

ANALYSIS OF THE EFFECT OF SLEEP HYGIENE ON SLEEP QUALITY OF THE ELDERLY

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ABSTRACT

Introduction: Elderly defined as a chronological age over 60 years which results in a vulnerability in facing stimulation from both inside and outside. Sleep quality is a condition where someone gained the feeling of restoration after awakening from sleep. Sleep quality for the elderly people is very advantageous in restoring stamina because they are at risk of experiencing various degenerative problems. Sleep disorders will result in some health problems, one of which can lead to immune deficiencies and even more serious problems. As such, there should be an appropriate practice to improve sleep quality of the elderly people. The purpose of this study was to determine the effect of

sleep hygiene on sleep quality of the elderly people. **Methods:** This study used a Pre-experimental method which is a quantitative research without a control group with One Group Pretest-Posttest Design approach. The data collection was obtained by interviewing and giving the Pittsburgh Sleep Quality Index (PSQI) questionnaire to the elderly people before the Sleep Hygiene treatment was carried out and after being given treatment. The population of the study was 30 elderly people living in Harapan Ibu Nursing Home Ngaliyan Semarang, Central Java, Indonesia who met the inclusion criteria. The data was analyzed by using Wilcoxon test with a significance value of 5%. **Results:** The Wilcoxon test results found that there is an effect of sleep hygiene on sleep quality of the elderly people in Harapan Ibu Nursing Home Ngaliyan Semarang, Central Java Indonesia, with p value = 0.000 which means ≤ 0.05 (5%), then H_0 is rejected and H_a is accepted. **Conclusions:** There is an effect of sleep hygiene on sleep quality of the elderly people in Harapan Ibu Nursing Home Ngaliyan Semarang Central Java Indonesia.

KEYWORDS: Sleep Hygiene, Sleep Quality, Elderly.

1. INTRODUCTION

Elderly is a condition of the age over 60 years which results in a vulnerability in facing stimulation from both inside and outside.^[1]

Asia ranks first with the largest elderly population. In 2015, there were 508 million elderly populations, which is 56% of the total elderly population in the world. In 2000, the presentation of Indonesia's elderly population exceeded 7%, and Indonesia began to enter the aging population. According to the Republic of Indonesia Ministry of Health 2011 data, the number of elderly people in Indonesia is the fourth largest after China, India and Japan. The number of elderly people in Central Java is the second highest in Indonesia after DI Yogyakarta. Data on the number of elderly people reached 3,983,203 million and spread throughout the Central Java Province.^[2]

The changes and degeneration experienced by the elderly people is perceived as the aging process. One of which is a change in the quality of sleep. The changes in the quality of sleep often reduce the sleep duration of the elderly people. Moreover, in serious cases, it can also lead to the insomnia.^[3]

The changes can also affect sleep quality such as increasing sleep latency, decreasing sleep efficiency, increasing early awakening, reducing stages of deep sleep, circadian rhythm disorders, increasing naps and sleep deprivation. Some elderly people report that they frequently nap during the daytime and unable to sleep well.^[4]

Insomnia is a sleep-maintenance complaint caused by the condition of difficulty in staying asleep where someone is awakened from sleep several times at midnight and unable to get back to sleep or waking up too early and not having a sound sleep. The incidence of sleep quality disorders occurs in the elderly is relatively high, which is around 67%.^[5]

According to National Sleep Foundation data, around 67% of 1,508 elderly people in the age of 65 years and over were reported to experience sleep quality disorder and as many as 7.3% of elderly people complained about the sleep maintenance disorder or insomnia. According to the data in Indonesia, the sleep quality disorders can occur to the 50% of people aged over 60 years old. Insomnia is one of the most common sleep quality disorders, with annual data ranging from 30-45% (Darmojo, 2009).^[6]

Based on the existence of several phenomena on sleep quality disorders of the elderly people, it is necessary to find a way or method to deal with the problem of insomnia experienced by the elderly people. It can be executed through a non-pharmacological therapy approach and also medication if necessary or in an emergency situation. According to Sayekti & Hendarti, there should be another alternative to overcome sleep disorders such as insomnia by using non-pharmacological therapy.^[7]

One of the non-pharmacological therapies to treat insomnia is sleep behavior therapy or sleep hygiene. Sleep hygiene is a behavior and environmental modification that can affect and improve the quality of sleep for the older adults. (Rahmah, 2014). Sleep hygiene is one of the important factors in the case of insomnia. Sleep hygiene consists of a sleeping environment and habits or behaviors performed before bedtime. The changes to the better sleep hygiene can improve the quality and quantity of sleep.^[8]

Sleep hygiene is a behavioral therapy that can be performed to promote a good quality of sleep by using the behavior change interventions. According to the American Sleep Association, 2017 there are several ways to acquire a quality of sleep by sleep hygiene practices including: Maintain a regular sleep schedule, Avoid napping during daytime if possible, avoid staying in bed for more than 5-10 minutes, don't watch TV or read in bed and responsibly consume caffeinated drinks.^[9]

Based on the results of a brief interview about the sleep patterns of 15 elderly people, 11 people complained of sleep disorders such as inability to fall asleep, frequent awakening 3-4 times at night to urinate and unable to sleep again. The older adults sleep at night on average 4-6 hours while some of them take a nap during the day time.

