a risk factor for the progression of chronic kidney disease (CKD) (Ho, Hsu & Yang, 2022). Calisanie and Gunadi (2021) asserted that sleep pattern disturbance considering a complication of hemodialysis in the forms of rest leg syndrome (RLS), obstructive sleep apnea syndrome (OSAS), snoring, excessive daytime sleepiness (EDS) and narcolepsy. This type of sleep disturbance leads to decreasing sleep quality of hemodialysis patients.

Factors that can cause sleep pattern disturbance include demographic factors (age, gender, occupation, educational level, marital status, ethnicity), lifestyle factors (smoking, drinking coffee) psychological factors, biological factors (predisposing to kidney failure, anemia), environmental factors (comfort, physical environment/pain), and factors of hemodialysis therapy (HD schedule, length of time of HD) **(**Calisanie & Gunadi, 2021). On another hand, obesity and large neck circumference are strong risk factors for "sleep disorder breathing". Whereas there were significance correlations

between high body mass index and the incidence of sleep pattern disturbance in HD patients (Lin, Zhang & Zhang, 2022).

Nurses, doctors, caregivers, educators, and family members all need to pay close attention to sleep quality and be concerned about it on a priority basis. The importance of nursing in resolving this issue must be stressed in care protocols and nurse education since hemodialysis patients spend the most time in hospitals under the care of nurses (Otaghi et al, 2016). Therefore, hemodialysis nurses have a critical role in performing comprehensive patient assessment, to understand the processes of renal failure (RF) disease and make sure the co-morbidities are properly diagnosed and controlled, as well as the symptom load they cause. To give person-centered care to CKD patients it calls for a certain set of abilities and in-depth understanding (Chu et al., 2018).

Significance of the study

It is recommended to offer targeted extended nursing services to hemodialysis patients in order to improve their quality of life because they have a high demand for ongoing care. While the frequency of problems is low and the application benefit of continuous nursing in hemodialysis patients is considerable (Yuan et al., 2021). Whereas, Sleep pattern disturbance of hemodialysis patients can negatively affect patients' feelings, ideas, and motivation. Physical symptoms of patients with poor sleep quality are the following: restlessness, fatigue, an increase in pain sensibility, loss of appetite, constipation and driving related accidents. It is known that sleep problems cause delays in wound healing, increase the perception of pain, and also contribute to difficulty in performing daily tasks (Medic, Wille & Hemels,2017). So, there is an urgent need to conduct this study to explore factors affecting sleep pattern disturbance for patients undergoing hemodialysis.

AIM OF THE STUDY

This study aimed to explore factors affecting sleep pattern disturbance of hemodialysis patients in Port Said hospitals.

SUBJECT AND METHOD

A. Technical design

This design included a description of the research design, setting, subjects, and tools of data collection.

Study design

A descriptive design was utilized in this study.

Study setting

The present study was conducted at the hemodialysis units of Al-Hayat, Al-Tadamon, and Al-Mabara hospitals, affiliated with Universal Health Insurance in Port Said Governorate, Egypt.

Subjects

The study sample consisted of a purposive sample of (193) patients who attended three hemodialysis units at Al Hayat, Al Tadamon and Al-Mabara hospitals.

Sample size

The sample size was calculated according to the equation of Daniel. Biostatistics: A foundation for analysis in the Health Sciences. John Wiley & Sons (1999).

N =318	Total population
Z	Class standard corresponding to the level of significance equal to 0.95 and 1.96
D	The error rate is equal to 0.05
P	Ratio provides a neutral property = 0.50
Confidence level = 95%	

Patients who involved in the study sample were divided to three equal groups through the three work shifts (morning, afternoon& night).

Inclusion criteria

- Adult patients (20-60 years old or more).

Exclusion criteria:

- Patients diagnosed with psychiatric disease, currently undergoing antipsychotic treatment (e.g., depression and bipolar disorders).
- Co-morbid obese patients.
- Patients with Alzheimer's disease.
- Patients under the influence of narcotic drugs.

