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A Study to Evaluate the Effectiveness of Structured Teaching Program on Progressive Muscle Relaxation with Deep Breathing Exercise on Sleep Pattern Among Elderly Persons in a Selected Village of the Palakkad Town

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ABSTRACT

Everyone experiences an occasional restless night. But for those who toss and turn repeatedly, the inefficiency to sleep can be a cause of intense frustration and may even have serious problem. Sleep is equally necessary like as air, water or food. We need continuous and peaceful sleep to regain energy, feel rejuvenate and maintain our health and prosperity. If normal sleep patterns are interrupted, it will affect the daily life. Sleep requirements and arrangement change throughout the life cycle according to the National Sleep Foundation (NSF). Infants and newborns require around 16 hours of sleep in a 24-hour span. Adults require 7–9 hours of sleep each night. Surprisingly, senior citizens require the same 7–9 hours, though they do experience a shift to an earlier sleep–wake cycle. The present study was aimed to "evaluate the effectiveness of structured teaching program on progressive muscle relaxation" with deep breathing exercise on sleep pattern among elderly persons in the selected village of the Palakkad district. Progressive muscle relaxation (MR) is a mind–body technique that associates slowly tensing and then relaxing each muscle group in the body. Quantitative approach and pre-experimental one-group pre-test and post-test research design were employed. Purposive sampling technique was adopted to select 50 samples. Instrument used is Modified Pittsburgh Sleep Quality Index Scale. 58% of them have very bad sleep; and 42% of them have fairly bad. None of them have very good sleep and fairly good sleep. The result reveals that there is a significant decrease in the post-test score (mean 3.62) of subjects after administration of progressive muscle relaxation technique compared to pre-test score (mean 15) and the t-test value is 20.96. Hence it can be concluded that the intervention was effective in promoting sleep among the elderly population.

Keywords: deep breathing exercise, elderly, effectiveness, sleep disturbance, progressive muscle relaxation

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INTRODUCTION

Demographic ageing is a global phenomenon by s2025; the geriatric population is expected to be 840 million in the developing countries [1]. It is projected that the percentage of Indians aged 60 and older will rise from 7.5% in 2010 to 11.1% in 2025. In 2010, India had more than 91.6 million elderly and the number of elderly in India is projected to reach 158.7 million in 2025 [2]. As per the 1951 census, the population of the elderly people in India was 20 million and increased to 57 million in 1991, and in 2001, it was 77 million.

The population of the elderly is expected to increase by 177 million by the year 2025. The number of elderly people may exceed 324 million by the year 2050 (O.P. Sharma, National Conference in Geriatrics and Gerontology, 2005). Sleep orders may be primary or more commonly a secondary symptom of the advancing disease process. The disease nature of patients makes management of sleep disorders particularly challenging and highly individualized [3]. Progressive muscle relaxation is a mind–body technique that associates slowly tensing and then relaxing each muscle group in the body. Typically used to tame stress, progressive muscle relaxation technique (PMRT) is said to increase your awareness of the sensations associated with tension. Indeed, a number of studies show that regular practice of PMRT may help to keep stress in check as well as treat stress-related health problems like insomnia and anxiety [4].

NEED FOR THE STUDY

Ageing is a natural, universal and an inevitable developmental phenomenon which takes place even with the best nutrition and health care. As the age progresses toward senility, they experience a number of psycho-physiological problems. As a consequence of these problems, they often suffer from sleeplessness. According to the National Sleep Foundation (2003), 44% of aged persons do not sleep well and they experience at least one or more symptoms of sleep disturbances.

WHO (2009) estimated that about 65% of people have sleep disturbances, 30% people have moderate to mild sleep problems and the remaining 5% are normal. The most prevalence of sleep problems among the elderly increases with age and it may lead to depression, cognition impairment and deterioration of quality of life. Most of them experience occasional sleep difficulties such as interrupted sleep, day-time drowsiness or fatigue without serious health consequences. Identifying and treating people's sleep pattern disturbance is an important goal. Sleep provides healing and restoration. Achieving the best possible sleep quality is important for the promotion of good health as well as the recovery from illness. The skeletal muscle relaxes progressively and the absence of muscle contraction preserves chemical energy for cellular contraction.

PMRT is an exciting field in which nursing skills can be practiced and demonstrated [3]. Nursing interventions are frequently effective in resolving short- and long-term sleep disturbances. Investigators' experience of working with the elderly persons revealed that those who are suffering from diabetes mellitus with burning foot and hypertension during old age reported to be suffering from sleep disturbances at night even though they were on medication. Whereas other aged persons who regularly exercise and take a daily walk, along with intake of their regular medications, do not experience any sleep disturbances. As nursing personnel, the investigator is interested in eliciting the importance of nursing care and relaxation techniques such as progressive muscle relaxation and deep breathing exercises in improving the sleep pattern of the subjects.

