Assess Sleep Quality by Nutritional Awareness among Elderly Women in geriatric home

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Abstract: *Background: Poor sleep is reported in 50% of older adult ,calling for an important need for identifying nutrition needs to improve their sleep quality*
Aim: The present study aimed to assess sleep quality by nutritional awareness among elderly women in geriatric home .Design: A descriptive research design. Setting: The study carried out at two geriatric home for elderly in Port Said City .Subjects: A Purposive sample were used in this study consisted of (88) elderly women residence in the above-mentioned setting. Tool I: - Data was collected through one tools, structured interview questionnaire socio demographic characteristic of elderly, past and present history, Scale to assess sleep quality index the Pittsburgh Sleep Quality Index , recommended Dietary Allowances 24 hr. and knowledge about nutritional awareness and balanced diet.
The results revealed that the majority of elderly bad sleeper according to PSQI, regarding to subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, daytime dysfunction and sleep medication .Also, more than half of elderly inadequate nutrition giving every day. and the majority of elderly poor awareness about balanced diet. Additionally, There is a statistically significant positive correlation between nutrition awareness and sleep quality among elderly women. [P: <0.001] .Conclusion: The study concluded that the majority of elderly bad sleep quality according to PSQI. Also, more than half of elderly inadequate nutrition giving every day .and the majority of elderly poor awareness about balanced diet. .Recommendation:. Developing programs that would help elderly women to improve sleep quality by nutrition awareness
Key words: Sleep quality, nutrition, elderly women and geriatric home.

I. Introduction

Population ageing is one of the most significant trends of the 21st century. One in eight people in the world are aged 60 or over. As long as life expectancy continues to rise, older people will steadily increase as a proportion of the population. The world is ageing rapidly. People aged 60 and older make up 12.3 % of the global population, and by 2050, that number will rise to almost 22 % about 2 billion, up from 900 million in 2015 according to the report of United Nations population fund **[1].** On the other hand, the statistics of the Central Agency for Public Mobilization and Statistics **[2],**revealed that old a persons in Egypt reached 5.9 million (2.9 million male, 3 million female) in 2012, 7.1% of total population and is expected to increase to 11.5% in 2030.

Sleep is vital process linked to neural restoration and physiological maintenance across multiple system .Conversely, sleep loss is linked to a diverse range of adverse effects **[3].**Sleep efficiency and total sleep time are reduced with age and there are an increased number of sleep stage shifts. Compared with elderly, the elderly spend more time in bed but have deterioration in both the quality and quantity of sleep **[4].**

Aging is associated with a decline in number of physiological functions that can affect nutritional status, including reduced lean body mass, changes in cytokine and hormonal levels, delayed gastric emptying, changes in fluid electrolyte regulation, and diminished sense of smell and taste. Pathological causes such as chronic illness, depression, medications and social isolation can all play a role in nutritional inadequacy. Screening is vital in identifying and monitoring patients **[5].**

Sleep problems are not an inherent part of the aging process. Many older adults have good sleep quality until the end of their lives. It is critical that sleep problems are not mistaken for physiologic changes in sleep-awake patterns and sleep architecture that occur throughout the lifespan. Older adults often display an advanced circadian tendency, having an earlier bedtime and an earlier wake-up time. Sleep architecture changes include

spending an increased proportion of time in stages N1 and N2 sleep (ie, the lighter stages of sleep), a decreased proportion of time in stage N3 sleep (ie, a deeper stage of sleep) and in rapid eye movement (REM) sleep. These architecture changes reflect a decrease in deep, restorative sleep and an increase in light, transitory sleep. In addition, older adults tend to spend slightly less time asleep than their younger counterparts. Although some older adults complain of poor night-time sleep or subsequent impairments in daytime functioning, others assume that their difficulties are part of the normal aging process. Therefore, a focused evaluation of sleep, specifically sleep apnea and insomnia, and related daytime functioning should be performed in every older adult in whom sleep disturbances are suspected [6].

Insufficient sleep is considered an independent risk factor for weight gain and obesity. We show that 5 d of insufficient sleep increases energy needs, but that sleep loss also increases food intake such that intake is in excess of energy needed leading to weight gain. Food intake, especially of carbohydrates, was high despite appropriate responses of satiety and hunger hormones that signaled food intake was in excess. During sleep loss, participants ate smaller breakfasts but ate more over the day, especially carbohydrates, proteins, and fiber at night after dinner Changes in circadian phase and the circadian timing of awakening may have contributed to the altered eating patterns during insufficient sleep. Specifically, participants may have eaten smaller breakfasts because they awakened at an earlier circadian phase when the internal circadian clock was promoting sleep .i. e., wake time occurred during the biological night when melatonin levels were still high. Furthermore, a delay in melatonin onset the beginning of the biological night—may have led to a circadian drive for more food intake at night. Transitioning from sleep loss to an adequate/recovery sleep schedule led to reduced food intake, especially fewer fats and carbohydrates and to weight loss. Sex differences are in agreement with previous research that women have more dietary restraint than men during ad libitum food intake, selecting a diet that more closely matches their daily caloric needs [7].

Nurses have an important role in implementing appropriate strategies to minimize the occurrence of sleep disorders. As well as pharmacological agents, advice regarding eating little and often, avoiding strong smells, and an understanding that it is okay to abstain from food intake for 24 hours as long as fluid intake is good can be reinforced at treatment sessions[8].

1.1 Significance of the Study:
Sleep problems increased with aging and it is estimated that nearly 67% of the elderly people have at least one sleep –related complaint. Researchers have observed direct correlation between poor sleep quality and nutrition awareness [9].The most common treatment for sleep problems is pharmacological treatment, which is associated with hazardous sides effect especially in older person [10].

 Poor nutrition it is more common and increasing in the older population; currently 16% of those >65 years and 2% of those >85 years are classed as malnourished. Almost two-thirds of general and acute hospital beds are used by people aged >65 years. Studies in developed countries found that up to 15% of community-dwelling and home-bound elderly, 23% to 62% of hospitalized patients and up to 85% of geriatric home residents suffer from poor nutrition. Malnutrition is associated with a decline in functional status, impaired muscle function, decreased bone mass, immune dysfunction, anemia, reduced cognitive function, poor wound healing, delayed recovering from surgery, higher hospital and readmission rate, sleep disorders and mortality[11].