2. METHODS

2.1 Design, settings, and sample

This study uses a Pre-experimental method which is quantitative research without a control group with One Group Pretest-Posttest Design approach. The data collection was obtained by interviewing and giving the Pittsburgh Sleep Quality Index (PSQI) questionnaire to the elderly people before and after the Sleep Hygiene practices was carried out. The population of the study was 30 elderly people living in Harapan Ibu Nursing Home Ngaliyan Semarang, Central Java, Indonesia who met the inclusion criteria.

2.2 Measurement

All the participants received questionnaires PSQI before and after experiments. Including a self-designed general information questionnaire, Socio demographic information (i.e. sex, age, sleep quality).

2.3 Ethical consideration

Before the survey was administered, the researcher apply for permission from the appropriate administrators. Ethical approval was granted by the Ethics Committee of STIKES Widya Husada Semarang and formal permission was obtained from Director of Harapan Ibu Nursing Home Ngaliyan Semarang, Central Java Indonesia.

2.4 Data collection

The instrument used in this study was the Pittsburgh Sleep Quality Index (PSQI) questionnaire with the implementation of the Sleep Hygiene Index (SHI) procedure.

2.4 Data analysis

Statistical analyses were performed using SPSS 20.0. Categorical variables were described as frequency and percentages. The data was analyzed by using Wilcoxon test because the data from the research instrument used the scale rating which results in ordinal data and abnormal distribution. In this study, the statistical level of significance was set at $p < 0.05$ for two sides. The research location was conducted at Harapan Ibu Nursing Home Ngaliyan Semarang Central Java Indonesia in August 2018.

3. RESULTS

3.1 Participants

Based on table 1, it can be seen from the frequency distribution data that all respondents are female consisted of 30 people (100%). Data on frequency distribution shows that the respondents included in the category of elderly (60 years-74 years) as many as 10 people (33.3%), respondents in the category of old (75-90 years) as many as 18 people (60%), and respondents in the category of very old (> 90 years) as many as 2 people (6.7%).

Sleep Quality of the Elderly Before and After the Implementation of Sleep Hygiene Practices at Harapan Ibu Nursing Home Ngaliyan Semarang. Table 2 showed that before the implementation of sleep hygiene practices at Harapan Ibu Nursing Home Ngaliyan Semarang, Central Java Indonesia, there were 24 elderly people (80%) who had poor quality

of sleep and only 6 elderly people (20%) with good quality of sleep. Meanwhile, after sleep hygiene practice was performed, there were 13 elderly people (43.3%) with poor quality of sleep and 17 elderly people (56.7%) with good quality of sleep.

Based on table 3, the statistical analysis using Wilcoxon test obtained p value = 0.000 with a significance level of 0.05, then if p value <0.05, it can be concluded that Ho is rejected and Ha is accepted. Hence, it can be inferred that there is an effect of sleep hygiene on sleep quality of the elderly in Harapan Ibu Nursing Home Ngaliyan Semarang.

Table 1: Characteristics of Respondents (n=30).

No	Gender	Frequency	Percentage
1	Female	30	100
2	Male	-	-
	Total	30	100
No	Age	Frequency	Percentage
1	Elderly (60 years -74 years)	10	33.3
2	Old (75 years -90 years)	18	60.0
3	Very Old (> 91 years)	2	6.70
	Total	30	100

Table. 2: Frequency of Sleep Quality of the Elderly Before and After the Practice of Sleep Hygiene (n=30).

Sleep Quality	Before		After	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Poor	24	80	13	43.3
Good	6	20	17	56.7
Total	30	100	30	100

Table. 3: Effect of Sleep Hygiene on Sleep Quality of Elderly.

