International Journal of Community Medicine and Public Health
Apriyeni E et al. Int J Community Med Public Health. 2020 May;7(5):1684-1687
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20201967

Original Research Article

The improvement of elderly sleeping quality with progressive muscle relaxation therapy

Emira Apriyeni*, Helena Patricia

Department of Nursing Science, Syedza Saintika Institute of Health Science, Padang, Indonesia

Received: 11 March 2020
Accepted: 09 April 2020

***Correspondence:**
Ns. Emira Apriyeni,
E-mail: emira.apriyeni@gmail.com

ABSTRACT

Background: Sleep is one part of physiological needs and it is a basic need which is needed by all humans to be able to function optimally. However, the elderly will often experience sleep disorders. Sleep disorders in the elderly will affect the quality of sleep. One of nursing intervention that can improve the elderly sleeping quality is progressive muscle relaxation therapy. This study aims to determine the differences of sleep quality before and after having progressive muscle relaxation therapy toward the elderly with sleep disorders.
Methods: This research was conducted at the Tresna Werdha Sabai Nan Aluih Social Home, Sicincin in 2019. The research was conducted for 2 weeks with one-week intervention. This research is a Quasy experiment using one group pre-test and post-test without control group design approach. This study used the sample of 16 respondents taken by purposive sampling. The analysis of data uses dependent T-test with a significance level of 95% (α 0.05).
Results: The results of the study found that the average sleep quality of the elderly before being given the intervention was 13.63 and after the intervention it became 8.44 with p value of 0.000.
Conclusions: The results showed that there were significant differences before and after the intervention. For this reason, it is recommended for the elderly with sleep disorders to be able to do progressive muscle relaxation therapy to improve sleep quality.

Keywords: Elderly, Progressive muscle relaxation therapy, Sleep quality

INTRODUCTION

The elderly are individuals over the age of 60 who have signs of a continuous natural decline in biological, psychological, social and economic functions. As age changes, unwittingly the elderly will experience physical, psychosocial and spiritual changes. One of these changes is the change in sleep patterns, whereas sleep is one part of the physiological needs and basic requirement needed by all humans to be able to functions optimally.[1]

According to the National sleep foundation, about 67% of 1.508 elderly in America with the aged over 65 years report having sleep disorders and as many as 7.3% of elderly complain about disruption starting and maintaining sleep or insomnia. In Singapore, 13.7% elderly reported have sleep problem. Of those who reported sleep problems, 69.4% experienced sleep interruption at night, 48.9% reported having difficulty falling asleep, 22.3% reported early morning awakening, and 11.4% had all three problems.[2] In Indonesia, sleep disorders attack about 50% of people with the aged 65 years.[1] The same thing is found in 22% of the aged 75 years group. Besides that, there are 30% of the people with the aged 70 years group who wake up a lot at night.[3] Sleep disorder is one of the health problems that are often faced by the elderly. The complaints that are often delivered are difficult to start sleeping or often wake up during sleep or sleep fast and deep, but wake up too early in the morning and then cannot go back to sleep. Sleep

disorders will affect the quality of sleep in the elderly. Sleep quality is a picture of the condition felt by someone when they wake up in the morning, wake up with a fresh body condition, sleep soundly and do not often wake up at night. Poor sleep quality in the elderly is caused by increasing sleep latency, reducing sleep efficiency and waking up earlier due to the aging process. The aging process causes a decrease in the function of neurotransmitters which is characterized by decreasing the distribution of norepinephrine. That causes changes in circadian rhythm, where there is a change in the sleep of the elderly in the non-rapid eye movement (NREM) 3 and 4. So, the elderly has almost no phase 4 or deep sleep.[4]

Impacts that occur in the elderly with poor sleep quality such as excessive daytime sleepiness, memory disorders, depressed mood, frequent falls, and the use of hypnotics that are not appropriate and decreased quality of life. Nursing interventions to fulfill the sleep needs of the elderly are with sleep-wake patterns, environmental control, use of medications, diet, pay attention to physiological factors or diseases, and use relaxation techniques where one of them is progressive muscle relaxation techniques.[5]

Progressive muscle relaxation is self-teaching or instructional exercise which includes learning to contract and relax muscle groups systemically, starting with facial muscles and ending in the leg muscles. This procedure usually takes 15 to 30 minutes and can be accompanied by recorded instructions by directing the individual to pay attention to the order in which the muscles are relaxed.[5]

Based on the data obtained from Tresna Werdha Sabai Nan Aluih Social Home in May 2019, it is obtained that the data on the number of elderlies were 107 people and 29 of them experienced sleep disorders (the proportion of 27.10%). After researchers conducted interviews with 6 elderly people, 3 elderly people said that they often woke up in the middle of the night, 2 elderly people said they often woke up before dawn and after that they could not sleep anymore, 1 elderly said that they started sleeping after sunset and when they woke up after that, it was difficult to sleep back and sometimes took a sleeping pills. The general objective of this research is to determine the differences in the quality of sleep of elderly before and after having progressive muscle relaxation therapy at Tresna Werdha Sabai Nan Aluih Social Home, Sicincin.