Because of the high prevalence, complexity, and health implications associated with sleep problems in older adults. Increased attention is now being focused on this topic [12].Also. There are few prior studies focused on improving sleep quality of elderly people in Egypt.

1.2 Aim of the study:
This study aim, to assess sleep quality by nutritional awareness among elderly women in geriatric home through:
*Assessment   relation between nutritional awareness and sleep quality.
* Assessment the extent of poor sleeps quality among elderly women
*Detect the effect of nutritional awareness on sleep quality among elderly women.

1.3 Research Question:
1. What is the relation between nutritional awareness and sleep quality among elderly women?
2. What is the extent of poor sleep quality among elderly women?
3. What is the effect of nutritional awareness on sleep quality among elderly women?

II. Subjects and methods

2.1 Research design:
A descriptive research design has been utilized in this study.

2.2 Research setting: This study was conducted at two geriatric home for elderly in Port Said City (Muslims Mabra for elderly care and Port Fouad elderly home care).

2.3 Subjects: Purposive samples were used in this study consisted of (88) elderly women residences in the above-mentioned setting were recruited for the study. (Number of sample 46 in Muslims Mabra for elderly care and 42 in Port Fouad elderly home care).were selecting
According to certain criteria: Age from ≤ 60 to 70 years, Self-dependent &Accepting to participate in the study

2.4 Tools of data collection:
Tool I: Interviewing questionnaire sheet: A structured interviewing questionnaire was designed by the researcher, after reviewing the related current and previous literature, to collect data which cover the aim of the study .It consisted of four parts as follows:
Part I: Socio demographic characteristic data about elderly women including: age, duration in the residence home, educational level, sources of income and monthly income.
Part II: The past and present medical history as regards: presence of chronic diseases, medications, and the presence of health problems from drugs ...etc
Part III: Scale to assess sleep quality index the Pittsburgh Sleep Quality Index [13].The Pittsburgh Sleep Quality Index (PSQI) is a self-report questionnaire that assesses sleep quality and quantity. The original version was designed to measure sleep reports over a one- month interval.The19-item self-report questionnaire yields7component scores: subjective sleep quality, sleep latency, duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. AGlobal Sleep Quality score greater than 5 discriminated between good and poor sleepers and yielded a diagnostic sensitivity of 89.6% and specificity of 86.5%. There is evidence of the reliability and validity of the PSQI in the elderly .Internal consistency reliability(alpha=0.80)

Part IV: A-Dietary intake by:
Recommended Dietary Allowances RDA,(1989), 24hrs. [14]Dietary recall for 15 days for adequacy of diets was taken from women adults.

B-Nutrition pattern structured interview schedule include:
        Knowledge about elderly nutrition awareness and elements of balanced diet it was consists of 16 question .Subject response for each question was between correct and complete ansers"2" , correct and incomplete answer "1: and wrong and / or don't know answer "0".The total score ranged from 0 to 32 as follows
*   Poor knowledge (0 ≤ 11).
*   Fair knowledge (11≤ 22).
*   High knowledge (22 -32).

2.6 Pilot study:
        A pilot study was conducted on 10% (8 elderly) to test the content, clarity and time needed to fill the tool as a pre-test. According to the pilot study, no modification was done. So, the pilot study sample was included in the study sample.

2.7 Fieldwork:
        After official permissions to carry out the study, the aim of the study was explained to the selected subjects. The study was carried out along a period of 7 months starting from the beginning of June 2017 till the end of January 2018until the sample size attained. The average time consumed to fill tool was 30 minutes. The previously mentioned settings were visited by the researchers two days/week (Saturday and Thursday) from 10.00 am to 2.00 pm.

2.8Administrative design:
        Approval to carry out this study will be obtained from Dean of Faculty of nursing, Helwan University and official permission will be obtained from the director of the geriatric home for conducting the study.

2.9 Ethical considerations:
        Each elderly was informed about the purpose and benefits of the study, and then oral consent was obtained before starting the data collection. Strict confidentiality was ensured throughout the study process. The

study subjects were assured that all data was used only for research purpose and elderly were informed of the rights to refuse or withdraw at any time with no consequences.

Validity of the tools:

Content validity was done through five experts from Faculty Members of Community, Gerontological Health Nursing department and nutritional Specialty to ascertain relevance and completeness.

Reliability: Reliability coefficients were calculated for questionnaire items. The coefficient alpha was 76.00 %.

2.10 Data management: The collected data were organized, categorized, tabulated and analyzed .Data were presented in tables and charts using numbers and percentage, statistics and associations were done using mean, standard deviation SD, t- test and p- value, Significant of the result: no Significant if p->0.05, Significant if p-<0.05 and Highly Significant if p-<0.001.

III. Results

Table 1 show that the age of the studied elderly ranged between 60-75 years, with mean70.8±6.8 years. Most of them 89.8%of the studied elderly were currently unmarried (divorced, widowed, or single), 61.4% of elderly the monthly income not enough. The main source of income was the retirement 71.6%.Also, 70.5% of the elderly insufficient income for treatment and food. Figure (1): Illustrated that 36.4 % of the elderly were illiterate, 27.3% of them read and write, and the minority of them 10.2% university and more .Figure (2): Illustrated that 90.9 % of the elderly not working, the minority of them 9.1% were working.

Table (2): illustrate the most common chronic diseases as mentioned by the studied elderly. According to the table the most common diseases were hypertension (43.5%), diabetes (11.3%) , and Heart disease (25.8%).Regarding the Period of residence of the elderly in the geriatric home 46.6% of the elderly the residence 1≥ 5 years .regarding the causes of residence in geriatric home 58.0% the causes due to no caregiver at home. Regarding the causes of admission in hospital 35.1% were admission due to Angina pectoris .Regarding how to fallow up your health condition 29.5% by a private doctor if necessary. Also 48.9% of them to get monthly treatment buy the medication yourself. As ,observed from mean value of PSQI component of the elderly able (3) that a highly statistical significant relationship were found between subjective sleep quality , sleep latency, sleep duration, sleep efficiency , sleep disturbance , daytime dysfunction and sleep medication .Regarding to PSQI Components scores.