Tools of Data Collection

Three data collection tools were used in the present study:

Tool 1: Structured interview

The structured interview tool was developed by the researcher based on a review of relevant literature (Shara, 2016; Delmas, et al.,2017). It consisted of patient's socio-demographic data, patients' medical and family health history, patient's current health status and types of sleep pattern disturbance for hemodialysis patients.

This tool included four parts:

- **Part 1: Patients' Socio-demographic data:** It was included data related to age, sex, occupation, level of education, marital status, working status, treatment expenses, job and monthly income.
- **Part 2: Patient's medical and family health history:** It was included patients 'past medical history, family history, co-morbid associated with renal failure.
- **Part 3: Current health status:** It was included patients' weight, blood pressure, temperature, the site of fistula and problems encountered during hemodialysis.
- **Part 4: Types of sleep pattern disturbance for hemodialysis patients**: It was included questions about presents of sleep pattern disturbance as insomnia, hypersomnia, restless leg syndrome, sleep apnea and nightmares.

Tool II: The Pittsburgh sleep quality index (PSQI)

It was adopted from (Buysse, et al.,1989), and translated into Arabic language by the researcher. It aimed to examine the quality of sleep among hemodialysis patients. The PSQI index assesses sleep quality by measuring seven components which are (the subjective quality of sleep, sleep latency, duration, habitual efficiency, and disturbances), and inquire about the use of sleep aids and daytime dysfunction.

Scoring system*:* This evaluation consists of two types of questions. The first is the open-ended type and there are 4 questions in this manner. The second type is answered on a 0 to 3 scale, indicating the frequency of troubled sleeping during the past week, wherein answering with 0 indicates having no trouble at all; with 1, having trouble once; with 2, having trouble twice; and with 3 having trouble three times. The tested subject is considered to have poor sleep quality when his or her total score is 5 or higher and considered to have good sleep quality when his or her total score less than 5.

Tool III: Factors affecting sleep pattern disturbance for hemodialysis patients':

It aimed to assess the factors that affected sleep pattern disturbance. It was adapted from (Mohamed, Ragheb 2019) and modified by the researcher and included factors that affected sleep pattern disturbance, psychological, physiological, environmental factors, complains of other illnesses, factors associated with hemodialysis and factors that promoting sleep.

Scoring system: The responses "yes" were scored (1), the responses "no" were scored (2), no responses were scored (0).

B- Operational design

The present study was conducted through the following phases:

Preparation phase

It includes reviewing the relative and recent literature related to the research topic, different studies and theoretical knowledge of various aspects of the problems using all official websites such as PUBMED, GOOGLE SCHOLAR, MEDLINE database, CINAHL, EBSCO Cochrane Database, and Scopus, Scientific books, Articles,

Periodicals, and Magazines as well as Nursing Centre so as to assist the researcher to be more familiar with the matter and develop the tools for data collections.

Validity

It was ascertained by a jury consisting of nine experts from the medical surgical nursing department. Professors who reviewed the instruments for clarity, relevance, comprehensiveness, and understanding applicability. Comments and suggestions of the jury were considered and necessary modifications, correction and clarifying of the items were done accordingly.

Reliability

Reliability of the second tool Arabic translation for PSQI demonstrates high reliability, with Cronbach's $\alpha = 0.816$. The reliability of the third tool demonstrates high reliability, with Cronbach's $\alpha = 0.79$.

Pilot study

Before entering the study, the pilot study was consisted of 10% (20 patients) of the sample to assess (the clarity, practicability, and feasibility of the tool) and to estimate the proper time required for the interview, and then, modifications were done according to the results. Patients who participated in the pilot study were excluded from the study patients.

Field work

- Oral consent from participation was obtained after explaining the purpose of the study, the researcher started the interviewing process, which lasted for about 15-30 minutes. About 5- 6 patients were interviewed every visit.
- The three tools were completed by the researcher during the interview and patients' weight, heart rate, blood pressure, and temperature were completed from patients' medical records. skin characteristics were observed and monitored for every patient. The actual fieldwork took place over 8 months, within the period from the start of December 2021, and was completed by July 2022.

