Effect of Instructional Guidelines on Sleep Quality and Functional Status in Elderly People with Chronic Kidney Disease

(1) Wafaa Hamed Kamal Elshafie, (2) Mohammed Saad Abo Elsoud, (4) Samah Aboelenein Abdallah, (4) Safaa Sayed Mustafa Ibrahim

(1) Community Health Nursing Department, Faculty of Nursing, Mansoura University, Egypt

(2) Lecturer of Community and Family Health Nursing, Faculty of Nursing, Suez Canal University

(3) Assistant professor of Nursing Administration, Nursing Department, College of Health Science and Nursing, Alrayan Colleges, Saudi Arabia.

(4) Lecturer at Community Health Nursing department, Faculty of Nursing, Beni Suef University

Abstract

Background: Sleep disturbances are more common and have a greater impact on morbidity and death in people with chronic illnesses. **This study aimed to** evaluate the effect of instructional guidelines on sleep quality and functional status in elderly people with chronic kidney disease. **Method: Design:** A quasi-experimental research design was used to accomplish this study. **Setting**: The study was carried out at the geriatric home in Mansoura governorate, Egypt. **Subjects**: A convenient sampling technique of 100 patients who were undergoing hemodialysis within six months, admitted to the previously mentioned setting. **Tools:** Data was collected by using three tools; demographic and clinical data structured interview schedule, Functional Independence Measure, and Pittsburgh Sleep Quality Index. **Results**: There were statistically significant improvements in sleep quality and functional status among chronic kidney disease elderly patients pre & post-training instructional guidelines ($P<0.001$). **Conclusion**: The present study concluded that the instructional guidelines had a positive effect on improving sleep quality and functional status among chronic kidney disease elderly patients. **Recommendations**: There is a need for developing comprehensive simple Arabic printed educational materials such as (booklets, pamphlets, and posters) for chronic kidney disease that can improve functional status and quality of sleep. Replication of the current study with a larger sample of patients in different settings is required to generalize the results.

Keywords: Instructional guidelines, Elderly patients with chronic kidney disease**,** Functional status, Sleep quality.

Introduction

Elderly patients are increasingly experiencing chronic kidney disease (CKD), which is linked to higher rates of morbidity and death (**Lameire et al., 2021**). The prevalence of chronic kidney disease (CKD) was significantly higher in the elderly population in the United States (about 39.4% of those over 60 compared to 12.6% of those between 40 and 59 years of age). This high prevalence of CKD in the elderly is primarily due to the rising incidence of traditional risk factors like diabetes, hypertension, and cardiovascular disease. Because of rising longevity and global population growth, the senior population is expected to continue to expand at a rapid rate (**Shlipak, et al., 2021**).

Over 65-year-olds make up more than half of the incident dialysis patient population in the United States. Elderly chronic kidney disease (CKD) patients, defined as those who are 60 years of age or older, comprise the fastest-growing component of the ESRD community. About 20% of ESRD patients die each year, with the first few months following dialysis having a greater death rate than the rest of the time. A 5-fold increase in the likelihood of dying within 90 days of starting dialysis is independently correlated with older age (**Liu et al., 2021**).

Early mortality among senior ESRD patients is a serious issue, yet it is still not well understood. Given that the majority of deaths happen within the first year of starting dialysis,

it is conceivable that functional status is generally understood to be the capacity of an individual to carry out everyday tasks necessary to meet fundamental demands and preserve well-being. An increased risk of death is independently linked to poor functional status, which is common in elderly people with chronic renal disease. In older patients with chronic kidney disease (CKD), comorbidities and acute care hospitalizations are common, can contribute to poor pre-dialysis health, and independently raise the risk of death (**Saeed et al., 2022**).

Furthermore, initiation of dialysis is linked to a decline in functional status in elderly patients with ESRD and therefore can impact the quality of life. Although studies have examined the clinical outcomes of elderly dialysis patients, the impact of functional status and pre-dialysis health including pre-dialysis acute hospitalization at incident dialysis on post-ESRD outcomes has not been studied (**Kurella Tamura et al., 2019**).

Averages of five to six symptoms are experienced by elderly dialysis patients, with weariness being the most common complaint (**Chow et al., 2023**). Seniors with chronic kidney disease (CKD) experience elevated rates of depression, reduced life quality, pain, and insomnia. According to the **British Geriatric Society, (2022**), individuals frequently display sympatho-vagal imbalance as a result of impaired baro receptor reflex function, which results in hyperactivity of the sympathetic nervous system and a decrease in vagal tone.

Patients with chronic kidney disease (CKD), especially those with end-stage renal disease (ESRD), frequently experience sleep disturbances. Eighty percent of ESRD patients on dialysis have reportedly complained about their sleep, with daytime sleepiness being the most often reported symptom. This review will address the likely multifactorial cause of the higher rates of sleep-related problems and disorders in this population. In addition to lowering quality of life, sleep problems are linked to higher health risks and death in individuals with chronic kidney disease (CKD) **(Iliescu et al., 2019).**

While the poor quality of sleep experienced by people with chronic kidney disease (CKD) is widely acknowledged, little is known about the physiological reasons behind this condition. Hildreth claims that individuals with chronic kidney disease (CKD) frequently display sympatho-vagal imbalance as a result of impaired baroreceptor reflex function, which results in hyperactivity of the sympathetic nervous system and decreased vagal tone (Chou et al., 2022).