Table 4 show the number of good and bad sleepers according to PSQI .The result show that the majority of elderly 90.9 % bad sleeper according to PSQI. Figure (3) Illustrated that 90.9 % of the elderly were bed sleep and the minority of them 9.1% were good sleep every days.

Table (5) clarifies the number and percentage distribution of the elderly women according to their knowledge about nutrition awareness and element of balanced diet. It was obvious that 79.5%, 73.8%, 56.8%, 31.8%, and 28.5% of the study subject answered wrong or don't know about the important of fat, carbohydrates, Iron, Vitamins and Calcium respectively. In addition, 34.0%, 31.8%, 26.1%, and 20.5% % of the study subject answered Correct & incomplete related to foods you should increase during elderly period, food is rich in carbohydrates; food is rich in Calcium and the important of carbohydrates respectively. Moreover 39.7 %, 34.0% and 17.1% of them answered Correct & complete related to all items of nutrition knowledge except what are the health food groups, what are elements of the healthy food, foods you should increase during elderly period, the important of Vitamins, and the important of Iron respectively

Table 6reveals a statistically significant relation between sleep component as measured by PSQI and age, level of education ,occupation and health problems with p value (p=0.01) .except the monthly income.

Table 7shows a statistically significant correlation between socio demographic characteristics of elderly women age , level of education ,health problems ,monthly income ,occupation   and total sleep component as measured by PSQI and dietary intake

Table 8show that, the statistically significant correlation between elderly nutrition awareness and total sleep component as measured by PSQI

IV. Discussion

Sleep has been considered as an important lifestyle factor that affects an individual's health. Short sleep duration has been associated with increased risk of hypertension, diabetes, stroke and increase in BMI in a dose-dependent fashion in children and adults. Although biological mechanisms linking sleep duration and obesity remain unclear, reduced leptin and elevated ghrelin levels have been proposed as possible explanations .If sleep duration has an effect on obesity, modification of sleep duration may become an important intervention for prevention and management of obesity.**[15]**

Poor sleep quality is a symptom that should be taken seriously among elderly, because it may be a prodroma for serious physical and psychological illness and affect their sense of well-being. Good sleep quality

is associated with a wide range of positive outcomes such as better health, less daytime sleepiness, greater well-being and better psychological functioning. [16]

he aim of this study to assess sleep quality by nutritional awareness among elderly women in geriatric home .It was Assessment relation between nutritional awareness and sleep quality., assessment the extent of poor sleep quality among elderly women and detect the effect of nutritional awareness on sleep quality among elderly women. A descriptive research design was utilized to conduct this study.

Concerning the demographic characteristics of the studied elderly their age ranged between $60 \geq 75$ years, with mean70.8±6.8 years. Several studies indicate that sleep complaints and sleep problem increase with old age, with over 50% of elderly individuals reporting difficulty initiating or maintaining sleep [17],[18].In congruence with this, [19] mentioned that the ability to initiate and maintain nighttime sleep declines with aging, also sleep becomes more fragmented with aging and with more nighttime awakenings and greater tendency for daytime sleepiness. Also a significant association between age and bad sleep quality was found in bad sleep quality was found in a study conducted by in Turkey. Similarly in an Egyptian study, increasing age was a significant predictor of many forms of insomnia symptoms [20]. This might be due to increase prevalence of chronic diseases in old age and other age-related changes.

According to the current study findings, most of the studied elderly were unmarried (divorced, widowed, and single). Being unmarried was found to be associated with insomnia and sleep complaints in the elderly in different setting. In congruence with this, a study conducted by the researcher in the same study setting that found that unmarried elderly (divorced, widowed, and single) significantly suffered from insomnia more than married elderly[21].

In accordance with this finding,[20] study in elderly homes in Alexandria, Egypt demonstrated that unmarried elderly suffered from higher rates of insomnia which is consistent with the study of [22]who found that insomnia was more common among elderly who were separated, divorced, or widowed. Another study conducted by [10] in Turkey demonstrated that sleep quality of the elderly people who were widowed was bad, which was in line with this study finding.

Concerning the educational level, one thirds of the studied elderly was illiterate. This result is nearly consisted with a study about Socio-demographic characteristics of geriatric patient: Hospital based cancer registry in a tertiary care hospital of India''conducted in India by [23] who found that about one thirds of patients were illiterate. This might be attributed by the fact that the elderly had fewer opportunities for education in the past.

Regarding sources of income in the present study the less than two thirds of them were depended on retirement pension, this result was in the same line with [24] who found that the majority of sample depended on retirement pension as a source of their income.

Regarding medical history of the studied elderly, the current study findings revealed that the majority of the studied elderly had chronic diseases, and the most common diseases were hypertension, diabetes, heart disease and arthritis. In accordance with these findings,[25]in Egypt demonstrated that the most common type of chronic diseases among the studied elderly subject were hypertension gastrointestinal diseases, diabetes mellitus, tumors, renal diseases, and rheumatoid arthritis. In agreement with this, a study conducted by the researcher in the same study setting found that the majority of the studied elderly had chronic diseases, and the most common diseases were hypertension, arthritis, chronic respiratory diseases, and diabetes [26]These chronic diseases may interfere with their sleep condition.[27]suggested that the elderly people who expressed their health status better had better sleep quality and that cardiovascular diseases, hypertension, skeletal muscular diseases, endocrine ,obesity and metabolic diseases affected sleep quality negatively.

This is concurrent with other Egyptian study reporting that poor sleep quality was related to chronic diseases such as cardiovascular disease and hypertension [28]. Chronic illness can deteriorate sleep quality through pain, anxiety, urinary disturbances, or as side effects of medication used to treat those conditions such as β-blockers, bronchodilators corticosteroids, diuretics, and antihistamines. Also sleep quality deteriorates with increasing number of health conditions. This is consistent with [29]in a study conducted in Cairo in Egypt, they found that elderly suffering from three or more chronic diseases significantly suffered insomnia more than those having less number of chronic diseases.

