Effect of sleep pattern on older adult's life

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Abstract

Background: Sleep pattern is a public health concern and is often considered a normal aging phenomenon. **Aim** of the study to assess the effect of sleep pattern on older adult's life. **Research Design:** A descriptive analytical design was used. **Sample:** Purposive sample of 350 older adult's. **Setting:** The study was conducted at outpatient clinic of Al Shaheed Ahmed Shawky hospital of older adults in El-Demerdash hospital affiliated to Ain shams university hospitals. **Tools:** Two tools were used for data collection. **First tool:** interviewing questionnaire was divided into four parts: Demographic data of older adult's, medical history of older adult's, knowledge of older adult's, reported practices of older adult's with sleep pattern. **second tool:** Observation checklist to assess health status of older adult's with sleep pattern. **Results**: 77.1% of older adult's had unsatisfactory level of total knowledge, 67.4% of older adult's had inadequate level of total reported practice, 90.9% of older adult's had a sleep pattern due to change in nature of sleep. **Conclusion:** There were a highly statistically significant relation between total older adult's knowledge and their educational level, (P.value <0.001), while with their age and monthly income at (p. value<.05). There was a highly statistical significant relation between older adult's total knowledge and their total reported practice (p. value <0.001). There was a statistical significant relation between older adult's total reported practice and their total older adult's health problems (p. value <0.05). **Recommendations:** Regular exercise, social activities, combined with sleep habits education are required to improve sleep and QoL in older adult's with sleep pattern disorders.

Keywords: Pattern, Older Adult's, Life

Introduction

Sleep is a normal, reversible, and recurrent state of reduced response to external stimulus accompanied with reduced mental and physical activity in which consciousness is altered and sensory activity is inhibited to a certain extent **(Rosenzweig et al., 2023).** Getting a good night's sleep is not a luxury but it is something all people of all ages should regularly get for maintaining a good health and wellbeing. As well good quality sleep is considered a blueprint for maintaining mental health **(Gibson et al., 2023).**

Ageing in general is a complex process with decline in the functions of all body systems. The sleep pattern changes gradually as part of the normal aging process.The National Sleep Foundation recommends 7-8 hours of sleep for older adults. Sleeping for less than 5 hours and more than 9 hours aren't also recommended for this age group. Older people usually have difficulty in falling asleep, they do not have a reduced need for sleep but rather an impaired ability to meet their sleep requirements **(Riemann et al., 2022).**

The causes of sleep disturbances in older adults are multi factorial. Many older adults are diagnosed with more than one health condition. Those with multiple health conditions are more likely to have poor sleep quality, and experiencing symptoms of a sleep disorder. Mental and physical health conditions may also interfere with sleep. Other factors including medical co morbidities, pain, nighttime urination, changes in social engagement, life style changes, environment, retirement, and loss of, of these can increase stress, anxiety, and depression which can affect sleep pattern **(Li et al., 2023).**

There are several sleep disorders that are especially common in older adults. Insomnia, Obstructive sleep apnea syndrome (OSAS), rapid eye movement (REM), Parasomnias, restless legs syndrome (RLS), Hypersomnia (daytime sleepiness) and Narcolepsy- cataplexy syndrome. **(Dai et al.,2023).**

There is a persistent need to find a safer hypnotic for the treatment of sleep disorder as commonly used medication to manage sleep disorders can lead to several residual side-effects such as benzodiazepines **(Kim and Yang, 2022).**

Community health nurses (CHN) have a high degree of practice autonomy to assess and manage patient's poor sleep to provide a holistic care. CHN have an integral role in primary health care with diverse roles such as providing health education and promotion to facilitate patients' sleep health, environmental modification, and patient teaching to minimize the impact of sleep disorders. CHN have a pivotal role in the diagnosis, management, and providing care for patients with a multitude of conditions and illnesses focusing on their health care needs particularly patients with sleep disorders **(Basheti et al., 2023).**

Significance of the study:

Worldwide, the number of people aged 60 years and older was 1 billion. This number will increase to 1.4 billion by 2030 and 2.1 billion by 2050. These numbers will be accelerated in coming decades particularly in developing countries as Egypt. This historically significant change in the global population requires adaptations across all sectors specially health and social care **(WHO, 2023 a)**. Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22 % **(WHO, 2023 b).**

In Egypt, the number of older adults reached 8.4 million in 2020 was estimated (8% of the total population) and it is expected to increase to 22 million (14% of the total population) in 2050 **(Help Age international and UNFPA, 2021).**

Researchers estimate that 40 to 70 % of older adults experience chronic sleep problems, and up to 50 percent of these cases remain undiagnosed. Recent studies have linked poor sleep quality in older adults to increased risk for accidents, Alzheimer's disease, depression, kidney problems, heart disease, suicide, and risk-taking behavior **(Deng et al.,2023).**

Aim of the Study

The aim of the study was to assess effect of sleep pattern on older adult's life through: -

1.Assessing knowledge of older adult's about sleep pattern.

2.Assessing practice of older adult's toward sleep disorders.

3.Assessing sleeping pattern of older adult's.

4. Assessing Effect of sleep pattern on older adult's life.

Research Questions

1.What are the level of knowledge of older adult's about sleep pattern?

2.What are the practice performed by older adult's related to sleep pattern?

3.What are the effects of the sleep pattern on older adult's life style?

4.Is there a relation between Socio - demographic characteristics of older adult's and sleep pattern?

5.Is there a relation between older adult's health problems and their sleep pattern?

Subject and Methods

The subject and methods of current study discussed under the following four (4) designs:

I. Technical Design

II. Operational Design

III. Administrative Design

IV. Statistical design

I. Technical Design:

The technical design for this study included research design, research setting and subjects for the study and tools of data collection

Research design

A descriptive analytical design was used to conduct this study and answered the research questions.

Study Setting:

The current study was conducted at the outpatient clinic in Al Shaheed Ahmed Shawky Hospital of older adults in El-demerdash Hospital which consists of 4 clinics (Day care clinic, secondary care clinic, memory clinic, osteoporosis clinic for older adult's and there are 66 beds in the internal wards from the third to sixth floors and the second floor, there are 22 intensive care beds and 10 intermediate care beds) affiliated to Ain shams university Hospitals in Cairo.

Tools of Data collection:

Tow tools were **used** for data collection of study:

First tool: A Structured Interviewing questionnaire: it was designed by the investigator and written in simple Arabic language based on scientific Literature review to gather data in relation to the following parts: **(Hwang & Avidan, 2020).**

Part I: Socio -demographic characteristics of older adult's such as age. Gender, level of education, marital status, residence, occupation and income **(items: Q1-Q7)**

Part II: Past and present medical history of older adult's e.g (chronic illness , present complain and medication **(items :Q8-Q10)**

Part III: The questionnaire consisted of the older adult's knowledge about sleep pattern it was developed and modified by the investigator after reviewing the literature in form of open and closed questions e.g., meaning, etiology, signs & symptoms and management and etc. **(items: Q11 –Q25).**

Scoring system:

Total knowledge question included (15) and scored (30) degree. Older adult's responses were scored as correct=2, incomplete correct=1, incorrect=0. The scores of items were summed up and the total divided by the number of items, these scores were converted to percent score. Total score of older adult's knowledge considered satisfactory if total percent score was 50% or more representing (15-30) and unsatisfactory if the total percent score was less than 50% representing (0-14). **(Mahale et al., 2018)**

Part IV: Older adult's reported practice to assess older adult's practice related to dealing of sleep pattern disorder e.g., stopping alcohol, nutrition, sleep & rest, social relationships activities of daily living, psychological support and taking medications as prescribed..etc. **(13questions).**

Scoring system:

Total practice questions included (13) and scored (13 degree). The responses scored as done=1, not done=zero. The total scores of items were summed up and the total divided by the number of items. These scores were converted to percent score. Total score older adult's reported practice considered adequate 60% or more responses (8-13) and inadequate if the total percent score was less than 60% representing (7) **(Mahale et al., 2018)**

Second tool: observation checklist about sleep pattern of older adult's.