In healthy people, going to sleep causes a drop in blood pressure during the night due to an increase in vagal tone and a decrease in sympathetic activity. On the other hand, it has been demonstrated that patients with sleep disorders leading to hypoxemia and fragmentation of sleep have lower parasympathetic activity and higher sympathetic nervous system stimulation, which decreases the drop in nocturnal blood pressure (Spiegel et al., 2018).

The renin-angiotensin-aldosterone system is impacted by the autonomic nervous system's control of blood pressure when you sleep. During the typical sleeping phase, there is a reflexive rise in aldosterone and plasma renin activity as blood pressure drops. An individual experiences oscillations in plasma renin levels and cardiac sympatho-vagal balance during cycles of rapid eye movement (REM) and non-REM (NREM) sleep. During NREM sleep, specifically stages 3 and 4, plasma renin activity and aldosterone peak, and decrease during REM sleep. According to **Brandenberger et al. (2019**), patients who suffer a sleepless night do not exhibit this oscillating pattern of CKD.

Reduced sleep time alone, however, does not account for all of the factors influencing nocturnal CKD and aldosterone secretion. Sayk et al. demonstrated that reducing slow-wave sleep (stages 3 and 4) resulted in lower sleep quality and less nocturnal blood pressure dips, both of which have an impact on CKD. The absence of nocturnal blood pressure dips is thought to be a significant risk factor for the development of chronic kidney disease (CKD). Using carefully scheduled antihypertensive

treatment in the evenings to lower blood pressure at night may lower the risk of CKD progression to end-stage renal disease (ESRD) (**Sayk et al., 2019**).

Objective measurements from polysomnographic investigations usually show poor sleep architecture in patients with end-stage renal disease (ESRD). According to a thorough analysis, ESRD patients slept for a total of 260–360 minutes, which was short and sporadic. The range of sleep efficiency was 66%-85%, and the range of awake time was 77-135 minutes. The reported ranges for sleep latencies were 10–30 min and REM latencies were 92–64 min. There was a pattern of decreased REM and slow wave sleep and an increase in stage 1 and stage 2 sleep. Even if polysomnographic studies do not assess it, daytime sleepiness is nevertheless regarded as a crucial indicator of insufficient sleep. To quantify daytime drowsiness objectively, patients undergoing multiple sleep latency tests (MSLT) are required to take five scheduled naps during the day, separated by two-hour intervals (**Natale et al., 2019**).

Functional status is the capacity to carry out day-to-day tasks necessary to meet essential needs for self-care and to preserve one's health and well-being. A person's functional status represents both their functional performance—what they accomplish daily—and their functional capacities—what they are capable of doing. Impaired bodily, mental, sensory, or social functions can all impact one's functional status. Walking difficulties can arise due to deficits in physical function such as muscle strength or in sensory functions like balance (**Kalantar-Zadeh et al., 2022**). A multifaceted idea called "functional status" centers on an individual's capacity to carry out daily activities. According to **Immenez et al. (2021**), the extent of activities is significantly restricted as the disease advances. Dialysis outcomes are impacted by health problems that exist both before and during the start of treatment. Among the most significant predictors of long-term results are activities of everyday living (**Thamer et al., 2019).**

In addition to teaching patients how to take up new activities for daily living, community, and gerontological nurses play a crucial role in assisting older patients with COPD in improving their functional status and sleep quality with chronic illness (House et al., 2022). encouraging people to adopt a healthier lifestyle, adjusting to the facts of the illness and the significance of quitting smoking, improving gas exchange, clearing the airways, preventing activity-related complications, promoting maximal self-management, improving coping skills, and providing home care (Ladin et al., 2021).

Significance of study:

Community and gerontological nurses play a vital role in teaching older patients with COPD new activities for daily life and in helping them improve their functional status and sleep quality with chronic illness (**House et al., 2022**). encouraging patients to alter their way of life, helping them to accept the reality of the illness and the significance of quitting smoking, improving gas exchange, clearing the airways, preventing activity-related complications, maximizing self-management, improving their capacity for coping, and providing home care (**Ladin et al., 2021**).

In addition to lowering the overall quality of life, inadequate or poor sleep can decrease immunological function and increase the risk of cardiovascular disease, among other problems (**Sim et al., 2019**). To lower mortality, enhance quality of life, and improve sleep for these patients, it is critical to comprehend insomnia and how it relates to other issues (**Dangol et al., 2020**). Prognostic classification and treatment choices may benefit from the information that functional status can offer (**Unruh, 2019**).

Aim of the study:

To evaluate the effect of instructional guidelines on sleep quality and functional status in elderly people with chronic kidney disease

Research hypothesis:

The instructional guidelines for elderly people with chronic kidney disease will positively affect sleep quality and functional status.

Subjects and Method:

Research design:
A quasi-experimental research design was used to accomplish this study

Setting:

The study was carried out at the geriatric home in Mansoura governorate, Egypt.

Subjects:
A convenient sampling technique of 100 elderly patients who had chronic kidney disease and were admitted within six months to the above-mentioned setting

Data collection tools:

Tools: To collect the necessary information for the study, three tools were used:

Tool 1: Demographic and clinical data structured interview schedule:
The researcher created it, and it consists of two sections, following a review of the literature.
Part 1 outlined the age, sex, educational level, employment before retirement, and place of living of the elderly patients under study.
Part 2: The medical history of the elderly individuals under study, including any prior hospitalizations, the length of the illness, access to hemodialysis, and other chronic conditions.