The present study findings revealed that the less than two thirds of the studied elderly mentioned that they took regular medication for chronic diseases. Such as hypertension, diabetes, and heart diseases .The median number of medication per elderly person was 3 every days . This result is in agreement with the study carried out at Alexandria in Egypt by [28] who mentioned that the majority of the studied elderly stated that took regular medication, with a mean number of 2.66±2.037 drugs per day. These findings are in agreement with [30] who reported that with advancing age several changes occur that can place one at risk for sleep disturbance including increase prevalence of medical conditions and increased medication use. In accordance with this, a study conducted by the researcher in the same study setting found that insomnia have statistically significant association with total number of daily medications [21].The use of medication is usual among elderly

due to the higher frequency of chronic diseases and most of these medications are well-known to cause sleep disturbances.

Regarding the period of residence of the elderly in geriatric home, slightly more than half   the period of residence 1≥5 years .the period of residence of elderly there were high percentage of daytime problems caused by inadequate sleep as reported by the studied elderly particularly daytime sleepiness and low concentration. In accordance with this, a study in Egypt conducted by **[31]** revealed that the majority of sample had excessive daytime sleepiness; and there were high percentages of complication caused by sleep disturbance as reported by the studied elderly particularly headache, mood disturbance, and general aching. Bad sleep quality can impact psychological and physical health of older adults .These findings are in agreement with **[32][28]**who reported that insomnia symptoms and sleep complaints can lead to fatigue and daytime sleepiness; mood disturbances such as irritability, anger, depression, and anxiety; somatic complaints such as joint pain headache, and muscle aches; impaired concentration and cognitive performance.

Concerning the sleep quality index the Pittsburgh Sleep Quality Index (PSQI)

Regarding to the mean of PSQI component of the studied elderly regarding sleep quality and quantity .there were significant of all daytime problems caused by inadequate sleep as reported by the studied elderly, In accordance with the current study findings, a study in Egypt conducted by **[31]** to assess elderly knowledge and practice concerning sleep disturbance; to develop, implement and evaluate an educational training program about sleep disturbance. The findings of this study revealed that the elderly's sleep quality significantly had poor improved after the program.

On the same line, in other Egyptian study conducted by **[28]**to determine the prevalence and risk factor of insomnia, and the impact of a cognitive behavioral therapy for institutionalized elders complaining of sleep disturbance in Alexandria. The finding of this study demonstrated that after carrying out the behavioral therapy for the elders, there was a highly significant improvement in elderly's sleep quality as measured by the PSQI. On the same way, a study conducted in Japan by **[32]** found that at the post-intervention assessment, a global PSQI score of the studied elderly declined from 701 to 5.1.

Also in agreement with the foregoing present study findings, **[33]** study in Germany demonstrated that pre-post comparisons revealed a significant improvement in sleep quality of the studied older adults as measured by the PSQI, and concluded that the non-pharmacological combination treatment consisting from CBT, light Therapy and physical activity can be effective in the treatment of co morbid insomnia in older adults.

Similar result have been found by **[28]**who conducted their study in South Australia to evaluate the efficacy of a brief treatment program of CBT for older adults the findings of this study indicated that CBT produced improvement in sleep quality and sleep efficiency of older adults. Importantly, a review study by **[18]** concluded that cognitive-behavioral therapies produced long-term improvement on both subjective measures of sleep, as well as they were safer and more effective alternatives to hypnotic medications in the long-term for treatment of insomnia in older people.

Concerning the nutrition of studied elderly that affect the sleep patterns

As regard to the elderly dietary intake during the last 15 days . The present study revealed that more than half of elderly give three meals every days medium amount. Also, more than half of elderly give dairy products small amount every days and one fourth of them give medium amount of protein (plant and animal) every days .Also, one thirds of them give medium amount of carbohydrate and vegetable /fruits every days and nearly three quarters of them give fluids intake (L/day) and one fourth of them give minerals every days

These findings are supported by **[21]**who stated that nutrition awareness can be effective in reducing risks of cardiovascular disease in elderly women, increase knowledge of nutrition promote healthy eating among the residents of elderly women This may be due to lake of knowledge of elderly regarding balanced diet effect of normal balance diet of elderly and effect of sleep pattern and, this could be due to presence of chronic illness, polypharmacy, presence of gastrointestinal upset that interfere the elderly nutritional status. Another factors that may responsible for the orderly's nutritional problems is that the elderly do not have balanced meals per day because of absence of a qualified dietitian to plan or approve meals, in addition, food is served in a non attractive and appetizing way and meals are provided only at set times, regardless, if the elderly is hungry or not. **[34]** Noticed that ordinary diet was provided to all residents, regardless of their medical conditions. **[10]** Stated that meal should have varying nutrition needs, by addressing nutritional risks and providing a new restorative comprehensive meal to meet these needs. **[34]** Who also mentioned that the nutrition education wants and needs for elderly and service providers are important to improve their health and their sleep quality **[35][36]** Stated that malnutrition among elderly women is usually contributed to physical risks such as chronic illness.

As mentioned by **[37][38]**they stated that good nutrition promotes health (by averting malnutrition, preventing dietary deficiency disease and promoting optimal functioning, as well as, good sleep quality and both physical and mental well-being. This explained the significant relationship between nutrition and health among elderly women.

Dietary habits can be influenced by psycho-social conditions: isolation, loneliness, depression and cognitive impairment. Physical disability can limit shopping ability; economic restraints can limit food choice. Cultural habits, cohort effects, negative family conditions, side effects of drugs are also possible causes of impaired nutrient intake **[39].**

Regarding nutrition requirements and supplements as Protein, according to the mean weight values, the RDAs of protein were calculated, (0.52/kg) of females mean weight both age groups protein intakes were compared with this calculated RDA. It is clear that low percentage of protein sufficient were about (50%, 130%) for females young and old before awareness while was about (81.0%, 130%) young & old females after awareness respectively. This reflected the high consumption of protein, which would be a kidney function loading. This results (protein intake exceeding) is consistent with that of the final report of **[40][41].**

Regarding to elderly to dietary intake during the last 15 days , one thirds of them give carbohydrate every day .vegetables /fruits and fluid intake every days As mentioned by **[37][38]**they stated that good nutrition promotes health (by averting malnutrition, preventing dietary About Carbohydrate: there is no RDA for dietary carbohydrate, but the current guidelines of the U.S Department of Agriculture and U.S Department of Health and Human Service recommended that 55%or more of total Kilocalories are supplied by carbohydrate. While Energy, it is compared with energy RDA(1800& 1500 kcal for elderly females young and old respectively) the intake of energy before awareness were (85%, 105%) while after awareness were (80%, 90%) in young & old females respectively . these results are consistent with the final report of NIN,2011.which reported also a decrement intakes of energy at elderly , at expense of carbohydrate and fat intakes . so consistent with FAO, (2014)results . this insufficient energy intake didn't as resultant of low food served, (Shi, et al 2017) reported that food served to elder's energy more than RDA.

