The Comparison between the Effectiveness of Laughter Therapy and Progressive Muscle Relaxation Therapy towards Insomnia in Elderly Community at St. Yoseph Kediri Nursing Home

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Abstract

Background: The elderly need support to maintain their health because of the declined changes in their physical and psychological. Sleep disorders are a collection of health problems experienced by the elderly, one of which is insomnia. Some elderly can manage sleep disorders (insomnia) without medicine, namely by modality therapy, such as laughter therapy and progressive muscle relaxation therapy.

Research Objectives: This study aims to compare the effectiveness of laughter therapy and progressive muscle relaxation therapy to decrease insomnia to the elderly community at the St. Yoseph Kediri Nursing Home.

Method: This research design was a Quasy experiment with two group pre-test and post-test design approach. The sampling technique used purposive sampling with a total of 28 respondents and then divided into 2 groups who got laughter therapy or progressive muscle relaxation therapy. This study measured insomnia with the ISI (Insomnia Severity Index) questionnaire. The statistical tests used the Wilcoxon sign rank test.

Results: The study suggests that there was the effect of laughter therapy (p=0.002 and z score=3.025) and progressive muscle relaxation therapy (p = 0.004 and z score=2.850) towards insomnia to the elderly.

Conclusion: The laughter therapy intervention gave a slightly higher impact that was evidenced by the reduction of Insomnia scale on 11 people in this group, whereas in the group with progressive muscle relaxation therapy reduced insomnia scale on 10 people.

Keywords: *Laughter Therapy, Progressive Muscle Relaxation Therapy, Elderly, Insomnia*

Introduction

Aging is not a disease but a process of decreased endurance in dealing with stressors from within and outside the body. Several issues such as cardiovascular disorders, elimination disorders, visual acuity disorders, hearing loss, easy to fall, fatigue, pain or discomfort, itching, and sleep disorders are experienced by the elderly.(1) The elderly experience declining in the form of a physical and psychological condition, so the elderly requires conditions that can support their health. Sleep disorders are one of the health problems that are often faced by the elderly. Sleep quality is a state of sleep experienced by an individual resulting in freshness and fitness when awakened. Age is an influential factor in sleep quality, along with increasing age complaints of sleep quality increases. Entering the age, the elderly often do not have good quality sleep. One of the sleep disorders occurred in the elderly is insomnia.(2) Insomnia is the most common sleep disorder, which characterized by nocturnal and diurnal symptoms. This involves major complaints of dissatisfaction with the quality or duration of sleep and is accompanied by difficulty in starting sleep at bedtime, frequent or long-standing, or waking up in the morning with an inability to go back to sleep.(3)

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Insomnia is not a disease, but only a symptom of some disease suffered by someone or because of a problem that afflicts someone's life. All of this can increase in frequency as we get older. Insomnia has a very serious impact on health in the elderly group. The effects of insomnia include psychological, physiological, physical or somatic, social impacts, and can even lead to death.[4]

The number of elderlies in East Java in 2007 reached 11.14 million people.[5] Increased life expectancy will occur in developed countries and developing countries, including Indonesia. The number of elderlies around the world is estimated at 500 million with an average age of 60 years and it is estimated that in 2025 it will reach 1.2 billion. Developed countries such as the United States increased the number of elderly people by 1,000 per day in 1985 and an estimated 50% of the population aged over 50 years so that the term Baby Boom in the past changed to "The Explosion of Older Populations".[6] Based on data from the register book at the St. Yoseph Kediri Nursing Home, the number of elderly is 28 people and the average elderly there complains of having sleep disorders, namely insomnia. Complaints experienced by the elderly in their sleep patterns are that when the elderly have woken up in the middle of the night and experiencing difficulty to start sleeping again.