C- Administrative design

The Dean of the Nursing Faculty at Port Said University sent an official letter containing the title and objectives of the study to the director of the study setting to get their agreement for data collection at the hemodialysis units of Al Hayat, Al Tadamonand, and Al-Mabara hospital.

The director of each setting and the head of the hemodialysis units of the chosen hospitals provided official written approval for the study's conduct, and each participant (patient) provided verbal agreement after being made aware of the study's nature and objectives.

Ethical considerations

Approval was taken from the Nursing Faculty of Port Said university, the ethical committee, and the approval of hospital directors of previous mention study setting, and patients. The researcher explained the study's aim to directors, physicians, nurses, and patients at the HD units of the concerned hospitals before asking for their participation in the study, stressing on confidentiality of the collected data. Following an explanation of the study's nature and objectives, each participant (patient) verbally agreed to be included in the study. The researcher underlined that participation was completely optional and that each patient had the ability to leave the study at any moment without providing a reason.

D. Statistical design

The collected data were organized, tabulated, and statistically analyzed using SPSS software version 23. For comparison two groups using number and percent (frequency) was done using the Wilcoxon Signed Ranks test (z), while more than three groups used the Kruskal-Wallis (K-W) test. The P-value of paired t-test (t) was used to compare between two groups of parametric data after mean and standard deviation measurements were calculated, while comparing more than two groups of parametric data was used a p value of ANOVA test (f). Significance was adopted at $p<0.05$ for a statistically significant interpretation of the results of the significance test. Spearman's correlation test was adopted to test the correlation among variables. Regression analysis also helps in describing the variables of scale.

RESULTS

Table (1): Socio- demographic characteristics of studied hemodialysis patients, the table shows that half (50%) of patients were in the age group (50 - <60 years), while more than half (61.7%) were male, married with residency in Port-said city. Regarding the educational level more than one third of the patients can read and writes and more than one third (35.8%) of the studied patients still in the work. The majority of the studied patient works during the morning and are treated with health insurance. 85% of patients perceived income as not enough.

Table (2): Frequency of complication and problems that occur to the patient during hemodialysis session, the table clarifies that itching was the most common complication that occurred to the patient during hemodialysis sessions in 64.2 % %, skeletal pain was common in 60.6% and numbness was common in 54.9% of the studied patients. While fever was the least common problem that occurred to the patient during the hemodialysis sessions.

Table (3): Distribution of studied patients regarding sleep pattern disturbances for hemodialysis patients, the table shows that restless leg syndrome was the highest occurred type of sleep (77.7%), while insomnia was the lowest occurred type of sleep (18.7%) among the hemodialysis patients.

Figure (1): Quality of sleep among hemodialysis patients according to the Pittsburgh sleep quality index, the figure illustrates that only 23.3% of the patient reported good quality of sleep, while 76.7% reported poor quality of sleep.

Table (4): Studied patients' distribution according to factors affecting sleep pattern disturbance for hemodialysis patients, the table revealed that nursing duties was the most occurring factors among environmental factors that cause difficulty to fall asleep during hemodialysis session (45.6%). While regarding the physiological factors, chronic physical pain occurred at (68.4%). Arthritis was the most common factor that occurred (32.1%). 34.7% of patients feel the pain as cramps, more over 47.7% of them have moderate pain.

Cont. Table (4): According to the table feeling helpless was the most occurring factors among psychological factors that cause difficulty to fall asleep during

hemodialysis session (53.9%). While 78.2 % have suffering from Sleep in the afternoon (Nap). Finally, 55.4% of patients feeling very tired during hemodialysis session.

Table (5): Correlation matrix between factors affecting sleep pattern disturbances and types of sleep pattern disturbance, the table demonstrates that insomnia was significant positively correlated with environmental, physiological, psychological and life style factors. While hypersomnia was significant positively correlated with physiological and life style factors. Also, restless leg syndrome was significant positively correlated with physiological, psychological and life style factors. More over apnea was significant positively correlated with medication and life style factors. Finally, nightmares were significant positively correlated with environmental, psychological, medication and diet related factors.