Remarks	N	p Value	Z count
Negative Ranks	23	0.000	-4.175
Positive Ranks	2		
Ties	5		
Total	30		

4. DISCUSSION

The results of the study stated that the frequency distribution data from 30 respondents in Harapan Ibu Nursing Home Ngaliyan Semarang Central Java Indonesia showed that all the respondents were female. Women are about 1.6 times more at risk of insomnia than men. It also stated that the insomnia is likely triggered by internal factors, such as menopausal symptoms which can disrupt the sleep patterns. During menopause, there is a great change in

the neuroendocrine system, especially in the hypothalamus, which causes women to experience sleep disorders.^[5]

In accordance with the research results conducted in Harapan Ibu Nursing Home Ngaliyan Semarang, the frequency distribution data from 30 respondents indicated that most of the elderly people in Harapan Ibu Nursing Home Ngaliyan were in the category of Old (75-90 years old) with a frequency of 18 people. This is in line with the research conducted by Kanender (2015) which noted that most elderly respondents are 71-75 years old and 76-80 years old with a percentage of 25% with a total of 9 people.

Azizah (2011) revealed that the decreasing of sleep duration is affected by the increasing of age. It takes about 6 hours of sleep for the elderly and it will gradually decrease. As people get older, a degenerative process occurs which will have an impact on physical and psychological changes.^[10]

The results of the study before given the practice of sleep hygiene using the Pittsburgh Sleep Quality Index (PSQI) questionnaire found that 6 people (20%) experienced a good sleep quality and 24 people (80%) experienced a poor sleep quality.

The results of observations and interviews with the elderly people in Harapan Ibu Nursing Home Ngaliyan Semarang Central Java Indonesia found that most of the elderly people do less activity such as sports or morning sunbathing because after shower and breakfast, generally they prefer to lie down in their bed. The sleep disorders experienced by the elderly people are generated by having many thoughts, remembering family, stressing out and often waking up at night to urinate even though there are some elderly who urinate in bed using a container. This condition leads the elderly people to experience sleep disorders.

According to Potter & Perry (2012), the sleep disorders experienced by the elderly people are caused by certain physical ailments, lifestyle, emotional stress and environmental factors. In addition, those who experience stress are more likely to become uptight. The frequent awakenings during sleep can lead to deterioration in the quality of sleep.^[11]

It is in line with the opinion of Akmal (2012) which states that the elderly people spend more time in bed to fall asleep. The frequency of awakening increases as well as the fragmentation of sleep. The elderly people also tend to experience fatigue, drowsiness, low sleep efficiency and excessive daytime sleepiness.^[12]

The results of the study using the Pittsburgh Sleep Quality Index (PSQI) questionnaire obtained as many as 17 people (56.7%) experienced good sleep quality and 13 people (43.3%) experience poor sleep quality after given sleep hygiene practices once a week for 2 weeks. It can be concluded that after the treatment of sleep hygiene practice, there is an improvement on the quality of sleep. Thus, nursing intervention in improving the needs of sleep quality for elderly people can be performed by practicing sleep hygiene. Sayekti and Hendarti (2015) revealed that the practice of poor sleep hygiene has a significant correlation with poor sleep quality. The practice of sleep hygiene is divided into three activities, including behavior, environment and activities before bedtime. The three activities must be carried out simultaneously and consistently to get maximum results. Unhealthy behavior and wrong sleep habits can generate to a poor sleep quality.^[7]

Evaluation after practicing sleep hygiene for the elderly people in Harapan Ibu Nursing Home concluded that many elderly who have good sleep quality reduce time spent in bed and improve more exercises. However, there are 4 elderly who still consume caffeinated beverages.

The study conducted by Drake et al (2013) entitled "Effect on Sleep Taken 0.3 or 6 Hours before Going to Bed" states that 400 mg of caffeine consumed 6 hours before bedtime will reduce the quantity of sleep by approximately 1 hour. Caffeine inhibits the release of serotonin, dopamine, epinephrine, and norepinephrine so that the stage of awakening increases and insomnia occurs.^[13] Based on the research results on 30 elderly people, it can be concluded that there are significant differences in the quality of sleep before and after being given the practice of sleep hygiene. Before the practice of sleep hygiene, it showed that there are 6 people (20%) who experienced good sleep quality and 24 people (80%) who experienced poor sleep quality. Meanwhile, after the practices of sleep hygiene, it was found that 17 people (56.7%) experienced good sleep quality and as many as 13 people (43.3%) experienced poor sleep quality. The results of the Wilcoxon test obtained a value of $p = 0,000$ (<0.05) which means that there is a significant difference between the quality of sleep before and after the practice of sleep hygiene.

5. CONCLUSION

There are 24 people (80%) who experienced poor sleep quality before the practice of sleep hygiene for the elderly in Harapan Ibu Nursing Home Ngaliyan Semarang Central Java Indonesia. There are 17 people (56.7%) who experienced good sleep quality after being given

the practice of sleep hygiene. There is a significant effect of sleep hygiene on sleep quality for the elderly in Harapan Ibu Nursing Home Ngaliyan Semarang Central Java Indonesia with p value = 0.000.

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