Tool 2: Functional Independence Measure (FIM Instrument).

Hamilton et al. (1987) 10 and the **Centre for Medicare and Medicaid Services (2003**) produced this instrument, which was adapted from the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation. After being translated into Arabic, **Shebl & Abd Elhameed (2014**) verified its validity and reliability. Spearman's correlation coefficient (r = 0. 95) indicated a high level of reliability. This test, which is used secondhand to assess the functional condition of older patients, is one of the most popular tools in rehabilitation medicine for assessing disability and reliance. It is comprised of six domains (self-care, sphincter control, transfers, locomotion, communication, and social cognition) and eighteen components. Total items range in function from level 1 (total reliance) to level 7 (full independence), with records kept for each level. The possible range of the total FIM scores is (18 to 126). A higher level of functional independence is demonstrated by the higher score.

Tool 3: Pittsburgh Sleep Quality Index (PSQI).

The PSQI, or Pittsburgh Sleep Quality Index: A 19-item self-report questionnaire was used in this tool, which was adapted from Buysse et al. (1989), to measure the quality and disturbances of sleep over the course of a month. The results yielded seven components related to sleep: subjective quality, sleep latency, duration, habitual sleep efficiency, sleep disturbance, use of sleep medication, and dysfunction during the day. The first set of PSQI questions asks about the respondents' typical bedtime, average sleep duration, average wake-up time, and amount of time it takes them to fall asleep. The subsequent fifteen Likert-style questions pertain to the frequency of sleep disturbances and the subjective quality of sleep during the preceding month. Every item is rated from 0 to 3, where 0 represents very little difficulty and 3 represents very great difficulty. Using the 19 items (items 8 and 9), seven component scores or subscales were generated: item 6 is for subjective sleep quality; items 2 and 5a are for sleep latency; item 4 is for sleep duration; items 1, 3, and 4 are for habitual sleep efficiency; items 5b to 5j are for sleep disturbances; item 7 is for use of sleep medications; and item 8 is for daytime dysfunction. Scores for components range from 0 to 3, where 0 denotes no difficulty and 3 denotes great difficulty. Moreover, a single universal score between 0 and 21 is created by adding the seven component scores together; higher numbers denote lower sleep quality. A threshold of >5 on the global score has been used to discriminate between individuals who sleep well and poorly. A score of five or less indicates a good sleeper, whereas a score of more than five indicates a poor sleeper. **Suleiman et al., (2012**) Arabic version of this instrument was utilized in this investigation.

Tool validity and reliability:
The data collecting tool's clarity, comprehensiveness, appropriateness, and relevance were evaluated as markers of its validity by five experts in gerontological nursing, community health nursing, medical surgical nursing, and public health medicine. The internal consistency method was employed in the current study to assess the reliability of the two scales. The second tool's Cronbach alpha coefficient was 0.95, while the third tool's was 0.94, demonstrating both tools' good dependability.

Procedures:

The actual study included three phases:
A-Preparatory phase:

To create the instruments for data collecting and to create instructional recommendations, the researchers looked at the recent and related literature that was accessible as textbooks, periodicals, magazines, and internet searches. Following the implementation of the instructional concepts, a handout in Arabic was developed, manufactured, and distributed to the study participants.

Pilot study:
A pilot study was approved on 10% of the elderly patients with chronic kidney disease from the selected unit (10 elderly patients), before starting to gather information to test the probability of tools and to do the essential modifications. These elderly patients were included in the study sample.

Ethical considerations:

The Faculty of Nursing at Mansoura University's Research Ethics Committee granted ethical permission. The study's subjects' privacy was guaranteed, and the participants were also made aware that their participation in it was entirely voluntary. The older patients were given the assurance that participation in this study is completely voluntary and that they can choose whether or not to do so. They may withdraw from the study at any time without facing consequences.

Implementation phase:
The accessible material, which included books, journals, periodicals, and online searches, was examined by the researchers. Every senior was interviewed in person separately, and the study instruments were then used to collect the relevant data. The incomplete portion of the patient's medical history was added to the patient's medical records. The six months from the beginning of September 2023 to the end of February 2023 were used for information collecting. The patients were briefed on the purpose, design, and anticipated results of the study before the interview.

The research ethics committee received a request for approval of the project. Before conducting the interview, the researcher made sure the elderly patient was sitting comfortably, introduced herself, and briefly explained the goal of the study. The researcher used all available study instruments in the chosen unit to collect vital information by asking each senior patient under study a series of personal questions.

Beginning data collecting at 9 a.m. and ending at 1 p.m., the researchers were able to interview two to three older people each day, spending between thirty and forty minutes filling out study items.
The researchers developed the study tools after reviewing the pertinent literature. Study tools I (demographic and clinical data of the patients: structured interview schedule), FIM Instrument, and sleep quality tool were created.

The researchers conducted individual interviews with each patient to obtain the necessary data using tool I, part I (patient demographic and health data: structured interview schedule), before the start of the instructional guidelines, and tools II (FIM Instrument) and III, pre and post the start of the instructional guidelines implementation.
The researchers were given written materials with graphics in addition to instructions so that patients could comprehend the study more fully. This illustrative handout was developed by the researchers using a review of the pertinent literature, findings, and suggestions from prior research, opinions of healthcare professionals, and content testing. Each patient was

scheduled for a minimum of five for 30- to 40-minute education sessions throughout three consecutive visits.

