Assessment Quality of Sleep in Patients undergoing Hemodialysis

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Abstract

Quality of sleep is the satisfaction of sleep experience, integrating aspect of sleep initiation, sleep maintenance, sleep quantity, refreshment upon awakening and a well -recognized predictor of physical and mental health. **This study aimed to** assess quality of sleep in hemodialysis patients. **Research design:** This study is Descriptive research design. **Sample:** A convenience samples of (60) adult patients among regular hemodialysis, their age range between (20 - 60) by Mean ± SD 39.48±11.75from both sexes and are willing to participate in the study. **Setting:** The study was conducted in Hemodialysis unit at Assiut University Hospital. **Tools:** Two tools were used: structured interview questionnaire and Sleep Quality Scale. **Results:** There were severe sleep disorders in hemodialysis patients. **Conclusion:** sleep affected by many factors that affect on quality of sleep in hemodialysis patients**. Recommendations:** In addition to medical treatment to eliminate sleep problems and increase their sleep quality, the implementation of sleep hygiene intervention could also be beneficial .Further researcher should focus on identifying new methods and treatments technique to improved sleep quality.

Key wards: Hemodialysis & Quality of Sleep.

Introduction

Sleep is a naturally recurring state of mind and body, characterized by altered consciousness, relatively inhibited sensory activity, inhibition of nearly all voluntary muscles, and reduces interaction with surrounding. **(Joiner & William, 2016)**

Sleep disorder is a condition characterized by disturbed sleep-related pattern or behaviors. The prevalence of sleep-related problems and disorders is high in patients with end-stage renal disease, particularly sleep apnea, restless legs syndrome, and overall poor sleep quality **(Plantinga et al., 2011**)

Humans may suffer from various sleep disorder. Including dipsomania such as insomnia, hypersomnia, narcolepsy and sleep apnea; parasomnias such as sleep walking and rapid eye movement (REM) behavior disorder and circadian rhythm sleep disorders. **(Randall & David, 2016)**

Sleep disorders have appeared as an important health hazard and some of the factors involved in the pathogenesis of renal disease are the same that cause or are associated with sleep apnea. **(Martin, 2011)**The factors contributing to sleep disturbances in patients on dialysis have been classified as treatment related (e.g. premature discontinuation of dialysis, rapid changes in fluid and electrolyte and acid base balance, alteration in medications, dialysis shift); psychological (e.g. anxiety, depression, stress and worry); disease related (e.g. anemia, uremia and metabolic changes); life style related (e.g. excess coffee, smoking, poor sleep hygiene). **(Merlino, et al., 2015)**

Also sleep disorders are highly prevalent in hemodialysis patients, intensifying their individual and social problems to some extent despite many investigations on the prevalence of sleep disorders in hemodialysis patients (HD) and the associated factors. **(Giordano et al., 2015)**

Sleep is a basic physical requirement for maintaining physical and mental health, whose duration varies between 4 and 10 hours a day and can be influenced by emotional and general lifestyle factors. Poor Sleep Quality (SQ) can disturb patient's emotions, thoughts and motivation causing tiredness, difficulty to concentrate, loss of appetite, nervousness, anxiety and depression. **(Koch et al., 2009)**

Good sleep quality is defined subjectively as one's perception of falling asleep easily, getting sufficient duration so as to wake up felling rested, and making it through their day without experiencing excessive day time sleepiness.**(Unruh, et al., 2014)**

People who get enough quality sleep have more energy, better cognitive function, healthier immune systems, and improved memory, alertness, attentiveness and performance throughout the day. They are also in a better mood. They are better able to acquire and perfect new skills, connect new information with current knowledge, and manage pain as the analgesic aspects of sleep increase pain thresholds**. (Fitch., et al., 2017)**

Significance of the study

From the researcher's clinical experience it has been observed that a lot of hemodialysis patients are in need for assessment quality of sleep. Therefore, this study will be help such group of patients how-to assess factors affect on sleep. Furthermore this study could be helpful for all renal failure patients undergoing hemodialysis.

Aim of the study

The aim of this study is to assess quality of sleep in patients undergoing hemodialysis.

Research question

What is quality of sleep assessment in patients undergoing hemodialysis?

Patients & Method

Research design

Descriptive research design was used in this study.

Sample

Convenience samples of (60) adult patients on regular hemodialysis, their age range between (20 - 60) by Mean ± SD 39.48±11.75 from both sexes and are willing to participate in the study. The sample was 60 patients undergoing hemodialysis was selected by using the following equation according to **Steven &Thompson (2012**)

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right]+ p(1-p)\right]}.$$

N=total patient population size of 120 patients who undergoing hemodialysis of Assiut university hospitals. During sessions by n=120 of hemodialysis patients during sessions. Z= confidence levels is 0.95 and is equal to 1.96. D= the error ratio is = 0.05 P= the property availability ratio and neutral = 0.50. Sampling was conducted at morning and evening shift. Respiratory disease patients and heart failure patients were excluded.

