The Improvement of Sleep Quality through the Combination of Progressive Muscle Relaxation and Murottal Therapy among Elderly

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Abstract. Elderly gradually experience various changes in their aspects of life. Changes that occur during this period may disturb the stability of physiological and psychological processes which result in the sleep quality disturbance. It is necessary to prevent it by providing combination therapy to them. Objective: To determine the effect of the combination therapy on the quality of sleep among elderly. Research Methods: this research used quasi-experimental design with non-equivalent control group design. We involved 28 elderly who had poor sleep quality. The samples were chosen by using purposive sampling method. We gave progressive muscle relaxation and murottal therapy to the intervention group, whilst we only gave progressive muscle relaxation therapy to the control group. The results indicated that 71.4% of elderly experienced sleep quality improvement after being treated by combination therapy, while only 28.6% of the elderly experienced sleep quality improvement in the control group. The Mann Whitney Test results showed the number of p(0.000) < α(0.05) which means there was a difference in the quality of sleep between elderly in the intervention group and the control group.

1. Introduction

Elderly period is characterized by the variety of changes in someone’s life aspects such as in psychological, spiritual and psychosocial support. Changes that occur in the elderly may disturb the stability of physiological and psychological processes within them. Some physiological problems that often occur during this period are decreased daily activities, fatigue, weakness, poor neuromuscular coordination, and decreased immune system. Whereas psychological problems that often occur are depression, anxiety, distracted focus, and ineffective coping (Nugroho, 2008; Dwi, 2010). Those problems may result in the central nervous system changes that affect the sleep regulation. Elderly generally need to sleep about 6 hours per day (Hidayat, 2015; BoedhiDarmojo, 2010).

Sumiarta (2014) found that 46.7% of elderly experience insomnia. Ernawati (2017) also reported that 66.7% of elderly have poor sleep quality and 72.2% of them experience mild sleep problems. Hidayat (2016) in his study also concluded that 58.6% of elderly have poor sleep quality.
Sleep quality problems that occur in the elderly may bring various impacts to their lives such as being senile, confused, and disoriented and even may cause the emergence of various kinds of diseases (Stanly & Beare, 2007). There are some health problems in the elderly period due to the lack of sleep quality such as cognitive impairment (Onibala & Sumaraow, 2017), increased blood sugar levels (Gustimigo, 2015), increased recurrence of hypertension (Amanda, Prastiwi, Sutriningsih, 2017) and impaired emotional intelligence (Gusmao, Wiyono, Ardiyani, 2018).

There are some ways both pharmacologically and non-pharmacologically to improve the sleep quality among elderly. Pharmacological therapy rapidly improves sleep quality, but its long-term use also has negative effects such as disturbed kidney function (Boedhi-Darmojo, 2010). Therefore it is necessary to have other alternatives in dealing with sleep problems among elderly by using non-pharmacological therapy.

Progressive muscle relaxation is a relaxation technique that combines deep breathing exercises and a series of certain muscle contractions and relaxation (Setyoadi & Kushariyadi, 2011). Progressive muscle relaxation is useful to create a calm, comfortable and relaxed response and significantly improve the quality of sleep for the elderly (Saulidah, Yami, Susanti, 2016). Izma (2016) in her study found that there are still 52.4% of elderly have poor sleep quality when only being treated by progressive muscle relaxation therapy. For this reason, a combination with any other therapy is needed. One of them is with murottal therapy.

Murottal therapy is an Al-Qur'an voice recording that is recited by a qori expert. Al-Qur'an recitation has been known as one of effective therapy as it has influence on health since it contains elements of meditation, autosuggestion and relaxation (Ernawati, 2013). Ferry (2015) mentioned that the sleep quality of ICU patients increases after being treated by murottal therapy.

One of the Qur'an surahs used in murottal therapy is Surah Ar-Rahman which consists of 78 verses. All verses of Surah Ar-Rahman is short. One of the verse of Surah Ar-Rahman is the repetition of the verse, "Fa Bi ayyi Alairobbikuma Tukadzidziban" which means "Which favors of the Lord would you deny?". The repetition of this verse is to emphasize a very strong belief that may create an effect of calmness which ultimately causes a positive emotional response (Al-Qur'an of Surah Ar-Rahman verse 1-78).

This aim of this study was to know the effect of combination therapy (progressive muscle relaxation therapy and murottal therapy) to the sleep quality among elderly.

2. Methods
We used quasi-experiment with non-equivalent control group design in this study. We involved 28 elderly who had poor sleep quality. The samples were chosen by using purposive sampling method. Sample exclusion criteria were elderly who experienced fracture and paralysis, had dementia, took sleeping pills, and experienced hearing loss.

We gave progressive muscle relaxation exercises for once to the intervention group. We then made a visit for 5 times in a week to accompany the progressive muscle relaxation movement and to provide murottal therapy by using a headset. The control group in this study was only treated by progressive relaxation movements.

The sleep quality in this study was measured by using the Pittsburg Sleep Quality Index instrument from Carole Smyth (2007) with alpha cronbach 0.88. PSQI consists of seven components namely subjective sleep quality, sleep latency, sleep duration, sleep disturbance, sleep efficiency, use of sleeping pills and sleep dysfunction during the day. We did 2 quality measurements during this study, before intervention (pre test) and after intervention (post test).