The subject contents have been sequenced through eight theoretical sessions and each session took 40- 50 minutes. The total time was about 2 hours for each group; mothers involved in the study were divided into 10 groups. Each group included ten patients. The first session (30 minutes): At the beginning of this session, the researchers introduced themselves, welcomed the elderly patients, showed gratitude for their sharing in the study, and explained the aim of these educational sessions, which focused on knowledge about CKD (meaning, predisposing factors, clinical manifestations, a measure of blood pressure, complications, and management). The second session (30 minutes) focused on knowledge about diet management for elderly patients with CKD (recommended and un recommended diet and the relationship between diet and CKD control). The third session (30 minutes) focused on knowledge about dialysis (types, causes, procedures, management, and prevention of complications). The fourth session (40 minutes) focused on knowledge related to therapy (importance, types, sites, routes, preparation, storage, and complications). The fifth session (30 minutes) focused on problems that face elderly patients with CKD. The sixth session (30 minutes) focused on personal hygienic care (importance, oral care, and skincare). The seventh session (30 minutes) focused on the importance of controlling CKD and follow-up. the researcher distributed the post-test and then thanked all the participant's elderly patients for their sharing in the study. The eighth session (30 minutes) focused on relaxation techniques implementation for improving the quality of sleep

Relaxation training: -

Deep breathing exercises that introduced to elderly patients by the researcher. The researcher displays images and video clips that demonstrate how to perform deep breathing exercises. Elderly patients are asked to practice deep breathing techniques by the researcher. Elderly patients were invited to watch as the researcher gradually relaxed their muscles. The researcher shows elderly patients examples of progressive muscle relaxation techniques through videos and photographs. Elderly patients were asked to observe the researcher's meditation. The researcher displays pictures and movies that demonstrate how to meditate.

The Evaluation phase:

Following the start of the instructional guidelines, each elderly patient was evaluated using the pre-study tools to ascertain how the sessions affected their sleep quality and functional status three months after the instructional guidelines implementation. The patient's sleep quality and functional status and the impact of the instructional guidelines on chronic kidney disease stress were assessed using study tools II (FIM Instrument) and III.

Administrative design:

The director of the previously selected setting received formal approval from the selected nursing faculty to conduct the study and to ask for permission to gather data from the studied sample.

Statistical analysis:

The researchers used Microsoft Excel software to code, process, and analyze data from previous tools and outcome assessments. The Statistical Package for the Social Sciences, version 25, was used to enter the data and perform data analysis and graphical display. Quantitative data were defined by mean and standard deviation (SD), while qualitative categorical variables were indicated by frequencies and percentages. The chi-squared approach was used to test the independence of categorical variables. Pearson's correlation and the linear correlation coefficient (r) were used to determine the correlation between two quantitative variables in a group. The p-value was categorized as follows: Significant (S) P-value ≤ 0.05, highly significant (HS) P-value ≤ 0.001, and Non-significant (NS) P-value < 0.05.

Results:

As shown in **Table** 1. the studied elderly patients with chronic kidney disease average age were **60.22 + 4.66** years old and 58% of them were female. More than two-thirds of the studied elderly patients (70%) were illiterate. concerning occupation among the studied elderly patients (42%) of them were retired. As

regards residence, it was observed that 70% of them live in rural areas.

According to their medical history, as shown in **Table 2**, It was observed that (60%) of the sample reported having never been hospitalized. Concerning hemodialysis access, it was noticed that 85% of the elderly patients were Central venous catheters and 15% of them were AV access as regards the duration of the disease, it was observed that 44% of the elderly patients had chronic kidney disease from 1–2 years. as seen in the table. The most prevalent disease among the patients (90%) was hypertension.

As indicated by **Table 3**, the overall mean score % for mobility was Mean±SD=62.2±29.4, and for cognitive level, it was Mean±SD=65.0±27.3.

Table 4 shows the mean differences between the functional status of the studied elderly patients before and after the implementation of the instructional guidelines. After the instructional guidelines implementation of 3 months, it was seen that the functional status levels dramatically improved and showed that the difference was significant at (P=0.000).

Figure 1 shows that after the instructional guidelines implementation of 3 months, the functional status levels dramatically improved and showed that the difference was significant at (P=0.000). the same figure showed that functional status25%ofthestudiedelderly showed a very good level, which increased to 50% among the studied elderly patients with CKD.

Figure 2 shows that following the adoption of the instructional guidelines, the elderly patients with CKD who were the subject of the study had better-quality sleep. Before the adoption of the instructional guidelines, elderly patients reported that 74% of them with CKD had bad quality of sleep, 26% had excellent quality of sleep, and this number rose to 32% of them with poor quality of sleep, 68% had good quality of sleep at (P=0.000).

The relationship between each study participant's overall functional state and their level of sleep quality is depicted in **Figure 3**. Between functional status and sleep quality, there was a statistically significant, negative connection. Reduced sleep quality corresponds with a decline in functional status (r=-0.955, P< 0.001).

According to **Table** 5, there is a statistically significant inverse relationship between the studied elderly patients 'functional status and sleep quality before and after the implementation of the instructional guidelines.