The finding of the current study showed that more than two thirds of the study subjects answered wrong or don't know about the health food groups and element of the healthy food .this finding is similar with the study of **[42]** who studied "the assessment of elderly nutrition and associated factors in Guto Gida Woreda,est Wollegezone, Ethiopia ". His study revealed that less than two thirds (64.4%) of the study subject were found to be wrong or don't know about the health food groups and element of the healthy food.

In contrast, **[43]** who studied "Nutritional status, dietary intake, and relevant knowledge of elderly in rural Bangladesh" indicated that more than one thirds of his study subjects don't know about the health food groups and element of the healthy food

The finding of the current study showed that more than half of the study subjects answered wrong or don't know about the foods you should increased or decreased during the elderly period .This finding is not in harmony with the study of **[43]** which indicated that half of his study subjects know the foods you should increased or decreased during the elderly period .The discrepancy between two studies may be attributed to that in Bangladesh. Low family income, education level, and periodic food –shortage were associated with inadequate dietary intake.

The finding of the current study showed that more than two thirds of the study subjects answered wrong or don't know about the important of protein and what food is rich in protein .this finding is similar with the study of **[42]** who studied "the assessment of elderly nutrition and associated factors in GutoGida Woreda,est Wollegezone, Ethiopia ". His study revealed that more than one half of this study subjects could not name the main food sources of energy and source of energy and sources of protein.

In contrast, **[20]** who studied in elderly home in Alexandria, Egypt, which indicated that half of his study subjects, could not have knowledge about important and food rich in protein and what food is rich in protein.

The finding of the current study showed that about two fifth of the study subjects answered correct & complete about the important of carbohydrates and what food is rich in carbohydrates .this finding is similar with the study of **[27]** who studied "intervention program regarding diabetic elderly ". His study revealed that more than one half of this study subject's correct knowledge about name the main food sources of carbohydrates and source of carbohydrates.

The finding of the current study showed that about two fifth of the study subjects answered correct & complete about the important of fat and what food is rich in fat .this finding is similar with the study of **[44]"**Symposium on sleep apnea disorders " who studied His study revealed that more than one half of this study subjects correct knowledge about name the main food sources of fat and source of fat .

The finding of the current study showed that more than two thirds of the study subjects answered wrong or don't know about the important of vitamins ,Iron and what food is rich in vitamins , Iron .this finding is similar with the study of **[45]."**The Impact of Changes in Nightlength (Scotoperiod) on Human Sleep", in Turek . His study revealed that more than one half of this study subjects wrong or don't know about name the main food sources of vitamins , Iron and source of vitamins , Iron .

The finding of the current study showed that about two fifth of the study subjects answered correct & complete about the important of calcium and what food is rich in calcium .this finding is similar with the study

of **[46]** who studied "The visual scoring of sleep in adults". His study revealed that more than one half of this study subject's correct knowledge about name the main food sources of calcium and source of calcium.

In the current study there was a relation between nutritional awareness and balanced diet and sleep quality among elderly women. There was a statistically significant correlation between elderly nutrition awareness and balanced diet and total sleep component as measured by PSQI. The improvement in sleep quality by nutrition awareness about balanced diet of the studied elderly would have a positive impact on their quality of life of elderly as reported by **[32]**of elderly people is expected to dramatically increase in the future. Comfortable sleep in old age will not only result in a clear increase in the QOL of elderly people themselves but will also be important for an increases well-being of the family and caregivers of the elderly. As we'll as society as a whole.

In the current study there was a correlation between total sleep component as measured by PSQI, Total Scores grade regarding nutrition awareness and element of balanced diet and duration of stay in geriatric home.
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There was a statistically significant correlation between total sleep component as measured by PSQI , Total Scores grade regarding nutrition awareness and element of balanced diet and duration of stay in geriatric home .level of education ,health problems ,monthly income , This finding is in line with the study of **[12].**"The Epworth Sleepiness Scale: translation and validation study of the Iranian version," There was a statistically significant correlation between sleep total sleep component as measured by PSQI , Total Scores grade regarding nutrition awareness and element of balanced diet and duration of stay in geriatric home.

In the current study there was a relation between nutrition awareness and element of balanced diet and total sleep quality of the study subjects. There was a statistically significant correlation between nutrition awareness and element of balanced diet and total sleep quality of the study .this finding is in line with **[48].**Who studied "Relationship between socio-economic characteristics , health status and nutritional awareness of elderly " It is worth mentioning that positive statistically significant correlation was found between the between nutrition awareness and element of balanced diet for her study subjects and the total sleep quality of elderly (p≤0.01).

The current study revealed that the total score of elderly regarding nutrition awareness and element of balanced diet. It was noticed that near to three fifths of the study subjects gained poor total score grade .While the minority of them gained high total score grads. It is also known that nutrition awareness by itself may not be enough to encourage elderly healthy dietary behaviors to reach good elderly outcomes

In the current study there was a relation between socio demographic characteristics of elderly women and total sleep component as measured by PSQI. There was a statistically significant correlation between socio demographic characteristics of elderly women and total sleep component as measured by PSQI of the study subjects and their age, educational levels, health problems and occupational except monthly income .This finding is in line with the study of **[47].**who studied "The Transcriptional Repressor DEC2 Regulates Sleep Length in Mammals". Who indicated that there was a positive statistically significant correlation between socio demographic characteristics of elderly women and total sleep component as measured by PSQI of the study, and their educational levels statues as well as their monthly income (p≤0.001). That may be attributed to the fact that one thirds of them were illiterate and less than two thirds have low monthly income.