Table (1): Socio- demographic characteristics of studied hemodialysis patients (n=193).

Personal data		**N**	**%**
Gender	Male	119	61.7
	Female	74	38.3
Age	40-50	19	9.8
	>50-60	98	50.8
	More than 60	76	39.4
	Mean ± SD	**56.83±10.18**	
Educational level	Illiterate	39	20.2
	Read and write	77	39.9
	Basic education	37	19.2
	Secondary school	40	20.7
	University education	39	20.2
Marital status	Married	119	61.7
	Unmarried	20	10.4
	Divorced	4	2.1
	Widowed	50	25.9
Residence	Surround port-said	43	22.3
	Port-said city	134	69.4
	Another city	16	8.3
Occupation	Non-working	57	29.5
	Worker	69	35.8
	Retired	39	20.2
	house wife	28	14.5
Work time (n=69)	Morning	55	79.72
	Afternoon	7	10.14
	Evening	7	10.14
Income	Enough	29	15.0
	Not enough	164	85.0
Treatment charge	His own expense	4	2.0
	State expense	25	13.0
	Health insurance	164	85.0

Table (2): Frequency of complications and problems that occur to the patients during hemodialysis session (n=193).

Complications	Yes		No	
	No	%	No	%
Hypotension	49	25.4	144	74.6
Shivering	75	38.9	118	61.1
Headache	70	36.3	123	63.7
Itching	124	64.2	69	35.8
Nausea & vomiting	49	25.4	144	74.6
Numbness	106	54.9	87	45.1
Loss of appetite	104	53.9	89	46.1
Muscle spasm	97	50.3	96	49.7
Fever	4	2.1	189	97.9
Inflammation of fistula	34	17.6	159	82.4
Disturbance of thinking or Awareness	51	26.4	142	73.6
Chest pain	35	18.1	158	81.9
Back ache	51	26.4	142	73.6
Abdominal pain	70	36.3	123	63.7
Skeletal pain	117	60.6	76	39.4
Dyspnea	54	28.0	139	72.0
Stress and feeling of discomfort	77	39.9	116	60.1
Increase or decrease of heart rate	53	27.5	140	72.5
General weakness	146	75.6	47	24.4

Table (3): Distribution of studied patients regarding sleep pattern disturbances for hemodialysis patients (n=193):

Types of sleep pattern disturbance		No.	Frequency
Insomnia	Yes	36	18.7%
	No	157	81.3%
Hypersomnia	Yes	48	24.9%
	No	145	75.1%
Restless leg syndrome	Yes	150	77.7%
	No	43	22.3%
Apnea	Yes	48	24.9%
	No	145	75.1%
Nightmares	Yes	66	34.2%
	No	127	65.8%

Figure (1): Quality of sleep among hemodialysis patients according to the Pittsburgh sleep quality index (PSQI)

Table (4): Studied patients' distribution according to factors affecting sleep pattern disturbance for hemodialysis patients (n=193):

	Factors at home	**no.**	**%**
Environmental factors	Excessive light	8	4.1
	Noise at home	10	5.2
	Sharing a family member with you in bed	4	2.1
	Relative's movements	30	15.5
	Feeling the change in the air temperature	14	7.3
	Difficulty to fall asleep during hemodialysis session		
	Monitors and devices	8	4.1
	Medical rounds	40	20.7
	Nursing duties	88	45.6
	Noisy	19	9.8
Physiological factors	Arthritis	62	32.1
	Headache	16	8.3
	Backache	43	22.3
	Fibromyalgia	11	5.7
	Intensity of pain:		
	Mild	15	7.8
	Moderate	36	18.7
	Sever	74	38.3
	Very Strong	7	3.6
	Quality of pain:		
	Cramps	67	34.7
	Numbness	19	9.8
	Sharp stab	46	23.8
	Mild	5	2.6
	Moderate	92	47.7
	Sever	50	25.9