Table (1): Distribution of the elderly patients with chronic kidney disease regarding their demographic

Demographic data	(n=100)	(%)
Age(in years):		
(60-65)	98	98.0
(60-70)	2	2.0
Mean±SD=60.22 + 4.66		
Sex:		
Female	58	58.0
Male	42	42.0
Education		
Illiterate	70	70.0
Read &write	24	24.0
University education	6	6.0
Occupation		
Housewives	35	35.0
Working	13	13.0
Retired	42	42.0
Residence :		
Rural	70	70.0
Urban	30	30.0

Table(2): Distributionofthestudiedelderly patients with chronic kidney disease according to their medical history

MedicalHistory	(n=100)	(%)
Previous hospitalization:		
No	60	60.0
Once	35	35.0
Twice	5	5.0
Duration of the disease		
Less than 1 year	36	36.0
1–2 years	44	44.0
>3 years	20	20.0
Hemodialysis access		
AV access	15	15.0
Central venous catheter	85	85.0
Other associated chronic diseases #		
Hypertension	90	90.0
Diabetes Mellitus	45	45.0
Coronary artery disease	12	12.0
Liver diseases	15	15.0

#Morethanoneanswer was given.

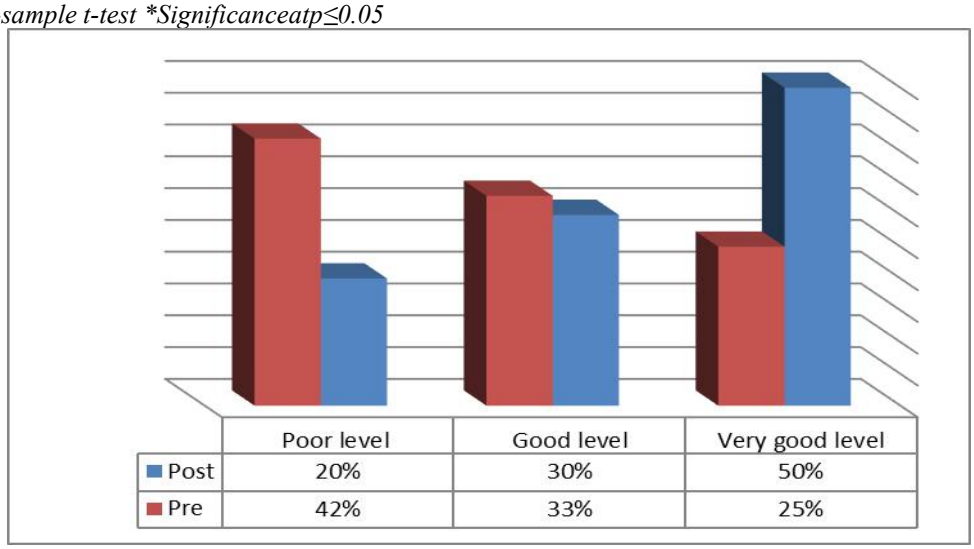
Table(3): Meanscoresof functional status among the studied elderly patients.

Items	TotalScore Mean ± SD	TotalScorepercentage Mean ± SD
A-Rate (Level) of movement	53.7±28.6	62.2±29.4
B.Cognitivelevel	21.5±13.8	65.0±27.3

Table (4): Mean differences in total functional status of the studied elderly patients' pre-post instructional guidelines implementation

Item	Pre- instructional guidelines implementation	Post- Post-instructional guidelines implementation	t-test
	Mean±SD	Mean±SD	Mean±SD
Functional status(FIM)	53.67±13.33	72.56±17.22	12.98(0.000)*

*Paired-sample t-test *Significanceatp≤0.05*



Figure(1): Distribution of the studied elderly patients with CKD regarding Functional status level(N=100).

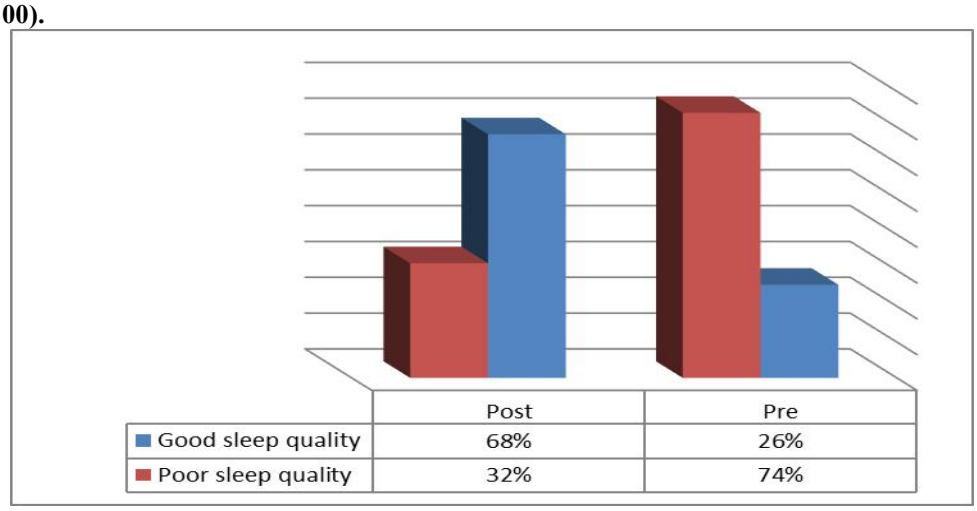


Figure (2): Distribution of highest-studied elderly patients with CKD regarding sleep quality (N=100).