V. Conclusion

Based upon the finding of the present study, it can concluded that the majority of elderly bad sleep quality according to PSQI regarding to subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, daytime dysfunction and sleep medication .Also, more than half of elderly inadequate nutrition giving every days .and the majority of elderly poor awareness about balanced diet. Additionally, there is a statistically significant positive correlation between nutrition awareness and sleep quality among elderly women.

VI. Recommendations

Based upon the main study finding, the following recommendations are suggested:
- Developing programs that would help elderly women to improve sleep quality by nutrition awareness.
- Developing and disseminating medical posters or pamphlets to raise health awareness among balances diet it is important to educate elderly on the role of sleep on dietary intakes and health but also to initiate discussions about how diet could be modified to improve sleep quality
- Further researches should be carried out to find out the effectiveness of nutrition awareness to improving sleep quality.

PartI: Demographic characteristics of elderly (table 1).

Table (1): Frequency distribution of the study sample Socio-demographic Characteristics (n=88).

Characteristics	No.	%
Age		
- 60≥64	26	29.5
- 65≥ 74	41	46.6
- 75≤	21	23.9
Mean ± SD	70.8±6.8	
Range	60-75	
Marital status		
- Single	11	12.5
- - Married	9	10.2
- -Widow	41	46.6
- Divorced	27	30.7
Monthly income		
- Enough	11	12,5
- Enough and saved	23	26.1
- Not enough	54	61.4
Source of monthly income		71.6
-Retirement	63	17
-Son or daughter	15	2.3
-On of the relative	2	0.0
- A charity	0	0.0
-Mosque or church	0	9.1
- Still working	8	
Your income sufficient for treatment and food :		
-Yes	26	29.5
-No	62	70.5

Figure (1) level of education of the elderly woman (n=88).
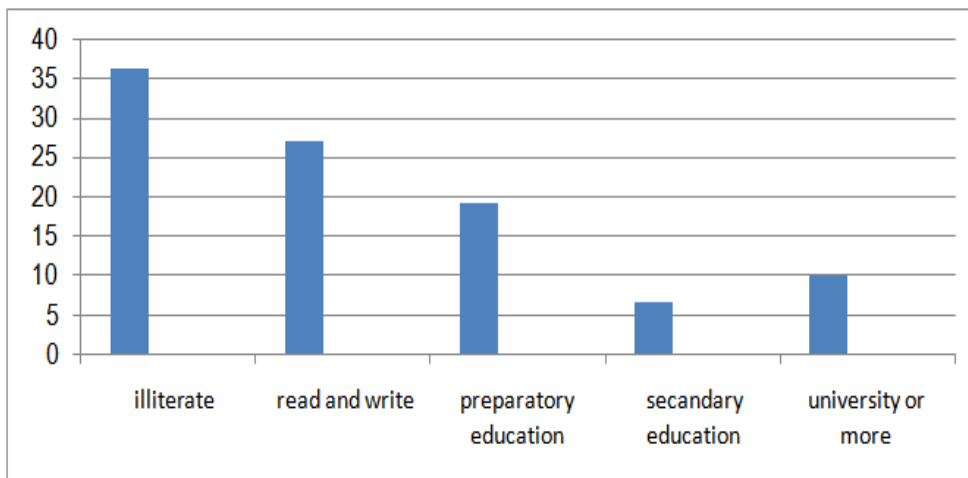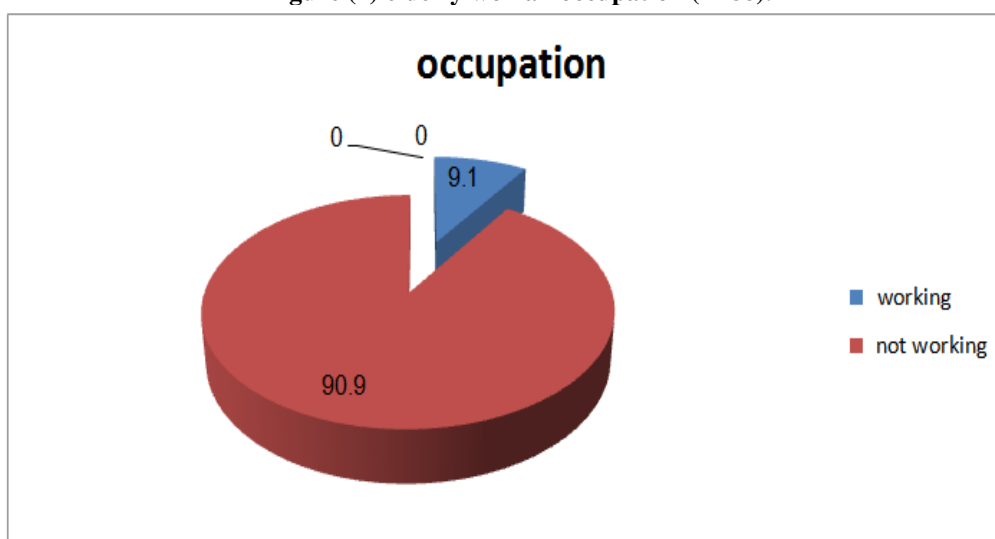

Figure (1) :Illustrated that 36.4 % of the elderly were illiterate ,27.3% of them read and write ., and the minority of them 10.2% university and more .

Figure (2) elderly woman occupation (n=88).

PartⅡ: Past and present medical history of elderly (tables 2, 3, 4&figure 1).
Table (2): Percentage distribution of the elderly regarding to their past and present medical history (n=88).