This tool used to assess health status of older adult's with sleep pattern disorder. It was consisted of 30 items divided into 6 domains: sleep habits (8 items), breathing (5 items), sleeping during day (6 items), sleeping during night (6 items), medications (2 items), age- stress and work hours (3 items).

Scoring system:

The total score of practice was (30) marks and scored (0-18). Responses of the older adult's were "yes" or "No" which scored zero, one respectively. The scores of the items were summed up and the total divided by the number of items. These scores were converted to percent score. Total score of older adult's considered satisfactory if total percent score was 60% or more representing (18-30) and unsatisfactory if total percent score was less than 60% representing (17) **(Melinda et al., 2020).**

II. Operational Design

The operational study for this study consisted of preparatory phase, Pilot study, field work, reliability and validity.

Preparatory phase

This phase included reviewing of literature related to sleep pattern of older adult's. This served to develop the study tools for data collection. During this phase, the investigator also visited the selected place to get acquainted with the personnel and the study settings. Development of the tools was under supervisor's guidance and expert's opinions were considered.

Reliability

To achieve the criteria of trust worthiness of the tools reliability, a doctor in statistics checked the face and content of all aims. No modifications yield by the investigator and two parts of tools were tested through a pilot study which was conducted on 35 patients of older adult's. They represented 10% of total sample. After conducting the pilot study for measuring reliability, the study distributed the 350 of older adult's according to Cornbrash's Alphabet.

Pilot Study

Pilot study was carried out on 10 % of the total study sample representing (35 older adult's) to evaluate the applicability, efficiency, clarity of tools, assessment of feasibility and time needed, face the investigator and interfere with data collection. The pilot sample, as there were no modifications done for the tools.

Fieldwork

Data collection for the study was started at the beginning of May 2022, and was completed by the end of August 2022. The investigator conducted the study in the outpatient clinic in Al Shaheed Ahmed Shawky Hospital for older adults in El-Demerdash Hospitals in Cairo. Four days per week (Saturday, Sunday, Tuesday, Thursday) from 9am to 12pm meet the older adults in the break area of the clinic, on clinic work days (Saturday, Sunday, Tuesday, Thursday).

The investigator first explained the aim of the study to the older adults and reassured them with information collected will be treated confidentiality and that used only for the purpose of the research. The average number of the older adults who are assessed by the researcher was six to seven older adults per day.

The observational checklist was filled out by the investigator and caregivers of older adult's (caregiver observation i.e., restless legs & snoring) in the internal word. The investigator met older adults in outpatient clinic in Al Shaheed Ahmed Shawky Hospital in El-Demerdash Hospitals in Cairo. The investigator took 30 minutes for each tool to complete the sheet with older adults.

III. Administrative Design

Approval was obtained through on issued letter from the Dean of Faculty of Nursing, Ain Shams University to directors of the Al Shaheed Ahmed Shawky hospital. The investigator then met the hospital director and explained the purpose and the methods of the data collection.

Ethical consideration:

A written approval was obtained from the older adult's before inclusion in the study; a clear and simple explanation was given according to their level of understanding, physical and mental readiness. They secured that all the gathered data was confidential and used for the researcher purpose only.

IV. Statistical analysis

The data obtained were synthesized analyzed, and presented in the form of tables and figures using the statistical package for social sciences version 20.0 (SPSS). Qualitative variables were presented in the form of frequencies and percentages; quantitative variables were presented in the form mean and SD. Test of significance was used to find out associations between study variables. Chi-square (x2) test of significance was used in order to compare proportions between two qualitative parameters. The confidence interval was set to 95% and the margin of error accepted

was set to 5% So, the p- value was considered significant as the following:

- P value <0.05 was considered significant.
- P value < 0.001 was considered as highly significant.
- P value > 0.05 was considered insignificant.