Management of insomnia can be divided into a pharmacologically and non pharmacologically method. Pharmacologically that is by giving sedatives and hypnotic, this type of drug is very effective in accelerating the achievement when it starts sleeping, prolonging sleep, and reducing the frequency of waking. However, these medicines cause negative effects, including leaving a residual effect of the medicine, which is nausea and drowsiness during the day, and cause people with sleep disorders to experience drug dependence. While non-pharmacological management does not cause side effects and can be done alone by the elderly to maintain their health. There are several non-pharmacological treatments for insomnia such as laughter therapy, progressive muscle relaxation, diaphragmatic breathing, imagery training, biofeedback, hypnosis.[5] The cheapest non-pharmacological therapy to date does not require imagination, perseverance or suggestion, no side effects, easy to do is laugh therapy and progressive muscle relaxation.

Laughter therapy is a therapy to achieve excitement in the heart that is released through the mouth in the form of laughter, a smile that decorates the face, a loose heart and happy, smooth blood circulation so that it can prevent disease, maintain health, eliminate stress, and overcome sleep disorders[5]. Laughing in 5-10 minutes can stimulate the release of endorphins and serotonin, a type of body's natural morphine and melatonin. [7] while progressive muscle relaxation therapy is a deep muscle relaxation therapy that does not require imagination, perseverance, or suggestion. Progressive muscle relaxation therapy focuses on muscle activity by identifying tense muscles and then reducing tension by doing relaxation therapy to get a relaxed feeling.[8]

Research conducted by Sari[9] on the effect of laughter therapy on the incidence of insomnia with a paired t-test statistic results obtained p = 0,000 (p <0.05) which means there is an influence of laughter therapy with the incidence of insomnia, besides that research on the effect Progressive muscle relaxation towards insomnia in the elderly has also been carried out by Nuryanti.[10] obtained the results of data analysis using the Paired Samples T-Test at the significance level (0,000 = 0.05) which means there is an influence of progressive muscle relaxation on insomnia in the elderly. Research comparing the laughter therapy and progressive muscle relaxation therapy has not been much studied. Therefore, specific objectives in this study are to analyze the differences in the Effectiveness of Laughter Therapy and Progressive Muscle Relaxation Therapy towards Insomnia to Elderly Community at St. Joseph Nursing Home.

Material and Methods

The research was carried out at St. Joseph Nursing Home, Kediri. The research design was a Quasy experiment with two group pretest and posttest design approach. The study population was all the elderly at the St. Yoseph Kediri Nursing Home. The sampling technique used purposive sampling with a total of 28 respondents. The population was divided into 2 groups who received either the laughter or progressive muscle relaxation therapy.

A research ethics approval was granted prior to the research. After the ethical test, the researcher submitted a research permit to the research location and waited for the permit approval. The researcher conducted apperception with 5 student numerators in taking data. The data collection was conducted by the researchers and numerators. At the beginning of the data collection, the researcher introduced herself to prospective respondents

and conducted an assessment of respondents to determine the condition of the respondent in each elderly. The researcher explained to the respondent regarding the research carried out including the definition, objectives, procedures/implementation, time, benefits, and rights of the respondent and explains that the respondent might resign if the respondent felt uncomfortable. The researcher asked the respondent's approval to become a research respondent as evidenced by the signing of the respondent's consent letter.

This research was carried out by measuring insomnia in the elderly with the Insomnia Severity Index (ISI) before and after therapy. Researchers made 2 group of treatment; Group I received a manual about laughter therapy, and Group Ireceived a progressive muscle relaxation therapy manual. Before conducting therapy, respondents measured insomnia first. Group I was assessed and treated by 1 researcher and 2 students for 4 weeks in a week 2 times. The time needed was 10-15 minutes per elderly. Group II was observed and treated by 1 researcher and 3 students. The therapy exercises were carried out within 7 days, for 15-30 minutes/session. The measurement of the insomnia was then conducted at the end of the study.

The Shapiro Wilk Normality Test was used to assess the normality of the data in each group. The results of the normality test were used to determine the research hypothesis test. The Wilcoxon Statistical Test was then employed to determine the effectiveness of laughter therapy and progressive muscle relaxation therapy to decrease insomnia to the elderly community at the St. Yoseph Kediri Nursing Home.