Cont. Table (4): Studied patients' distribution according to factors affecting sleep pattern disturbance for hemodialysis patients:

Psychological factors	**Psychological problems that affect the nature of your sleep**		
	Yes	154	79.8
	No	39	20.2
	If yes		
	Fear from death	38	19.7
	Feeling helpless	104	53.9
	Weakness	12	6.2
Medication factors	**Medications effect on sleep pattern**		
	Yes	103	53.4
	No	90	46.6
	If yes		
	Diuretics	7	3.6
	Cardiac medication	30	15.5
	Hepatic medication	16	8.3
	Prostatic medication	20	10.4
	Immunosuppressant's drugs	15	7.8
	Anti-arrhythmic drugs	15	7.8
Diet related factors	**Stimulants (tea and coffee)**		
	Yes	31	16.1
	No	162	83.9
Life style factors	**Sleep in the afternoon (Nap)**		
	Yes	151	78.2
	No	42	21.8
Hemodialysis related factors	**Difficulty to fall asleep after completing a hemodialysis session**		
	Yes	175	90.7
	No	18	9.3
	If yes		
	Feeling very tired	107	55.4
	Bleeding from the fistula	4	2.1
	Complications occur after dialysis session	64	33.2

Table (5): Correlation matrix between factors affecting sleep pattern disturbance and types of sleep pattern disturbance:

	Environmental factors	**Physiological factors**	**Psychological factors**	**Medication factors**	**Diet related factors**	**Life style factors**	**Hemodialysis related factors**
Insomnia	R= 0.317 P= 0.001*	R= 0.305 P= 0.001*	R= 0.844 P= 0.001*	R= 0.134 P= 0.063	R= 0.039- P= 0.592	R= 0.152 P= 0.034*	R= 0.077 P= 0.286
Hypersomnia	R= 0.052 P= 0.473	R= 0.515 P= 0.001*	R= 0.056 P= 0.438	R= 0.111 P= 0.125	R= 0.071 P= 0.325	R= 0.194 P= 0.007*	R= 0.129 P= 0.069
Rest leg syndrome	R= 0.005 P= 0.947	R= 0.143 P= 0.048*	R= 0.547 P= 0.001*	P= 0.140 P= 0.052	R= 0.093 P= 0.197	R= 0.221 P= 0.002*	R= 0.133 P= 0.065
OSAS questions	R= 0.088- P= 0.223	R= 0.067- P= 0.353	R= 0.023 P= 0.755	R= 0.264 P= 0.002*	R= 0.134 P= 0.064	R= 0.210 P= 0.003*	R= 0.127- P= 0.079
Nightmares questions	R= 0.173 P= 0.016*	R= 0.098- P= 0.176	R= 0.201 P= 0.005*	R= 0.198 P= 0.006*	R= 0.317 P= 0.001*	R= 0.132 P= 0.067	R= 0.046 P= 0.524

***Significant (P<0.05)** **spearman's correlation**

DISCUSSION

Sleep pattern disturbances are frequent and have a significant negative impact on health, particularly on renal function. In cross-sectional and longitudinal studies, conditions like insomnia and sleep disordered and breathing have been connected to a faster loss of renal function and a higher risk of chronic kidney disease (Covassin, Li, & Somers, 2022). Additionally, the diverse sleep pattern disturbance presentations suggest that the etiology of sleep disruption in people with chronic renal illness is multifaceted. Sleep problems have been linked to demographic characteristics, behaviors, biological parameters, medical comorbidity, treatment-related factors, and psychosocial situations (Tu, Chou, Lin & Huang, 2019).

With regard to the frequency of complications and problems that occur to the patient during the hemodialysis sessions, the current results clarified that there were about two thirds of the studied patients suffered from complications, especially regarding itching and general weakness. In the study conducted by Alkhuwaiter, Alsudais, and Ismail (2020) night itching was a big issue in relation to insomnia and may be caused by excessive blood urea level or as a result of a problem with the patients' blood phosphorus concentration level, which is not well controlled. Additionally, Chu et al. (2019) discovered that individuals with renal disease frequently experience weariness and are more prone to frequently nap throughout the day, which can impair their quality of sleep at night.