Setting

The study was conducted in Hemodialysis Unit at Assiut University Hospital.

Study tools

Two tools were used in this study and were developed by the researcher based on reviewing the relative national and international scientific literature as **(Vafaei, & Nobahar, 2017), (Davison, 2018), (Veterans, et al., 2016), (Lewis et al., 2015) (Chang, et al., 2015) & (Ohayon., et al., 2017)** Theses tools were used to assess quality of sleep in patients undergoing hemodialysis.

Tools

Two tools were utilized in this study

Tool (I): A structured interview questionnaire sheet: It was developed by the researcher based on references include the following parts:

Part 1: Demographic data included the following (age, sex, marital status, level of education, occupation and residence).

Part 2: Patient habits it included the following (smoking, drinking coffee or tea before sleep, taking medication for sleep, watching television, eating heavy meals before sleep and doing exercise before sleep)

Tool (II): Sleep Quality Scale (SQS) developed by **(Howell et al., 2008)** consisting of (28) items, the SQS evaluates six domains of sleep quality: daytime symptoms, restoration after sleep, problems initiating and maintaining sleep, difficulty waking, and sleep satisfaction).

Scoring system

Using a four point, Likert - type scale, respondents indicate how frequently they exhibit certain sleep behaviors (0="Rarely or few," 1="some times," 2="often," 3="almost always").which every of them mean that:Rarely:None or 1-3 times a month, sometimes : 1-2 times a week, often:3-5 times a week and almost always:6-7 times a week. Scores on items belong to factors 2and 5(restoration after sleep and satisfaction with sleep) and are reversed before being tallied. Total scores can range from 0 to 84, with higher scores demoting more acute sleep problems. Sleep disorder divided into three category (Mild, Moderate and Severe) were graded as (0-28) mean mild sleep disorder, (28-56) moderate sleep disorder and (56-84) sever sleep disorder.

Operational Design

Technique for data collection

This study was carried out in three phase:

Field work:

The researcher reviewed related literature of the current study, local & international, using text books, articles, and scientific magazines. The proposed study setting was assessed for the numbers of patients in Hemodialysis Unit at Assiut University Hospital. This phase ended by a pilot study.

Content validity and reliability

The content validity of study tools were checked by 3 expert professors in field of nursing and medicine they reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability and easiness for administrative minor modifications that required correction was carried out accordingly. Content reliability refers to the degree of consistency with which the instrument (The questionnaire) measures the thing it is supposed to be measuring (Quality of sleep in patients undergoing hemodialysis). Reliability of tool was confirmed by Alpha cronbach test (0.95).

A pilot study

A pilot study carried out in April 2018 to test the feasibility and practicability of the study tools and

conducted on10% of the sample (6 patients) of sample. It had also provided an estimate of time needed to fill out the tools.

Phase2:Planning phase

Based on finding of the exploratory phase, the patient assessment sheet was developed by the researcher, after extensive literature review considering patients' needs and their levels of understanding.

Phase3:Implementation phase

Data were collected from Hemodialysis Unit at Assuit University Hospital for 3 months during the period from May 2018 to July 2018. The study was carried out at morning and afternoon shifts for all available patients.

At initial interview the researcher introduce herself to initiate line of communication, explain the nature and purpose of the study to the selected patients who are willing to participate in the study and fill out the questionnaire sheet Tool (1) to assess the demographic data and patients habits.

After assessment of the patients using the structured interviewing questionnaire sheet Tool (1) that filled through the researcher and then assess quality of sleep for patients by using Sleep Quality Scale (SQS) Tool (2) that filled through the researcher.

Administrative Design

An official Permission to carry out the study was obtained from the responsible hospital authorities of the Hemodialysis Unit at Assiut University Hospital. To achieve validity and reliability of tools, it will be reviewed by experts (medical and nursing) in the field of the study and necessary modifications will be done.

Ethical considerations

1. Research proposal was approved from Ethical Committee in the faculty of nursing.
2. There is no risk for study subject during application of research.
3. The study was following common ethical principles in clinical research.
4. Oral consent was obtained from patients or guidance who are willing to participate in the study, after explaining the nature and purpose of the study.
5. Confidentiality and anonymity will be assured.
6. Study subject have the right to refuse to participate and or withdraw from the study without any rational any time.
7. Study subject privacy was considered during collection of data.

The statistical design

The data obtained had reviewed, prepared for computer entry, coded, analyzed and tabulated, Descriptive statistics include (frequencies and percentages, mean and standard deviation test were done using computer program (SPSS).