We used the Wilcoxon Test as a data analysis method for the before and after intervention. We used the Mann Whitney Test to determine the effect of progressive muscle relaxation therapy and murottal therapy on sleep quality among elderly in both groups.
3. Results
The elderly who became subjects in this study were 64.43 years old in average. 85.7% of subjects were women and more than 50% of them were still working (table 1).

| Variable        | f | Number |
|-----------------|---|--------|
| Occupation      |   |        |
| Unemployment    | 7 | 25     |
| Businessman/bussinesswoman | 9 | 32     |
| Laborer         | 12| 43     |
| Sex             |   |        |
| Male            | 4 | 14,3   |
| Female          | 24| 85,7   |

The mean of sleep quality in the intervention group before intervention was $7.21 \pm 1.251$ and $4.79 \pm 1.122$ after intervention. While in the control group, the mean of sleep quality pre-test was $7.21 \pm 1.251$ and the post-test was $6.0 \pm 0.877$. The Wilcoxon Test in the intervention group showed the number of P-value 0.001, whereas in the control group was 0.002. While the Mann Whitney Test showed P-value 0.000 (table 2).

Sleep quality category for both intervention and control group was poor in pre-test. The post-test result showed that 71.4% of subjects in the intervention group had good sleep quality while only 28.6% of subjects in control group had good sleep quality (table 3).

| Group       | Mean ± SD | P-value |
|-------------|-----------|---------|
| Intervention|           |         |
| Pre test    | $7.21 \pm 1.251$ | 0.001   |
| Post test   | $4.79 \pm 1.122$ |         |
| Control     |           |         |
| Pre test    | $7.21 \pm 1.251$ | 0.002   |
| Post test   | $6.0 \pm 0.877$  |         |
| Intervention| $9.36$     | 0.000   |
| Control     | $19.64$    |         |

4. Discussions
Elderly experience various degenerative processes. It changes the central nervous system includes the brain waves and the circadian cycles. These changes cause disturbances in the center of sleep regulation which is characterized by decreased alpha wave activity and also shorter sleep duration. The mechanism also influences the regulation of the SAR mechanism (Reticular Activation System) which affects the safeguard process and BSR (Bulbar Synchronizing Region), therefore it affects the sleep process (David, 2005).
We used the Pittsburgh Sleep quality index (PSQI) instrument which includes the components of sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping pills and sleep dysfunction to measure the sleep quality of elderly. Based on these seven components, there were three most dominant components which caused sleep disturbance, namely sleep latency, sleep duration and sleep efficiency.

The results of the study found that the shortest sleep latency in subjects was 30 minutes and the longest was 60 minutes. It indicates that the elderly had difficulty in starting to sleep. Most subjects stated that they often had nightmares, pain or aches which showed an indication of sleep disorder. Elderly who had difficulty in starting to sleep and experiencing sleep disturbances reflected a decreased sleep quality. Impacts that may occur due to this condition are increased blood pressure and fatigue (Pitaloka, Utami, Novayelinda, 2015; Ridwansyah, Nurbety, Sunarto, 2015).

Subjects in this study were elderly aged between 60-70 years who experienced poor sleep quality. Most subjects were women and were still actively working as laborers. Sleep disorders are often found in women. This is due to the decreased level of progesterone and estrogen which have receptors in the hypothalamus which directly affect the circadian rhythm and sleep patterns. Uncontrolled psychological conditions such as increased anxiety, anxiousness and emotions often occur in women due to the decreased level of estrogen which may cause sleep disturbances (Khusnul, 2014).

Relaxation therapy is one of the non-pharmacological treatments for sleep disorders. Progressive muscle relaxation technique is a therapy which focus on the muscle activity by identifying strained muscles and then reducing its tension by relaxation and combining it with deep breathing exercises (Styoadi & Kushariyadi, 2011). Progressive relaxation trains people to relax their whole muscles. Tension causes muscle fibers to contract and shrink. Tension arises when someone is anxious and stressed which will trigger sleep disturbances. By tensing and relaxing the muscles and differentiating the sensations of tense and relax, people can eliminate muscle contractions and will feel relaxed (Soewondo, 2012).

Some non-pharmacological actions can be done in a combination with some other therapies in order to get optimal results. Progressive muscle relaxation therapy in this study was combined with murottal therapy (reading or listening to the recitation of the Qur'anic verses by qori). Spiritual and belief play an important role in human life. Religion gives strength in bearing the suffering of life (Potter & Perry, 2006). A person's faith is a force in facing all the suffering of life, therefore when the disease comes, God will surely come to give help to them. Subjects in this study were all Muslim, subjects believed that the Qur'an was the antidote for all diseases. The results concluded that there were differences in sleep quality between the elderly who were treated by progressive muscle relaxation therapy and murottal therapy with the elderly who were only treated by progressive muscle relaxation therapy.

Murottal therapy changed the electrical current of the muscles, blood circulation, heart rate and blood levels in the skin. Murolotal therapy affected the brain by stimulating chemical substance in brain called neuropeptides. This molecule will anchor into their receptors and will provide feedback in the form of pleasure or comfort (Yusri, 2006; Faradisi, 2009; Mottaghi, Esmaili, & Rohani, 2011). Dizikir (rememberance of Allah) and prayer can reduce stress levels in the elderly (Handayani, 2016) in line with Oktara and Purnawan (2016) who reported that murottal therapy gave impacts on the quality of sleep among elderly.

We used Surah ArRahman consisting of 78 verses in the Murottal Therapy section. All of verses in Surah Ar-Rahman is short and is easy to memorized by the elderly. There is a verse in Surah Ar-Rahman which is sometimes repeated, "Fa Bi ayyiAlairobikumaTukadzidziban" which means "Which favors of God do you deny. Repetition of this verse gives a very strong belief about all the blessings that God has given. It will give calmness in someone's soul which can improve his or her quality of sleep (Al-Quran surah ArRahman verses 1 - 78).

5. Conclusions
Based on the explanations above, we can conclude that there are significant differences in the sleep quality between elderly who were treated by progressive muscle relaxation therapy and murrotal therapy compared to the elderly who were only treated by progressive muscle relaxation therapy.

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