Characteristics	No.	%
Health problems		
- Yes	62	70.5
- No	26	29.5
What the health problems (n=62)		
-Hypertension	27	43.5
-Diabetics	7	11.3
-Heart disease	16	25.8
-Rheumatology	6	9.7
-Others	6	9.7
Treatment (n=62)		
- Medication for hypertension	21	33.9
- Medications for diabetic	23	37.1
- Medications for heart diseases	16	25.8
- Medications for Rheumatology	2	3.2
- Others	0	0.0
Period of residence of the elderly in the geriatric home		
- ≤one years	23	26.1
- 1≥ 5 years	41	46.6
- 6≥ 10 years	16	18.2
- ≥ 10 years	8	9.1
Causes of residence in geriatric home		
-There is no caregiver at home	51	58
- Not having own your home	30	34.1
- Family difference	5	5.7
-You are asked to leave home	1	1.1
- You have had accidents or mistakes of your own	1	1.1
- Others	0	0.0
Admission in hospital in the post years - Yes	37	42
-No	51	58
Causes of admission in hospital (n=37)		
- Hypertension	4	10.8
-Diabetic	7	18.9
-Angina pectoris	13	35.1
- Brain clot	6	16.2
- Hysterectomy	7	18.9
How to fallow up your health condition		
-Health insurance	20	22.7
- A private doctor on a regular basis	17	19.3

- A private doctor if necessary	26	29.5
- Doctor of geriatric home	25	28.4
Where to get monthly treatment		
- health insurance	24	27.3
-one of the sons or relatives	13	14.8
-you buy the medication your self	43	48.9
- other	8	9.1
Chronic diseases		
-Hypertension	49	55.7
-Diabetics	27	30.7
-heart disease	12	13.6

According to research question what is the extent of poor sleep quality among elderly women?

Part III: Pittsburg Sleep Quality Index (PSQI) Global and component score of the studied elderly
Table (3) comparison of mean values of mean of PSQI Components scores of the studied elderly (n=88)

PSQI Components scores	M±SD	P
Subjective sleep quality	1.58±0.63	0.00**
Sleep latency	2.4±0.56	0.00**
Sleep duration	1.85±0.61	0.00**
Sleep efficiency	1.89±0.72	0.00**
Sleep disturbance	1.97±0.36	0.00**
Daytime dysfunction	1.82±0.52	0.00**
Sleep medication	1.44±0.22	0.00**

*p≤0.05 (significant) ** p≤0.01 (high significant)

Table (4) number of good and bad sleepers according to PSQI for elderly

Sleep quality	Phase		P
	No	%	
Good sleeper	8	9.1	0.00**
Bad sleeper	80	90.9	0.00**
PSQI global scores Median (min-max)	12.0 (6-17)		

Table (4)shows the number of good and bad sleepers according to PSQI .The result show that the majority of elderly 90.9 % bad sleeper according to PSQI

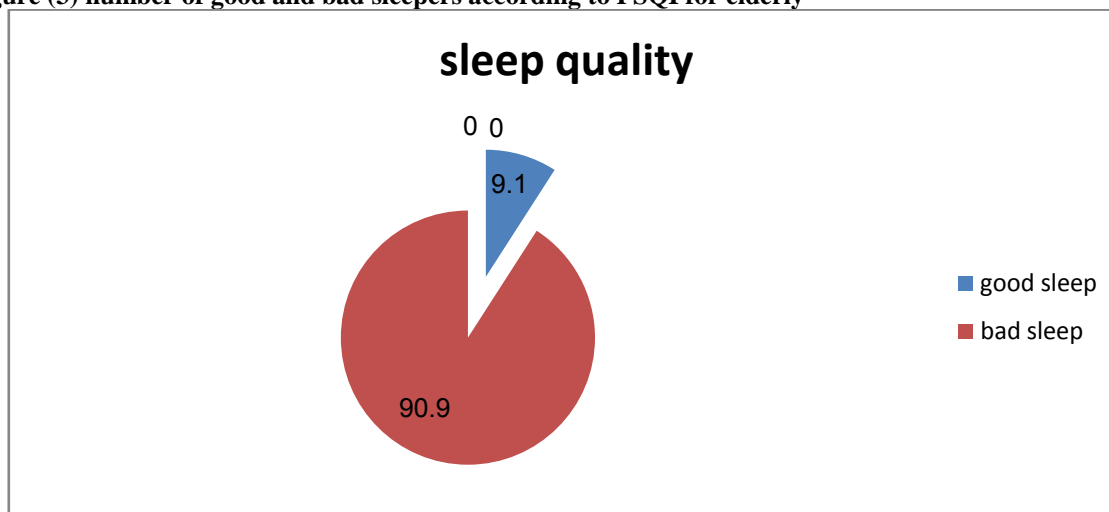**Figure (3) number of good and bad sleepers according to PSQI for elderly**

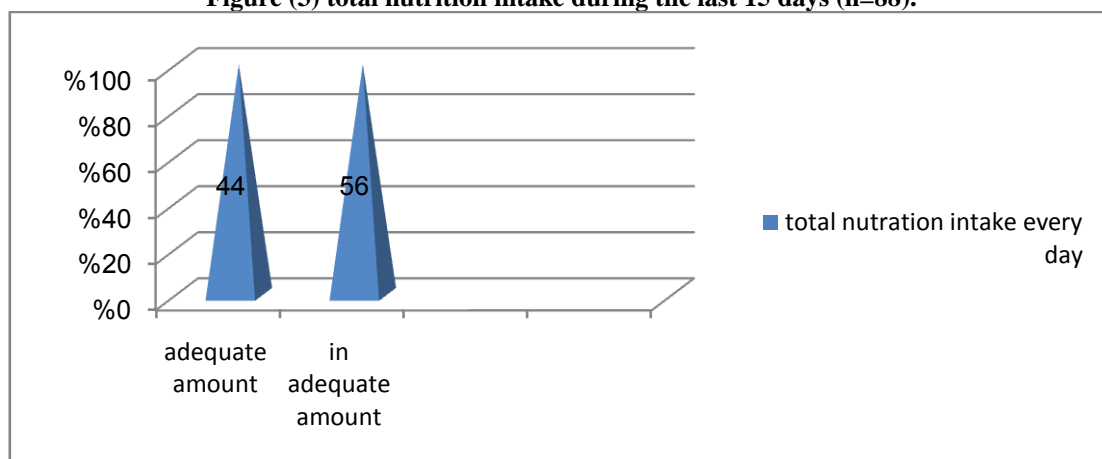**Figure (3) total nutrition intake during the last 15 days (n=88).**

Table (8): Number and percentage distribution of the elderly awareness according to their nutrition knowledge and elements of balanced diet .(n=88).