Concerning the quality of sleep, the present results revealed that more than three quarters of patients were expressed poor quality of sleep. This may be caused by that sleep pattern disturbance were associated with a high incidence of chronic kidney illness. These findings reinforced with Anwar and Mahmud (2018), who found that the most of the studied subjects were have poor quality of sleep. Zahed et al. (2020) asserted that there is a correlation between the sleep quality of hemodialysis patients and many factors as; (female gender, aging, excessive caffeine drink, alcohol and tobacco abuse, recombinant erythropoietin therapies, hemodialysis history, hemodialysis duration, depression, physical activities, excessive body mass index (BMI), dialysis success, hypoalbuminemia, parathyroid hormone, anemia, and serum creatinine).

Regarding types of sleep pattern among hemodialysis patients, according to the present findings about two- thirds of the studied patients takes 15-30 minutes to sleep. It

may be referred to as the prevalence of mild insomnia. Similarly, Kusuma et al. (2018) conducted a study to assess related factors of insomnia among hemodialysis patients which reported that nearly a half of the total patients suffered from insomnia. The current finding indicated that the most of the patients sleep less than six hours at night. It may indicate that patients do not suffer from hypersomnia. This may be because the most of studied patients sleep for a nap during the afternoon. This result disagreed with Tsuji et al. (2018); Xu et al. (2022); Ho et al. (2022) who e found that prolonged sleep latency was the most common type of sleep disturbance in hemodialysis patients. Also disagreed with Eloot et al. (2021) who concluded sleep times were shorter for the studied hemodialysis patients the night before dialysis sessions.

Whereas, the current findings illustrated that most of the studied patient suffered from restless leg syndrome as a result of calcium deficiency. This finding is in agreement with Turk, Ozkurt, Turgal and Sahin (2018) who reported that the restless leg syndrome prevalence in hemodialysis patients was associated with calcium level, with the incidence higher among female subjects. Furthermore, the scores in the RLS severity scale correlated with sleep disturbance. Also, Ali et al. (2022) found that muscle and bone pain caused by calcium and vitamin D deficiency and associated with symptoms of restless leg syndrome.

Regarding the relation of factors that affect sleep pattern disturbance with types of sleep pattern disturbance in hemodialysis patients. The current findings revealed that insomnia was significantly positively correlated with environmental, physiological, psychological, and lifestyle factors. According to Kusuma et al. (2018) insomnia is related to anxiety and age in hemodialysis patients. While, other factors such as; (gender, educational level, occupation, marital status, lifestyle condition, anemia, and dialysis duration) were not related to insomnia. While, Benetou et al. (2022) found statistically significantly high levels of insomnia were found correlated to patient characteristics factors such as (older age, divorced/widowed patients, change in body image, and presence of comorbid diseases).

The present results clarified that hypersomnia was significant positively correlated with physiological and life style factors. These findings supported by Kumar, Suri and Sen (2018) who found that patients undergoing hemodialysis and suffering from daytime sleepiness was physiological problems including (rapid fluid shift and pH

changes, uremic encephalopathy, electrolyte imbalance, and disturbed of inflammatory cytokines levels).

The current results presented that restless leg syndrome had significant positively correlated with physiological, psychological, and life style factors. This in line with Lin et al. (2019) as confirmed that the prevalence of depression and anxiety had positively correlation with the prevalence of restless leg syndrome. While these findings disagreed with Turk et al. (2018) who asserted that cigarette smoking and coffee consumption were not associated with RLS as a life style factors. Also, the relationship between RLS and HD had been evaluated by Capelli et al. (2021) and reported that RLS symptoms hadn't changed in hemodialysis days as with non-hemodialysis days. And hadn't found a relation between RLS and dialysis related factors.