METHODS

This research is a Quasy experiment using one group pre-test and pos-t test without control group design approach.[6] The research was conducted at Tresna Werdha Sabai Nan Aluih Social Home Sicincin for 2 weeks and provide interventions during the first week in December 2019. The sample in this research amounted to 16 people with a purposive sampling method with the criteria of being willing to be a respondent, willing to obey the rules given, living in a nursing home, not taking drugs for sleep, not smoking and not having hearing and vision problems.

The tool used in this study is the Pittsburgh quality of sleep index (PSQI) which will be used to determine the sleep quality.[7] These 19 items will be grouped into 7 score components where each of the items is weighted with a balanced weight in the scale of 0-3. The seven components will eventually be added up to get a global PSQI score that has a score range of 0-21. The higher the score someone gets, it indicates that the person is experiencing the worst sleep quality.[7] The PSQI questionnaire has been tested for its reliability validity with the alpha cronbach result of 0.753.[8] This research takes into the basic principles of research ethics which include autonomy, beneficence, maleficence, anonymity and justice.[9]

Statistical analysis

The techniques of data analysis consisted of two, namely univariate analysis (average or mean) and bivariate analysis (dependent sample t-test).

RESULTS

From 16 respondents, it was found that half (50%) of the respondents belong to the elderly category and half (50%) belong to the old category. More than half (62,5%) of respondents were female (Table 1).

Table 1: The characteristic of respondents.

Characteristic	f	%
Age		
Elderly	8	50
Old	8	50
Sex		
Male	6	37.5
Female	10	62.5

Table 2: The quality of sleep before intervention.

Variable	Mean	SD	Min-max	95% CI
Pre-test	13.63	1.821	10-16	12.65-14.60

Table 2 shows that the average sleep quality of respondents in Sabai Nan Aluih Home Social in 2019 before being given progressive muscle relaxation therapy was 13.63 with a standard deviation of 1.821. The highest quality of sleep was 10 and the lowest was 16 with 16 respondents.

Table 3: The quality of sleep after intervention.

Variable	Mean	SD	Min-max	95% CI
Post test	8.44	1.632	5-11	7.57-9.31

Table 4: The differences of sleep quality before and after intervention.

Variable	Mean	SD	SE	95% CI	p value	N
Sleep quality	5.188	1.223	0.306	4.536-5.839	0.000	16

Table 3 shows that the average sleep quality of respondents in Sabai Nan Aluih Home Social in 2019 after being given progressive muscle relaxation therapy was 8.44 with a standard deviation of 1.632. The highest quality of sleep was 5 and the lowest was 11 with 16 respondents.

Table 4 shows that the difference in average sleep quality of respondents in Sabai Nan Aluih Socal Home in 2019 before and after giving the progressive muscle relaxation therapy was 5.188 with a standard deviation of 1.223. The statistical test results obtained p value 0.000. It means that there is a difference in the sleep quality of the elderly toward the giving of progressive muscle relaxation therapy.

DISCUSSION

According to the present study results, the quality of sleep before the intervention was 13.63 with a standard deviation of 1.821. This research is the same as the research conducted by Ali. The average quality of sleep before having progressive relaxation therapy is 12.9.[10] This result is also in line with the research conducted by Sumiarsih where all respondents experienced less sleep needs with an average of 11.50.[5]

Sleeps is an unconscious state in which individual perceptions and reactions to the environment decrease or disappear and can be reawakened with sufficient senses or stimuli. The signs of someone who is sleeping are as follows: lack of physical activity, varying levels of consciousness, changing in physiological processes of the body and decreasing response to stimuli from the outside.[11] It is very important to get the best sleep quality for the improvement of good health and recovery of sick individuals. The factors that can affect sleep quality include age, pain, environment, anxiety, and lifestyle.[12] At the time, the elderly often experience waking up in the middle of the night, due to circadian rhythm changes where the sleep phase is more advanced. Frequently waking up in the middle of the night makes the elderly tired, sleepy and easy to fall asleep during the day.[13]

From the results of the research found the average quality of sleep after the intervention was 8.44 with a standard deviation of 1.632. This research is in line with the research conducted by Ali which is found that the average quality of sleep after having progressive relaxation therapy is 7.77.[9] Likewise, the results of the research conducted by Sumiarsih found that the fulfillment of respondents' sleep needs after having progressive relaxation techniques were made to be good with an average of 5.60.[4]

Progressive relaxation therapy has several benefits which can make you sleep more soundly and reduce fatigue and some sleep quality, anxiety, worry and restless.[14] Especially for the elderly, progressive relaxation can make the elderly more able to avoid excessive reactions due to psychological stress and reduce the level of anxiety which is often the cause sleep disorders.[15]