Nutritional knowledge and element of balanced diet	Elderly women n=88					
	Wrong or don't know		Correct & incomplete		Correct & complete	
	No	%	No	%	No	%
What are the health food groups?	70	79.5	18	20.5	0	0.0
What are elements of the healthy food?	65	73.8	23	26.2	0	0.0
What are the foods you should increase during elderly period?	50	56.8	30	34.2	0	0.0
What are the foods you should decreased during elderly period?	50	56.8	28	31.8	10	11.4
What is the important of protein?	50	56.8	23	26.1	15	17.1
What food is rich in protein?						
What is the important of carbohydrates?	50	56.8	23	26.1	15	17.1
What food is rich in carbohydrates?	28	31.8	30	34.0	30	34.0
What is the important of fat?	25	28.5	28	31.8	35	39.7
What food is rich in fat?	50	56.8	23	26.1	15	17.1
What is the important of Vitamins?	70	79.5	18	20.5	0	0.0
What food is rich in Vitamins?	70	79.5	18	20.5	0	0.0
What is the important of Iron?	65	73.8	23	26.2	0	0.0
What food is rich in Iron ?	65	73.8	23	26.2	0	0.0
What food is rich in Calcium ?	25	28.5	28	31.8	35	39.7
What food is rich in Calcium ?	28	31.8	30	34.0	30	34.0
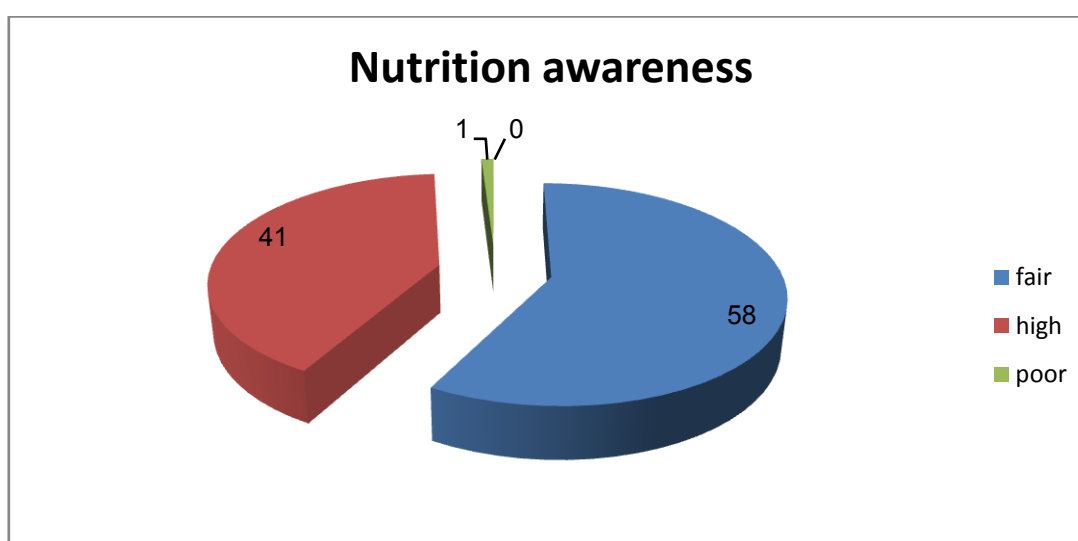
Figure(4) percentage distribution of the elderly women according to their total scores grade regarding nutrition awareness and element of balanced diet

According to research question what is the relation between nutritional awareness and sleep quality among elderly women?

What is the effect of nutritional awareness on sleep quality among elderly women?

Part Ⅴ: Relation between socio demographic characteristics of the elderly and Sleep Quality Index (PSQI) (table4, 5, 6, and 7).

Table (5): Relation between socio demographic characteristics of elderly women and total sleep component as measured by PSQI

Items	PSQI Change			X2	P
	Bad sleeper %	Good sleeper %	Total %		
Age 60≥64 65≥ 74 75≤	15.5 24.6 18.0	14.0 22.0 5.9	29.5 46.6 23.9	0.01*	18.66
Level of education - Illiterate - Read and write - Preparatory education - Secondary education - University and more	24.4 14.0 11.3 4.8 8.2	12.0 13.3 8.0 2.0 6.0	36.4 27.3 19.3 6.8 10.2	0.01*	20.2
- Health problems - Yes	80.0	20.0	100.0	0.01*	19.2
Monthly income Enough Enough and saved Not enough	8.0 18.0 44.0	4.5 8.1 17.4	12.5 26.1 61.4	1.38	0.23
Occupation Working Not working	5.1 50.9	0.4 40.0	9.1 90.9	0.01 *	20.2

Table (6): Correlation between socio demographic characteristics of elderly women, total sleep component as measured by PSQI and dietary intake

Items	PSQI Change		Total dietary intake		X2	P
	Not adequate	Adequate	Not adequate 56%	Adequate 44%		
Age 60≥64 65≥ 74 75≤	15.5 24.6 18.0	14.0 22.0 5.9	18.6 30.0 8.4	11.0 21.0 12.0	0.01 *	25.12
Level of education Illiterate Read and write Preparatory education Secondary education University and more	24.4 14.0 11.3 4.8 8.2	12.0 13.3 8.0 2.0 6.0	24.0 15.0 8.0 4.0 5.0	13.0 10.0 9.0 4.0 8.0	0.01 *	21.24
Health problems Yes	80.0	20.0	56.0	44.0	0.01 *	22.23
Monthly income Enough Enough and saved Not enough	8.0 18.0 44.0	4.5 8.1 17.4	8.0 13.0 35.0	14.0 5.0 25.0	0.01 *	23.33
Occupation Working Not working					0.01 *	24.17

Table (7) relation between nutritional awareness and sleep quality among elderly women (n=88).

Nutrition awareness	Sleep PSQI Change	
	x^2	P
Adequate amount	13.062	0.001*
Not adequate amount	15.105	*0.001

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