The present results revealed that apnea was significantly positively correlated with medication and lifestyle factors. These results are contrary to what was presented in the study by Huang et al. (2018) that clarified that obstructive sleep apnea was correlated in this study with physiological problems such as body mass index (BMI) and neck circumference, also associated with hemodialysis factors because fluid overload in end-stage renal disease creates a vicious cycle between apnea and fluid overload disorders and the obstructive apnea-hypopnea index (AHI) was significantly lower after hemodialysis session.

The current findings revealed those nightmares were significant positively correlated with environmental, psychological, medication and diet related factors. As maintained by Tsuji et al. (2018) the presence of feelings of malaise was an important factor causing nightmares among patients. Also, those studies clarified that the psychological state, and treatment of hemodialysis patients could help to reduce the frequency of nightmares or sleep disturbance. While Pojatić et al. (2020) describe that there was an association between nightmares incidence and anxiety disorder mental health disorders, emotional problems, depressive symptoms, severe stress, post-traumatic stress disorder (PTSD), drugs, or traumatic events.

CONCLUSION

It can be concluded according to the present findings:

Sleep pattern disturbance occurs in many patients undergoing hemodialysis. Concerning the factors affecting sleeping pattern disturbance and quality; patients were affected by physiological, psychological, medication, lifestyle and hemodialysis factors. While environmental, and diet factors had no effect or slight effects on hemodialysis patients' sleep pattern disturbances. Also, the majority of the patients were affected with skeletal pain, itching, cramps of muscle, and restless leg syndrome (RLS). Whereas, the majority of hemodialysis patients had poor sleeping quality.

RECOMMENDATIONS

As the results of this study suggested:

- Systemic education on the importance of sleep, sleep time to reduce sleep difficulties for patients, undergoing hemodialysis.
- Promoting programs that help change the lifestyle, which helps to improve the sleep pattern of hemodialysis patients.
- Developing a guidebook includes instructions about good sleep habits, measures to enhance sleep quality and how to manage factors affecting sleep for patients undergoing hemodialysis.
- Conduct further researches among large probability from different geographical areas in Egypt for generalization of the results.

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العوامل المؤثرة على اضطراب نمط النوم لمرضى الغسيل الكلوي بمستشفيات بورسعيد

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الخـــلاصـــــة

الغسيل الكلوي هو الطريقة الأكثر شيوعًا المستخدمة في مصر لعلاج الفشل الكلوي المتقدم والدائم. كما يُعرف اضطراب نمط النوم بأنه حالة شائعة ومنتشرة بين المرضى الذين يعانون من مرض الكلى والذين يتلقون غسيل الكلى. لهذا تهدف الدراسة الحالية إلى اكتشاف العوامل المؤثرة على اضطراب نمط النوم لمرضى الغسيل الكلوي بوحدات الغسيل الكلوي بمستشفيات بورسعيد التابعة لهيئة التامين الصحي الشامل. تم استخدام دراسة وصفية لإجراء الدراسة؛ وشملت العينة ١٩٣ مريض من المترددين على وحدات الغسيل الكلوي بمستشفيات بورسعيد. وتم استخدام ثلاثة أدوات لجمع البيانات. أوضحت الدراسة الحالية أن ٧٧.٧% من المرضى الذين خضعوا للدراسة يعانون من اضطراب متلازمة تململ الساق، بينما ٧٦.٧% يعانون من رداءة جودة النوم. وقد تخلصت الدراسة بوجود تأثير على اضطرابات نمط النوم لدى مرضى الغسيل الكلوي من العوامل الفسيولوجية والنفسية والأدوية ونمط الحياة وعوامل غسيل الكلى. بينما لم يكن للعوامل البيئية والنظام الغذائي أي تأثير أو تأثيرات طفيفة على اضطرابات نمط النوم لدى مرضى الغسيل الكلوي. في حين أن غالبية مرضى غسيل الكلى يعانون من رداءة نوعية النوم. وأوصت الدراسة بتطبيق برنامج تعليمي لكل من المرضى والممرضات العاملين بوحدات الغسيل الكلوي حول كيفية تجنب اضطرابات نمط النوم وتحسين نوعية النوم.

الكلمات المرشدة: اضطراب نمط النوم، عوامل، الغسيل الكلوي.