Results

Table 1. Categories of Insomnia to Elderly in Treatment Group I in Elderly Community of St. Yoseph Kediri Nursing Home in June-July 2019 (n = 14)

Categories	Before		After	
	Amount	Percentage (%)	Amount	Percentage (%)
None Insomnia	0	0	7	50
Mild Insomnia	6	42.9	6	42.9
Moderate Insomnia	6	42.9	1	7.1
Severe Insomnia	2	14.2	0	0
Total	14	100	14	100

Table 2. Categories of Insomnia to Elderly in Treatment Group II in Elderly Community of St. Yoseph Kediri Nursing Home in June-July 2019 (n = 14)

Categories	Before		After	
	Amount	Percentage (%)	Amount	Percentage (%)
None Insomnia	0	0	5	35.8
Mild Insomnia	5	35.7	8	57.1
Moderate Insomnia	6	42.9	1	7.1
Severe Insomnia	3	21.4	0	0
Total	14	100	14	100

Table 3. Wilcoxon Statistical Test Results Signed Rank Test Effects of Laughter Therapy towards Insomnia to Elderly at St. Yoseph Kediri Nursing Home in June-July 2019 (n = 28)

		N	Mean Rank	Sum of Ranks	Post - Pre
Post – Pre-Laughter Therapy	Negative Ranks	11a	6.00	66.00	
	Positive Ranks	0b	.00	.00	
	Ties	3c			
	Total	14			
Z					-3.025a
Asymp. Sig. (2-tailed)					.002

Table 4. Wilcoxon Statistical Test Results Signed Rank Test Effects of Progressive Muscle Relaxation Therapy towards Insomnia to Elderly at St. Yoseph Kediri Nursing Home in June-July 2019 (n = 28)

		N	Mean Rank	Sum of Ranks	Post - Pre
Post – PreProgressive Muscle Relaxation Therapy	Negative Ranks	10a	6.00	66.00	
	Positive Ranks	0b	.00	.00	
	Ties	4c			
	Total	14			
Z					-2.850a
Asymp. Sig. (2-tailed)					.004

Discussion

Measurement Results of *Insomnia Severity Index* (ISI)

Tables 1 and 2 show that before laughter therapy or progressive muscle relaxation therapy 100% of the elderly experienced insomnia in mild, moderate, and severe categories and after therapy, decreasing insomnia from those in the moderate, mild categories, and none insomnia did not occur. From the data obtained, it is known that there were 2 respondents (14.2%) in Group 1 and 3 respondents in Group 2 (21.4%) experiencing difficulty in sleeping in the severe category before being given the intervention. Most of the respondents in Group I and II experienced mild and moderate insomnia at the beginning of the study and no one of them was free from insomnia. The changing of the categories of insomnia after treatment is discussed at the later stage of the paper.

The need of rest and sleep in every person is different. There are those whose needs are met properly, some experience disturbances. One of the factors that cause sleep disturbance is age, the more we age, the less the total time needed for sleep. This is influenced by the growth and physiology of organ cells, whereas the elderly has begun to degenerate cells and organs that affect the function and mechanism of sleep. In elderly sleep about 6 hours a day, 20-25% REM sleep, sleep stage IV markedly reduced sometimes absent, may experience insomnia and often wake up during sleep at

night.[2] There are specific sleep disorders that are often found in the elderly, namely primary insomnia, chronic insomnia, and idiopathic insomnia. Insomnia is a state of inability to get adequate sleep both quality and quantity, with a state of sleep that is only brief or insomnia.[11]