Results

Table (1) shows that, 50.9% of the studied older adult their age is 65-<70 years, the Mean of age is 67.51 years. As regard gender and marital status, 61.7% and 70.3% of the studied older adult are males and married, respectively. Also, 72.6% of them residing at urban areas. Moreover, 52.6% of them are on pension. Furthermore, 77.7% of the studied sample mentioned that, their monthly income was insufficient for family's needs.

Figure (1): shows that, 77.1% of the studied older adult's had unsatisfactory level of total knowledge regarding sleep pattern**.** While, 22.9% of them had satisfactory level of total knowledge.

Table (2): demonstrates that, 90.9% of the studied older adult's had a sleep disorder due to a change in the nature of sleep. Also, 82.0% of them went to bed only when they needed to sleep. Moreover, 78.3% and 97.7% of them watched TV or used the phone before sleeping and didn't do exercise before sleeping, respectively. Furthermore, 87.7% of them reported that irregular sleep or maintaining a daily routine for a certain time affects the nature of sleep pattern. Also, 94.3% of them took medications that affect sleep.

Figure (2) shows that, 65.7% of the studied older adult's had unsatisfactory level of practices regarding sleep pattern**.** While, 34.3% of them had satisfactory level of total practices.

Table (3): displays that, there was a highly statistically significant relation between total older adults' knowledge and their education level at (P < 0.001). Also, there is a statistically significant relation with their age and monthly income at (P < 0.05). While, there was no statistically significant relation with their gender, marital status, residence and occupation at (P> 0.05).

Table (4): reveals that, there is statistically significant relation between total health problems and their sleep pattern as duration of suffering from sleep pattern, taking a nap during the day, taking any medication that helps them sleep, taking any natural herbs that help them sleep at (P < 0.05). While, there is no statistically significant relation with their place to receive treatment for sleep pattern disorders, receiving health education about sleep disorders, how often did they see a doctor for sleep disorders at (P> 0.05).

Part (I): Socio-demographic characteristics of the studied older adult's.

Table (1): Frequency distribution of the studied older adult's according to their socio-demographic characteristics **(n=350).**

Items	No.	%
Age		
60-< 65 years	97	27.7
65-<70 years	**178**	**50.9**
≥ 70 years	75	21.4
Mean ± SD **67.51 ± 6.20**		
Gender		
Male	**216**	**61.7**
Female	134	38.3
Marital Status		
Single	12	3.4
Married	**246**	**70.3**
Divorced	16	4.6
Widow	76	21.7
Residence		
Urban	**254**	**72.6**
Rural	96	27.4
Occupation		
Working	38	10.8
Not working	128	36.6
Pension	**184**	**52.6**
Monthly Income		
Sufficient for family's needs	78	22.3
Not sufficient for family's needs	**272**	**77.7**

Part (II): levels of total knowledge of sleep pattern.

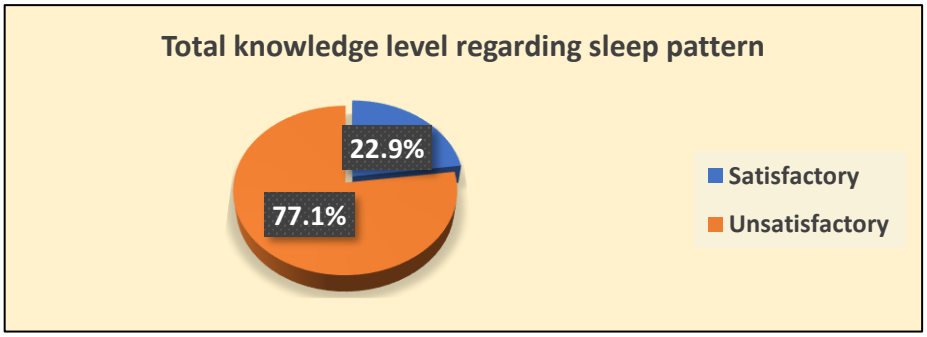

Figure (1): Percentage distribution of the studied older adult's according to their total knowledge level regarding sleep pattern **(n=350).**

Part (III): Assessing effect of sleep pattern on older adult's lifestyle.