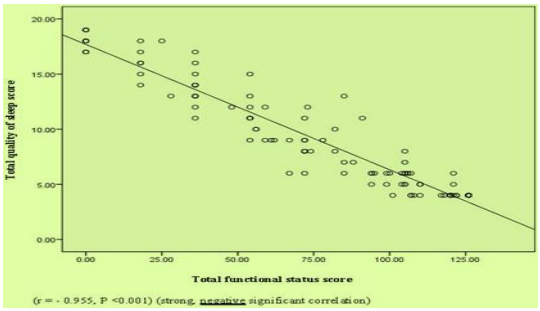


Figure (3): Association between total functional status and sleep quality of the studied elderly patients

Table (5): Correlation between the functional status and sleep quality among the studied elderly patients' pre-post instructional guidelines implementation

Sleep Quality	functional status(FIM)			
	Pre-instructional guidelines implementation		Post-instructional guidelines implementation	
	R	P	R	P
Pre- instructional guidelines implementation	0.476**	0.001		
Post- Post-instructional guidelines implementation			0.653**	0.000

**.Correlation is significant at the 0.05level (2-tailed).*

Discussion

Perform activities such as walking, bathing, dressing, getting out of bed, and using the toilet. It plays a significant role in determining one's quality of life, survival rates, caregiving requirements, medical expenses, and the decision to perform medical operations like cardiopulmonary resuscitation or the usage of feeding tubes (**Kalantar-Zadeh et al., 2022**). In non-dialysis populations, functional dependency is a well-established predictor of hospitalization and unfavorable outcomes; however, research on this topic in the renal community is lacking. Few studies have provided a detailed description of the nature and types of disabilities observed in renal patients, particularly in those on dialysis, despite prior research indicating that these patients are susceptible and frequently unable to fully participate in society (**Shlipak et al., 2021**).

The results of the current study showed that the studied elderly patients with chronic kidney disease average age were **60.22 + 4.66** years old and nearly three-fifths of them were female. This finding was matched with **Lameire et al., (2021**), who observed that their age range was 60 to 70 years with a mean age of 60.51 ± 14.23 years. **Schmalz et al. (2020**), who also found a correlation between age and functional impairment in patients, corroborated these

Functional status is the ability to

findings.

The results of the current study showed that nearly three-fifths of the studied elderly patients with chronic kidney disease were female. This finding contradicts that of **Liu et al. (2021**), who found that over half of the patients were male in their investigation. Similarly, in line with our findings, a study by **Eryavuz et al. (2018**) found that men made up just over two-thirds of the patient population and that men are generally associated with worse functional health status.

The results of the current study showed that more than two-thirds of the studied elderly patients were illiterate. From the researchers' point of view, it was associated with poor functional status.

The majority of the elderly patients in the study also lived in rural areas. This may be because people in rural areas are more likely to be exposed to contaminated water and salty food, which causes more renal symptoms and urinary tract damage. Additionally, they have a harder time leading healthy lives and lack access to facilities that provide excellent prevention, early detection, and treatment, which limits their access to healthcare. These were deemed to be the main risk factors for the development of CKD.

The results of the current study showed that the most prevalent disease among the patients (90%) was hypertension. There is a high prevalence of CKD in the elderly. This is attributable mainly to the increasing prevalence of traditional risk factors for CKD such as hypertension (**Williams, 2018**).

The results of the current study showed that more than two-fifths of elderly patients had chronic kidney disease for 1–2 years. This finding contradicts that of **Chou et al. (2022**), who found that 75% of patients had hemodialysis treatment for more than 4 years. According to the study's findings, central venous catheters were used by most of the older individuals. **Imenez et al., (2021**) did not follow suit, since they noted in their research that the majority of the patients they evaluated had arteriovenous fistulas and got

hemodialysis three days a week for four to five hours each session .
The current study's findings indicated that hypertension was the patients' most common ailment. In agreement, **Karasneh et al. (2020**) noted in their study that the individuals they examined had complaints of hypertension and kidney illness.
The current study's result displays that functional status levels pre-instructional guidelines implementation were decreased. A decline in the functional status, particularly physical condition, of dialysis patients was observed by **Neumann et al. (2019),** who are establishing comprehensive physical functioning assessments (mobility and performance capacity and physical activity).

The current study's result displays that after the instructional guidelines implementation, it was seen that the functional status levels dramatically improved and showed that the difference was significant. From the researchers' point of view, it reflected the positive effects of instructional guidelines implementation. The findings of **Liu et al. (2021)**, who discovered that the physical impairment was extremely statistically significant, supported this.

The current study's result demonstrates that elderly patients said that about three-quarters of those with CKD had poor quality of sleep. From the researchers' point of view, it reflected the necessity for carrying out the instructional guidelines to improve patients' sleep quality

According to the current study, the majority of the examined elderly individuals had very good functional states, and there were sufficient numbers. This outcome might be connected to the management's effectiveness, the quality of the treatment given, and the follow-up schedule.