Also, the results obtained more than 50% of respondents aged > 75 years, as many as 8 respondents (57.1%). This was in line with the theory of Reny [2] which was that as people age, the total time they needed to sleep decreases. This was influenced by the growth and physiology of the cells of the organ, in neonates, high sleep needed because it was still in the process of adaptation to the environment from inside the mother's womb, while elderly had begun to degenerate cells and organs then there was a decrease in the production of the hormone melatonin by the pineal gland in the brain so that it affected the function and mechanism of sleep. This was also supported by the results of Dewi's research,[12] which stated that most insomnia occurred at the age of 70 years because the aging process or aging affected the work system of the human body, causing the elderly to experience sleep disorders in the form of insomnia. The elderly tend to experience decreased sleep time and rest periods because the older they were, the less sleep they needed. There was a physiological change in the elderly and degeneration of body cells which causes the elderly to have difficulty sleeping properly. This condition was in line with the theory that complaints of difficulty sleeping (insomnia) increased with increasing age.[13]

Effect of Laughter Therapy towards Insomnia

Based on Table 3, the statistical of Wilcoxon Signed Rank Test above the Z value of -3.025 with the significant level specified being $\alpha = 0.05$ and the value of $p = 0.002$, the results of the data set was $p < 0.05$ which meant H1 was accepted, then it could be concluded that there was an effect of laughter therapy towards insomnia to elderly.

Laughter therapy is a laugh that starts to step wisely. So, the effects felt for those who laugh are beneficial. Laughter Therapy to reduce stress has been practiced by many people. Laughing 5-10 minutes can stimulate endorphin and serotonin expenditure, which is a type of body's natural morphine and also melatonin. These three substances are good substances for the brain so we can feel calmer. Laughter therapy is an easy technique to do, but its effect is extraordinary; one of which is the relief of insomnia.[6] Laughter therapy can be given to clients for diseases related to the mind, such as anxiety, depression, neurological disorders, and those experiencing insomnia. A laughter session is generally a perfect combination of various stimulus laughter techniques combined with breathing and stretching exercises. Laughter is one of the best ways to relax muscles. Laughter widens blood vessels and sends more blood to the ends and all muscles throughout the body. Laughter has also helped many people who use antidepressants and sedatives. Now they are easier to sleep and have decreased levels of depression. [14]

From the results of the study after being given laughter therapy using the Insomnia Severity Index questionnaire to the elderly at St. Yoseph Kediri Nursing Home found 11 respondents (78.6%) elderly experienced decreased difficulty to sleep. This was in line with Setyoadi's theory [5] that one of the non-pharmacological therapies that can overcome insomnia is laughter therapy. Laughter stimulates the release of the endorphin hormone, also known as morphine, to facilitate blood circulation, making the body more comfortable, relaxed, and easier to sleep. Based on the research that has been done by researchers when conducting laughter therapy with respondents, laughter makes the elderly feel calm, joyful, and more excited in living their lives.

A total of 14 respondents (100%) (Table 1) of the elderly were quite satisfied to the point of being very satisfied with current sleeping habits after being given laughter therapy. This is in line with Kataria's theory. [14] which states that laughter has helped many people use antidepressants and sedatives. Now they are easier to sleep and have decreased levels of depression. Laughter widens blood vessels and sends more blood to the ends and all muscles throughout the body so that laughter provides a relaxing effect on the body and can relax the muscles of the body which affects the sleep satisfaction of the elderly. This is also because one of the benefits of laughter therapy is that as an anti stress, laughter can provide a relaxing effect on the body and mind of the elderly so that it has an impact on your needs and good sleep patterns.

Effect of Progressive Muscle Relaxation Therapy towards Insomnia

Based on Table 3, the statistical Wilcoxon Signed Rank Test above the Z value of -2.850 with the significant level specified being $\alpha = 0.05$ and the value of $p = 0.004$,

the results of the data set was p <0.05, which meant H1 was accepted. Thus, it could be concluded that there was an effect of progressive muscle relaxation therapy on insomnia to elderly.

Progressive relaxation is an exercise to get a relaxed sensation by tensing a muscle group and stopping tension. [15] The results of this study indicated that there was a significant difference between the levels of insomnia before and after progressive muscle relaxation therapy. Where after progressive muscle relaxation therapy, there was a decrease in the level of insomnia in respondents where as many as 10 people experienced a decline in the value of insomnia (71.4) and 4 respondents did not experience a decrease in insomnia (28.6%).