Table (2): Frequency distribution of the studied older adult's according to effect of sleep pattern on older adult's life style **(n=350).**

Items	No.	%
A change in the nature of sleep may lead to sleep disorders		
Yes	**318**	**90.9**
No	32	9.1
Going to bed only when you need to sleep		
Yes	**287**	**82.0**
No	63	18.0
Watching TV or using the phone before sleeping		
Yes	**274**	**78.3**
No	76	21.7
Doing exercise before sleeping		
Yes	8	2.3
No	**342**	**97.7**
Irregular sleep or maintaining a daily routine for a certain time affects the nature of sleep pattern		
+Yes	**307**	**87.7**
No	43	12.3
Taking medications that affect sleep		
Yes	**330**	**94.3**
No	20	5.7

Part (V): levels of total practice of sleep pattern.

Figure (2): Percentage distribution of the studied older adult's according to their total practices level toward sleep pattern **(n=350).**

Part (VI): Relationship between the studied variable.

Table (3): Relationship between demographic characteristics of the studied older adult's and their total knowledge regarding sleep pattern **(n=350).**

Socio-demographic characteristics		Levels of total knowledge				X^2	P-Value
		Satisfactory (n=80)		Unsatisfactory (n=270)			
		No.	%	No.	%		
Age (years)	60-< 65	67	83.8	30	11.1	9.859	0.041*
	65 -< 70	8	10.0	170	63.0		
	≥ 70	5	6.2	70	25.9		
Gender	Male	45	56.3	171	63.3	3.211	0.119
	Female	35	43.7	99	36.7		
U Education level	Not read&write	0	0.0	74	27.4	24.37	0.000**
	Basic education	0	0.0	181	67.0		
	Secondary education	55	68.8	15	55.6		
	University education	25	31.2	0	0.0		
Marital Status	Single	2	2.5	10	3.7	4.028	0.102
	Married	56	70.0	190	70.4		
	Divorced	6	7.5	10	3.7		
	Widow	16	20.0	60	22.2		
Residence	Rural	44	55.0	210	77.8	3.500	0.142
	Urban	36	45.0	60	22.2		
Occupation	Working	30	37.5	8	3.0	6.932	0.101
	Not working	10	12.5	118	43.7		
	Pension	40	50.0	144	53.3		
Monthly Income	Sufficient for family's needs	70	87.5	8	3.0	12.07	0.013*
	Not sufficient for family's needs	10	12.5	262	97.0		

No significant at p > 0.05. * Statistically significant at p ‹ 0.05. **Highly statistically significant at p ‹ 0.001.

Table (4): Relationship between older adult's health problems and their sleep pattern (n=350).

sleep pattern		Older adult's health problems				X^2	P-Value
		Yes (n=336)		No (n=14)			
		No.	%	No.	%		
Duration of suffering from sleep pattern	Less than a month	52	15.5	14	100.0	7.666	0.032*
	From one to three months	118	35.1	0	0.0		
	More than three months	166	49.4	0	0.0		
Take a nap during the day	Yes	285	84.8	0	0.0	8.063	0.027*
	No	51	15.2	14	100.0		
Take any medication that helps you sleep	Yes	108	32.1	0	0.0	6.550	0.043*
	No	228	67.9	14	100.0		
Take any natural herbs that help you sleep	Yes	92	27.4	2	14.3	6.401	0.049*
	No	244	72.6	12	85.7		
A place to receive treatment for sleep pattern disorders	Government hospitals	304	90.5	2	14.3	3.531	0.137
	Government health insurance	22	6.5	7	50.0		
	Private clinic	10	3.0	5	35.7		
Receive health education about sleep pattern disorders	Yes	30	8.9	6	42.9	4.310	0.103
	No	306	91.1	8	57.1		
How often do you see a doctor for sleep pattern disorders?	When I feel no better	262	78.0	4	28.6	1.336	0.302
	Per month	11	3.3	3	21.4		
	Every six months	33	9.8	5	35.7		
	Every year	30	8.9	2	14.3		

No significant at p > 0.05. * Statistically significant at p ‹ 0.05.