Results
Part I. Description of study sample according to demographic characteristics.
Table (1): Distributions of demographic characteristics for the study sample (n=60)

Variables	No	%
Age (years)		
20-30	9	15.0
30-40	22	36.7
40-50	9	15.0
50-60	20	33.3
Mean ± SD	39.48±11.75	
Sex		
Male	30	50.0
Female	30	50.0
Marital status		
Single	11	18.3
Married	47	78.3
Widow	2	3.3
Educational level		
Illiterate	11	18.3
Read and write	12	20.0
Primary	10	16.7
Secondary	21	35.0
Higher education	6	10.0
Occupation		
Work	13	21.7
Not work	47	78.3
Residence		
Urban	20	33.3
Rural	40	66.7

Part II. Description of study sample according to patients habits.
Table (2): Percentage distribution regarding patients habits of the study sample (n=60)

Variables	Yes		No	
	N	%	N	%
B- Assessment of patient habits				
Smoking	11	18.3	49	81.7
Drinking coffee or tea before sleep	31	51.7	29	48.3
Taking medication for sleep	4	6.7	56	93.3
Watching Television	47	78.3	13	21.7
Eating heavy meals before sleep	17	28.3	43	71.7
Doing exercise before sleep	16	26.7	44	73.3

Table (3): Distribution of sleep quality domains of the study sample (n=60)

Sleep Quality Domains	Mean± SD
Daytime dysfunction	12.3833±2.66230
Restoration after sleep	14.7667±2.80052
Difficult y in falling sleep	37.8167±7.91585
Difficult y in getting up	16.9000±3.21912
Satisfaction with sleep	14.1667±2.46444
Difficulty in maintaining sleep	16.9000±3.21912

Table (4): Degree of sleep disorder of the study sample (n=60)

Sleep disorder	N	%
Mild	0	0.0%
Moderate	9	15.0%
Severe	51	85.0%
Total	60	100%

Table (1): Reveals that there was equal percentage for male and female of the studied sample, the highest percentage of the studied sample (78.3%) were married, their age ranged from (30 to 40) years old (36.7%) by Mean ± SD 39.48±11.75, regarding to level of education about (35%) were Secondary school, also the majority of them were not working (78.3%), and living in rural. (66.7%)

Table (2): Reveals that regarding distribution of patient habits for the study sample the majority of them (78.3%) were watching television, the half of them were drinking coffee or tea before sleep (51.7%), the third of them were eating heavy meals before sleep (28.3%) and doing exercise before sleep (26.7%)

Were less than third of the studied sample were smoking (18.3%),

Table (3): Reveals that regarding distribution of domains of sleep quality for the study sample the majority of them having difficulty in falling sleep (37.8167±7.91585).

Table (3): Illustrated that regarding degree of sleep disorder for the study sample the majority of them have severe sleep disorder (85.0%).

Discussion

Hemodialysis is associated with an increased prevalence of sleep disturbance. Which have a major influence on vitality and general health of patients **(Parker, 2015)**

As we sleep, our brain "prunes" out unnecessary information and the space between brain cells expands, allowing the brain to flush out waste that accumulates when we are awake. The buildup of toxins in the brain is linked to neurodegenerative disorders, Sleep involves the most powerful set of processes in the body when we let it happen naturally. Unfortunately, many of us put barriers in the way of sleep and then struggle with the consequences. **(Ohayon., et al., 2017)**

The aim of this study is to assess quality of sleep in patients undergoing hemodialysis

The present study revealed that, the majority of the studied patients were married, more than half of them living in rural area and their age ranged from (30 to 40) years old. This result agree with

(Maryam, et al., 2014) who found that the majority of the participants was married , the mean age of the participants was 45.12+ 15.86 years. And with **(Tel & Esmek, 2012)** who found that more than half of the patients were from rural areas.

The current study revealed that the highest presented regarding distribution of the patients habits for the study sample the majority were watching television and the half of them drinking coffee or tea before sleep. This result agree with **(Elizabeth & Cespedes, 2014)** who found that greater television viewing and bedroom television were associated with decreased sleep duration. And agree with **(Exelmans, et al., 2017)** who found that watching or regular viewing before bed effect on sleep. And agree with **(Clark & Landolt, 2017)** who found that sleep complaints high in patient with increased caffeine intake and lead to prolonged sleep latency, shorter total sleep time, worsening of perceived sleep quality, increase light sleep and shortening deep sleep time as well as frequent awakening.

Our study show that regarding distribution of sleep quality domains of the study sample the majority were having difficulty in falling sleep. This result agree with **(Doghramji, 2016)** who found that that commonly patients undergoing hemodialysis have difficulty in falling asleep.

Finally, this study indicated that the majority of the study sample have sleep disorder. This result agree with **(Iliescu, et al., 2012)** who found that a large percent of hemodialysis patients suffer from poor sleep.

Conclusion

According to the present study poor sleep quality is a common problem and there was high sleep disorder and affected by many factors among hemodialysis patient in Hemodialysis Unit at Assiut University Hospital.

Recommendations

In the light of the findings of the current study the following recommendations were suggested:-

Recommendation for patients

In-service training programs related to sleep hygiene teaching for hemodialysis patients must be

frequently conducted in the unit for continuous maintain and improve sleep quality.

Recommendations for future researches

1- A designed sleep hygiene teaching protocol to improve quality of sleep for hemodialysis patients.

2- Management of sleep quality is important care giving to hemodialysis patients.

3- Further researches should be done on a large sample to generalize the result of the study.

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