Sleep is not just a routine for humans, but also a necessity for the body and mind. In general, adult humans need 7-9 hours a day to sleep, unlike the elderly who experience decreased sleep time, which is about 6-7 hours a day. In addition to quantity, quality of sleep also needs attention. Sleep must be sound so that we can feel the benefits optimally. Sleeping at night, of course, the quality of our sleep will be much better than during the day. At night in the dark conditions, the body produces the hormone melatonin. This hormone has a big influence on health.[16]

The research results of the effect of progressive muscle relaxation therapy on changes in insomnia levels to the elderly showed that there was a significant decrease in insomnia before and after progressive muscle relaxation therapy was carried out for approximately 15-30 minutes, once a day regularly for one week (Table 2). This was evident from the decrease in insomnia scores to the elderly that was, after being given the intervention of progressive muscle relaxation therapy exercises there was a decrease in the number of elderly. The interview results show that respondents also said that they had difficulty starting to sleep and often woke up at night and had difficulty falling asleep again, even though falling asleep again had to wait a few minutes or several hours. According to Martono and Pranarka,[17] in old age, there is also a change in the normal circadian rhythm of sleep which is to be less sensitive to changes in dark and light. This is in accordance to Akmal [18] who states that the elderly spend more time in bed to start sleeping, the frequency of awakening increases so that the fragmentation of sleep due to frequent awakening increases. Sleep quality does not only depend on the amount but depends on meeting the body's needs for sleep.

This decrease in insomnia was due to the effects of progressive muscle relaxation therapy. The National Center for Complementary and Alternative Medicine [19] mentions the effects of progressive muscle relaxation helping the elderly in increasing their sleep needs and decreasing sleep disorders that tend to increase in the elderly. This nursing intervention in increasing the fulfillment of sleep needs can be done by doing relaxation techniques that are progressive muscle relaxation so that it can meet the quality of sleep needs of the elderly. Physiologically progressive muscle relaxation therapy exercises can have a relaxing effect involving the parasympathetic nerve in the central nervous system. When the physiological condition is relaxed, the psychological condition is also calm. Muscle relaxation can reduce the structuration of tension and individuals who are relaxed can automatically facilitate the process of changing their mindset that is not logical or rational beliefs to rational thought patterns or rational beliefs. [20]

The results are consistent with the theory of Triyanto [21] that relaxation techniques are increasingly being performed proven effective in reducing tension and anxiety, overcoming insomnia, and asthma. It is also by the theory put forward by Mashudi [22] that said relaxation will give results after doing as much as 3 times the exercise. Likewise, research conducted by Erna Erliana [23] found that every elderly at BPSTW Ciparay Bandung felt the benefits of progressive muscle relaxation exercises. Before progressive muscle relaxation exercises, most of the elderly experience mild insomnia, and a small proportion experience severe and very severe insomnia. After progressive muscle relaxation exercises, most of the elderly are at the level of no insomnia complaints, and a small proportion experience mild insomnia

Conclusions

The study of the laughter therapy was conducted at the St. Yoseph Kediri Nursing Home. It is suggested that there was an effect of both laughter and progressive muscle relaxation therapy towards insomnia in the Elderly Community at the St. Yoseph Kediri Nursing Home. There was a slight difference in the effect of laughter therapy and progressive muscle relaxation therapy towards insomnia in the studied Elderly Community. The laughter therapy intervention gave a more evident decrease in 11 people in this group

experienced a decrease in the insomnia scale, whereas in the group with progressive muscle relaxation therapy the insomnia scale decreased by 10 people.

Ethical Clearance: This research has been conducted ethical conduct tests at the Ethics Committee of the STIKES RS Baptis Kediri no. 026/07/V/EC/KEPK-2/STIKES RSBK/2019.

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