Discussion

Changes with aging occur that affect the quality and quantity of sleep. these changes could cause sleep disorders in older adult's, causing severe problems of health and QoL. Ageing is associated with increased incidences of sleep-related ailments. Older people have difficulty in falling asleep and staying asleep due to frequent arousals. Changes in sleep patterns are a part of the normal ageing process, and their caregivers must be educated about the sleep patterns of the elderly. (**Wolkove. et al., 2020).**

Part (I): Demographic characteristics of the studied older adult's.

Regarding older adult's demographic characteristics, findings of the current study showed that half of older adult's age ranged from 65-<70 years. More than two thirds of them were males. less than three quarters of them were married. More than half of them were residing at urban areas. More than half of them were on pension. More than three quarter of them have insufficient of income for family needs. More than half of older adult's had basic education. Less than one quarter of them were not read and write. One fifth of them had secondary education (Table 1).

The same result was reported by **Danan et al. (2020)** who studied conducted a study entitled "Sociodemographic and health correlates of sleep quality and Duration among

older adult's " In **China** affairs health care system in 150 of older adult's and found that three quarters of study sample were married and lived in urban areas. Moreover, the current study is in agreement with the study done by **Marzyiyeh & Leila, (2018)** who studied conducted a study entitled "Association of sleep disorders with socio-demographic characteristics in elderly referral to health centers in Qazvin, **Iran"** (n=295) and found that more than half of the study sample had insufficient inadequate of income for family needs.

From the investigator's point of view, assessment of educational level and income of older adult's is important as it gives a background about knowledge, awareness and skills of older adult's regarding sleep disorders management.

Part II: levels of total knowledge of sleep pattern.

Regarding older adult's total knowledge about sleep pattern, finding of the current study showed that, more than three quarters of older adult's had unsatisfactory level of knowledge while less than one quarter of them had satisfactory level of total knowledge. (Figure 1)

This result is in agreement with the study done by **Basiri et al. (2022)** who conduct a study entitled "care of needs of Older People for Personalized Assistive Solutions in healthcare System" In **Africa**, (n=100) found that more than three quarters of older adults had unsatisfactory knowledge about sleep disorders. In the same line, the current study result is in agreement with the study done by **Mudumbi et al. (2020)** who conducted a study entitled "Care of elderly people and intervention in sleep disorders in **Romanian** "(n= 133) and found that less than one quarter of the older adult's had satisfactory knowledge about sleep pattern disorders.

Investigator's point of view, this may be resulting in deficiency level of knowledge and awareness of older adult's background regarding sleep pattern disorders.

III: Effect of sleep pattern on older adult's life style.

Regarding effect of sleep pattern on older adult's lifestyle, finding of the current study showed that, majority of older adult's had sleep disorders due to change in nature of sleep. Most of them went to bed only when they needed to sleep. More than three quarters of them watched TV or used phone before sleeping and majority of them didn't do exercise before sleeping. More than three quarter of them reported that irregular sleep or maintaining a daily routine for a certain time affects the nature of sleep pattern. Majority of them took medication that affect sleep. (Table2)

This result is in supported by **Mahin et al. (2018)** who conducted a study entitled "The Relationship between Sleep quality, Self-Efficacy, and stages of Change among older adult's: A Pilot Study "in **Iran,** (n=125) and found that the majority of the participants had irregular napping of sleep was associated with increase of risk factor of sleep pattern. The current study result in disagreement with study done by **Tibi et al. (2020)** who conduct a study entitled "Questionnaire Based pilot Study of Sleep patterns and Sleep Problems among Elderly "in **Delhi,** (n=90) found that the majority of older adult's had sleep pattern changes affected on their life.

Investigator's point of view, this result attributed to lack of awareness due to differences of the culture and level of education.

Part V: levels of total practice of sleep pattern.