The current study's result demonstrates that the patients had improved after the instructional guidelines implementation. From the researchers' point of view, it confirmed that improvements in the patient's knowledge are associated with positive improvements in their practices.
Furthermore, a small percentage of the senior patients in this study reported high-quality sleep. A study by **Weeracorn et al. (2018**), who showed

reduced prevalence and high sleep quality, supports these findings. In a similar vein, a study by **Ohayon et al. (2020**) found that people view sleep quality favorably.
The study of **Eryavuz et al., (2019**) found that the percentage of sleep disorders and poor sleep quality in hemodialysis patients was among the majority of them. The study by **Sabbatini et al., (2019**) found that the majority of patients reported sleep disturbances and the majority of patients with hemodialysis patients had lower sleep quality. The results of this study are consistent with the results of the aforementioned studies and sleep latency has been reported to be 40 to 60%.

Furthermore, in the present study, there was a significant relationship between sleep quality and functional status. In a study, it was reported that there is a significant relationship between patients' sleep quality and their functional status. That is, patients who had lower sleep quality had poor functional status. Moreover, patients with poor sleep quality and insomnia had many problems in doing daily activities (**Parker et al., 2019 Tel, 2019).**

The relationship between functional status and sleep quality was statistically negatively correlated. Sleep quality declines along with a decline in functional status. In line with these conclusions, a study conducted by **Smeltzer et al., (2019**) found a strong correlation between patients with CKD's functional capacity and their sleep quality following the adoption of the educational instructions. This result is in line with the results of the present study. Lack of care for hemodialysis patients' fluid intake brings about fluid retention in their body and they encounter problems such as general body swelling, weight, cardiovascular disorders, shortness of

breath, decreased activity, and subsequent sleep problems, which will endanger their health. Therefore, the impact of kidney disease on the daily lives of patients should be considered.

Conclusion:

Based on the results of this study, the present study concluded that the instructional guidelines significantly had a positive effect on improving sleep quality and functional status in elderly people with chronic kidney disease.

Recommendations:

Based on the results of this study the following recommendations are suggested:

- There is a need for a continuous training program to improve the functional

status and reduce levels of stress among patients with chronic cerebrovascular stroke.

- There is a need for developing comprehensive simple Arabic printed educational materials such as (booklets, pamphlets, and posters) for chronic kidney disease that can improve functional status and quality of sleep.
- Replication of the current study with a larger sample of patients in different settings is required to generalize the results.

References:

- Brandenberger G, Ehrhart J, Piquard F, Simon C. (2019): Inverse coupling between ultradian oscillations in delta wave activity and heart rate variability during sleep. Clin Neurophysiol; 112: 992-996
- British Geriatric Society. End of life care in frailty: (2020): advance care planning. Published 12 May; https:// www.bgs.org.uk/resources/end-of-life-care-in-frailtyadvance-care-planning (11 November 2022, date last accessed)
- Buysse D. J., Reynolds, C.F, Monk, T.H, Berman, S.R, and Kupfer, D.J. (1989). The Pittsburgh Sleep Quality Index (PSQI): A new instrument for psychiatric research and practice. Journal Psychiatry Research, 28 (2), 193 - 213.
- Center for Medicare and Medicaid Services. (2003): The inpatient Rehabilitation Facility-Patient Assessment Instrument (IRF- PAI) Training Manual. UB Foundation Activities. Available at: http://www.cms.gov.

Chou A, Chenlei K, Brown MA. (2022): Survival of older patients with advanced CKD managed without dialysis: a narrative review. Kidney Med;4:100447.

Chow E., Merchant A. A., Molnar F. and Frank C. (2023): Approach to chronic kidney disease in the elderly Vol 69: JANUARY | JANVIER 2023 | Canadian Family Physician | Le Médecin de famille canadien.

Dangol M, Shrestha S, Rai Koirala SK. (2020): Insomnia and its associated factors among older people of the selected ward of Banepa municipality, Nepal. Nurs Open;7(1):355-63.

Eryavuz N, Yuksel S, Acarturk G, Uslan I, Demir S, Demir M, (2019): Comparison of sleep quality between hemodialysis and peritoneal dialysis patients. Int Urol Nephrol; 40 (3): 785-91.

Gulia KK, Kumar VM. (2018): Sleep disorders in the elderly: a growing challenge.

Psychogeriatrics; 18(3):155-65.

Hamilton, B., Granger, V., Sherwin S., (1987): A uniform national data system for medical rehabilitation. In: Fuhrer M, ed. Rehabilitation outcomes: Analysis and measurement. Baltimore: Brookes 1987:137-147.

House TR, Wightman A, Rosenberg AR. (2022): Challenges to shared decision making about treatment of advanced CKD: a qualitative study of patients and clinicians. Am J Kidney Dis;79:657–66.e1

Iliescu EA, Coo H, McMurray MH, Meers CL, Quinn MM, Singer MA, Hopman WM. (2019): Quality of sleep and health-related quality of life in hemodialysis patients. Nephrol Dial Transplant; 18: 126-132.

Imenez Silva PH, Unwin R, Hoorn EJ,. (2021): Acidosis, cognitive dysfunction and motor impairments in patients with kidney disease. Nephrol Dial Transplant.;37(Suppl 2):ii4-ii12.

Kalantar-Zadeh K, Lockwood MB, Rhee CM. (2022): Patient-centred approaches for the management of unpleasant symptoms in kidney disease. Nat Rev Nephrol;18:185– 98.