The results showed that the difference in sleep quality before and after giving progressive muscle relaxation therapy was 5.188 with a standard deviation of 1.223. The statistical test results obtained p value 0.000. It means that there is a difference in the sleep quality of the elderly toward the giving of progressive muscle relaxation therapy. The results of this research are in line with research conducted by Sumiarsih which is found that there is an effect of progressive relaxation therapy toward increasing the fulfillment of sleep needs (p value 0.000).[5] Similar to research conducted by Fitrisyia in Binjai and Medan regions, there was a significant increasing in the fulfillment of elderly sleep needs after having progressive relaxation therapy (p value 0.000).[3] Likewise from the research conducted by Ali where he found a significant improvement in sleep quality after having progressive relaxation therapy (p value 0.001).[10]

Progressive muscle relaxation is the activation of the parasympathetic nerves which stimulates the decline in all functions raised by the sympathetic nervous system and stimulates the rise in all functions derived by the sympathetic nerves. Each parasympathetic and sympathetic nerves influence each other, so by increasing one system activity one will inhibit or suppress the other functions.[15] Progressive muscle relaxation improved some sleep quality subscales including subjective sleep quality, sleep latency, sleep duration and habitual sleep efficiency.[14] In having progressive muscle relaxation exercises, the elderly are asked to tense the muscles with a certain tension and then relax them. Before being relaxed, the elderly is asked to feel the tension first so that the elderly can differentiate between tense and weak muscles. When the elderly is relaxed, the autonomic nerves will work and the quality sleep will be obtained.

CONCLUSION

The results showed a difference in sleep quality of the elderly to the giving of progressive muscle relaxation therapy with p value of 0.000. For this reason, it is recommended for the elderly with sleep disorders to be able to do progressive muscle relaxation therapy (training muscle movements) to improve sleep quality.

ACKNOWLEDGEMENTS

Authors would like to thank Tresna Werdha Sabai Nan Aluih Social Home, Sicincin and all those who have helped to carry out this research.

Funding: Syedza Saintika Institute of Health Science
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Lubis, Marliyani. Fulfilling the needs of sleep rest in the elderly at UPT elderly social services and toddler children in Binjai and Medan areas. Medan: Univer North Sumatra; 2011.
2. Sagayadevan V, Abdin E, Binte Shafie S, Jeyagurunathan A, Sambasivam R, Zhang Y, et al. Prevalence and correlates of sleep problems among elderly Singaporeans. Psychogeriatr. 2017;17(1):43-51.
3. Fitriyia, Rahmadona. The effect of progressive muscle relaxation on fulfilling sleep needs in the elderly in UPT elderly social services and toddler children in Binjai and Medan. Medan: Univer North Sumatra; 2012.
4. Oktora, Dwi SP. the effect of al-qur'an murottal therapy on elderly sleep quality in cilacap dewanata's social rehabilitation unit. Purwokerto: Jenderal Soedirman Univer. 2013.
5. Sumiarsih, Titi. The effect of progressive relaxation techniques on changes in fulfilling sleep needs in the elderly in Sijambe Village, Wonokerto District, Pekalongan Regency. Pekalongan: STIKes Muhammadiyah Pekajangan; 2013.
6. Notoatmodjo, Soekidjo. Health research methodology. Jakarta: PT Rineka Cipta; 2010.
7. Apligo. Sleep index and pittsburgh sleep quality index (PSQI). Ergonomics Laboratory and Work System Design. 2011. Available at: applicationergonomi.wordpress.com. Accessed on 10 December 2019.
8. Safitrie A. Comparative study of shift and non-shift nurse sleep quality. Unimus. 2013.
9. Polit DF, Back CT. Nursing research: Generating and assessing evidence for nursing practice. 8th ed. Philadelphia: Lippincott Williams and Wilkins; 2008.
10. Alli, Uzma. The effectiveness of relaxation therapy in the reduction of anxiety related symptoms. Pakistan: Institute of Clinical Psychology, University of Karachi, Pakistan. 2010. Available at: www.ccsnet.org/ijps. Accessed on 10 December 2019.
11. Somadi. Nursing procedure techniques concepts and applications basic client needs. Jakarta: Salemba Medika; 2008.
12. Silvanasari, Angelia I. factors related to poor sleep quality in the elderly in Wonojati Village, Jenggawah District, Jember Regency. Jember: Jember Univer; 2012.
13. Ernawati, Ahmad S, Siti H. A description of the quality of elderly sleep in the elderly at Tresna Werdha Budi Luhur Social Home in the City of Jambi; 2017.
14. Chegeni PS, Mohammad G, Alireza A, Amir PHH, Mehdi B, Hamed N. The effects of progressive muscle relaxation on management of fatigue and quality of sleep in patients with chronic obstructive pulmonary disease: a randomized controlled clinical trial. Compl. Ther Clin Pract. 2018;31:64-70.
15. Lean WS. Progressive muscle relaxation, 2013. Available at: http://en.scribd.com. Accessed on 10 December 2019.

Cite this article as: Apriyeni E, Patricia H. The improvement of elderly sleeping quality with progressive muscle relaxation therapy. Int J Community Med Public Health 2020;7:1684-7.