Regarding total reported practice toward sleep pattern, finding of the current study showed that, more than two thirds of older adult's had inadequate level of total reported practices toward sleep pattern disorders. While less than one third of them had satisfactory level of total reported practices. (Figure 2)

This result is in agreement with the study done by **Khaled et al. (2021)** who conduct a study entitled "The epidemiology of the sleep disorders in among elderly people in **Egypt** " (n= 165)and found that two thirds of participants had inadequate practices of older

adult's with sleep disorders. Conversely, the current study result is in dis agreement with study done by **Jimmy et al. (2022)** who conducted a study entitled "Epidemiology of sleep pattern disorders among older adults in **European** "(n=95) and found that quarters of participants had satisfactory practices of older adult's with sleep disorders.

Investigator's point of view, this result may be due to lack of awareness of older adult's toward sleep pattern on their health.

Answer research question No (4) "Is there a relation between demographic characteristics of older adult's and sleep pattern?

Regarding the relationship between demographic characteristics of older adult's and their total knowledge regarding sleep pattern, findings of the current study showed that, there was a highly statistically significant relation between total older adult's knowledge and their education level. Also, there was a statistically significant relation with age and monthly income. There was no statistically significant relation with their gender, marital status, residence and occupation. (table 3). **Question 4**.

This result is in agreement with the study done by **Yun-shu et al. (2020)** who conducted a study entitled "prevenance and socio-demographic correlates of poor sleep quality among older adult's "in **China,** (n=111) and found that there was a highly statistically significant relation between older adult's total knowledge and their demographic characteristics. Conversely, the current study result is in disagreement with the study done by **Ghislain et al. (2019)** who conducted a study entitled " Impact of factors, lifestyle and health status of sleep pattern on the elderly " in **Taiwan,** (n=75) and found that there was no statistically significant relation between older adult's total knowledge and their demographic characteristics.

Investigator's point of view, this result may be due to the importance of the level of education in raising of awareness through reading in order to of understanding of knowledge about the sleep disorders for older adult's.

Answer research question No (5) "Is there a relation between older adult's health problems and their sleep pattern?

Regarding relationship between older adult's health problems and their sleep pattern, findings of the current study showed that, there was statistically significant relation between total health problems and their sleep pattern as duration of suffering from sleep pattern, taking a nap during the day, taking any medication that helps them sleep, taking any natural herbs that help them sleep. There was no statistically significant relation with their place to receive treatment for sleep pattern disorders, receiving health education about sleep disorders, how often do you see a doctor for sleep pattern. (Table 15) **question 5**

This result is in agreement with the study by **Hongkun & Thaneshwar, (2021)** who conducted a study entitled "Physical and Mental Health problems of the Elderly People in **Nepal**" (n=63) and found that there was statistically significant relation between total health problems and their sleep pattern as duration of suffering from sleep pattern disorders, taking a nap during the day, taking any medication that helps them sleep, taking any natural herbs that help them sleep. Conversely, the current study result is in disagreement with the study done by **Junhong et al. (2018)** who conducted a study entitled "Sleep correlates of sleep pattern and sleep problems in an elderly "in **Asia,**(n=35) found that there was no statistically significant relation between older adult and total health problems.

Investigator's point of view, this result indicated that the changes of sleep pattern of older adult's can affected on health and leads to many health problems.

Conclusion

In the light of the study results and answers of the research questions, the present study concluded that:

There were a highly statistically significant relation between total older adult's knowledge and their educational level (P. value <0.001), while

with their age and monthly income at (p. value<.05). There was a highly statistical significant relation between older adult's total knowledge and their total reported practice (p. value <0.001). There was a statistical significant relation between older adult's total reported practice and their total older adult's health problems (p. value <0.05).

Recommendations

The findings of this study highlighted the following recommendations:

- Cognitive behavioral therapy should be planned to improve both immediate and long-term self -reported sleep pattern disorders.
- Periodic health education for older adult's about effect of sleep pattern on life and health.
- Regular exercise, social activities, combined with sleep habits education are required to improve sleep and QoL in older adult's with sleep pattern disorders.

Further research is needed to determine to what extent interventions to improve sleep pattern can produce beneficial effects on QOL in the older adult's.

- Counselling of older adult's about improving health habits and behaviors of the sleep.
- Increase awareness of older adult's about effect of sleep pattern on life and health.

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