Karakurt, P., Unsal, A., & Tanriverdi, D. (2020): Evaluation of Care Burden and Quality of Life of Caregivers of Patients with Stroke. International Journal of Caring Sciences.

Kurella Tamura M, Covinsky KE, Chertow GM, Yaffe K, Landefeld CS, McCulloch CE. (2019): Functional status of elderly adults before and after initiation of dialysis. N Engl J

Med;361(16):1539–47.

- Ladin K, Neckerman I, D'Arcangelo N. (2021): Advance care planning in older adults with chronic kidney disease: patient, care partner and clinician perspectives. J Am Soc Nephrol;32:1527–35.
- Lameire NH, Levin A, Kellum JA,. (2021): Harmonizing acute and chronic kidney disease definition and classification: report of kidney disease: improving global outcomes (KDIGO) consensus conference. Kidney Int; 100(3):516-526.
- Liu P, Quinn RR, Lam NN, (2021): Accounting for age in the definition of chronic kidney disease. JAMA Intern Med;181(10):1359- 1366.
- Natale P, Ruospo M, Saglimbene VM, Palmer SC, Strippoli GF. (2019): Interventions for improving sleep quality in people with chronic kidney

- disease. Cochrane Database Syst Rev.;5(5): CD012625.
- Neumann J, Ligtenberg G, Klein II, Koomans HA, Blankestijn PJ. (2019): Sympathetic hyperactivity in chronic kidney disease: pathogenesis, clinical relevance, and treatment. Kidney Int; 65: 1568-1576.
- Ohayon, M., Wickwire, E. M., Hirshkowitz, M., Albert, S. M., et al. (2020): National Sleep Foundation's sleep quality.
- Parker KP, Kutner NG, Bliwise DL, Bailey JL, Rye DB. (2019): Nocturnal sleep, daytime sleepiness, and quality of life in stable patients on hemodialysis. Health Qual Life Outcomes; 1: 68.
- Sabbatini M, Minale B, Crispo A, Pisani A, Ragosta A, Esposito R, (2019): Insomnia in maintenance hemodialysis patients. Nephrol Dial Transplant; 17 (5): 852-6.
- Sadeghi H, Azizzadeh Foruzi M, Haghdoost AA, Mohammad Alizade S. (2018): Effect of implementing continuous care model on sleep quality of hemodialysis patients. Iranian Journal of Critical Care Nursing; 3 (1): 12-8.
- Saeed F, Moss AH, Duberstein PR. (2022): Enabling patient choice: the "Deciding not to decide" option for older adults facing dialysis decisions. J Am Soc Nephrol;33: 880–2
- Sayk F, Teckentrup C, Becker C, Heutling D, Wellhöner P, Lehnert H, Dodt C. (2019): Effects of selective slow-wave sleep deprivation on nocturnal blood pressure dipping and daytime blood pressure regulation. Am J Physiol Regul Integr Comp Physiol; 298: R191-R197
- Shebl, A.M., & Abd Elhameed, S.H. (2014): Impact of Informal Caregivers Training Program on Geriatric patients functional status and Depression. IOSR Journal of Nursing and Health Science, 4 (3), 45 - 53.

Shlipak MG, Tummalapalli SL, Boulware LE,. (2021): The case for early identification and intervention of chronic kidney disease: conclusions from a kidney disease: improving global outcomes (KDIGO) controversies conference. Kidney Int; 99(1):34-47

Sim JJ, Rasgon SA, Derose SF. (2019): Review article: Managing sleep apnoea in kidney

diseases. Nephrology (Carlton); 15: 146-152 [PMID: 20470271 DOI: 10.1111/j.1440-1797.2009.01260.x]

Smeltzer SC, Bare BG, Hinkle JL, Cheever KH. Brunner and Suddarth's (2019): Textbook of Medical-Surgical Nursing. 12th ed. Philadelphia,

PA: Lippincott Williams & Wilkins.

Spiegel K, Leproult R, L'hermite-Balériaux M, Copinschi G, Penev PD, Van Cauter E. (2018): Leptin levels are dependent on sleep duration: relationships with sympathovagal balance, carbohydrate regulation, cortisol, and thyrotropin. J Clin Endocrinol Metab; 89: 5762-5771

Suleiman K, Al-Hadid L, Duhni A. (2012): Psychometric testing of the Arabic version of the Pittsburgh Sleep Quality Index (A-PSQI) among coronary artery disease patients in Jordan. J Nat Sci Res;2(8):15-20.

Tel H. (2019): Determining the quality of life and sleep in hemodialysis patients. Dialysis & Transplantation; 38 (6): 210-5.

Thamer M, Kaufman JS, Zhang Y, Zhang Q, Cotter DJ, Bang H. (2019): Predicting early death among elderly Dialysis patients: development and validation of a risk score to assist shared decision making for Dialysis initiation. Am J Kidney Dis.;66(6):1024–32.

Unruh ML. (2019): Sleep apnea and dialysis therapies: things that go bump in the night? Hemodial Int; 11: 369-378 [PMID: 17922730 DOI: 10.1111/j.1542-4758.2007.00203.x]

Weeracorn, A. (2018) Study on sleep quality in elderly patients with chronic obstructive pulmonary disease.

Williams M. Diabetic kidney disease in elderly individuals. Med. Clin. North Am. 97(1), 75–89 (2018).