STATEMENT OF THE PROBLEM

A study to evaluate the effectiveness of structured teaching program on progressive muscle relaxation with deep breathing exercise on sleep pattern among elderly persons in a selected village of the Palakkad town.

OBJECTIVES

- Assess the sleep pattern in elderly persons.
- Evaluate the effectiveness of structured teaching program on progressive muscle relaxation with deep breathing

exercise on sleep among elderly persons.
- Associate the effect of PMRT and deep breathing exercise with their selected demographic variables

HYPOTHESIS

There is a significant difference in the sleeping pattern among the elderly persons before and after the structured teaching program on progressive muscle relaxation with deep breathing exercises.

RESEARCH METHODOLOGY

Quantitative approach and pre-experimental one-group pre-test and post-test research design were employed. The sample comprises 50 elderly persons aged 60–70years of Pattancherry Panchayath, Palakkad. Purposive sampling technique was employed to select the samples.

Inclusion Criteria

- The elderly people (60–70 years) who are accepted to participate in the study.

Exclusion Criteria

- The persons who are not interested to do exercise and unable to do normal activities, those who are bedridden and those who undergone CABG.

Methods of Data Collection

Tool Part A consists of the demographic variables age, gender, type of family, dietary pattern, hobbies, marital status, time of going to bed and time of wakeup, general health status, and medications taken. Part B contains Modified Pittsburgh Sleep Quality Index Scale (PSQI), which is used for data collection. It is an instrument used to measure the quality and patterns of sleep in the older adult. A pre-test was given to the group. After the pre–test, the structured teaching program was given; the educational content consisted of deep breathing exercise and PMRT; education was given through pamphlets and demonstration of deep breathing and progressive muscle relaxation techniques. The post-test was conducted on the 7th day. Modified PSQI was used for the post-test, and the same was used for the pre-test.

Data Analysis

The data obtained were analyzed in the view of objectives of the study. Frequency and percentage of distribution were used to analyze the demographic data. Mean, median, mode, standard deviation and paired *t*-test were used for assessing the effectiveness of teaching program. Chi-square test was used to find the association between the effect of PMRT and deep breathing exercise with the selected demographic variables.

RESULTS AND DISCUSSION

Demographic variables show that, of the 50 samples, 18 (36%) were 65–10 years, 11 (22%) were 60–65 years old, 11 (22%) were 70–75 years old, and 10 (20%) were above 75 years old. Out of 50 samples, the following are also noted: 40 (80%) were female persons and 10 (20%) were male persons; 28 (56%) were joint family and 22 (44%) were nuclear family; 32 (64%) were both vegetarian and non-vegetarian, 11 (22%) were vegetarian, and 7 (14%) were non-vegetarian; 26 (52%) were watching TV, 14 (28%) were involved in other hobbies, 8 (16%) were reading book, and 2 (4%) were interested in sports; 34 (66%) were married and 16 (32%) were unmarried; 22 (44%) sleep before 9 pm, 16 (32%) sleep before 10 pm, 9 (18%) sleep before 8 pm, and 3 (6%) sleep after 10 pm; 20 (40%) wake before 6 am, 30 (60%) wake before 7 am, none of them wake before 8 am and after 8 am; 20 (40%) were healthy and 30 (60%) were unhealthy. Out of 50 samples, 30 (60%) were taking medicines and 20 (40%) were not taking medicines.

The sleeping patterns in 50 elderly persons were assessed using the Pittsburgh scale and presented in table 1. A structured

teaching program on the effect of progressive muscle relaxation with deep breathing exercise on sleep among elderly persons was conducted for these study participants. The results were evaluated using the same Pittsburgh scale after the teaching program and presented in table 2.

Thus, the teaching program showed a significant improvement in the sleeping pattern of elderly persons. The significant association between the type of family, hobbies, marital status, time of going to bad, time of waking up and health status. There is a significant association between age, gender, type of family, diet, hobbies, marital status, time of going to bed and health status with the pretest sleep score.

Table 1. *Assessment of level of sleep among elderly persons with use of Pittsburgh scale.*

Level of pre-test	Frequency	Percentage
Very good	0	0%
Fairly good	0	0%
Fairly bad	21	42%
Very bad	29	58%
Total	**50**	**100%**

Very good = 0; Fairly good = 1–7; Fairly bad = 8–14; Very bad = 15–21

Table 2. *Reassessment of level of sleep among elderly persons with use of Pittsburgh scale.*

Level of pre-test	Frequency	Percentage
Very good	10	20%
Fairly good	34	68%
Fairly bad	6	12%
Very bad	0	0%
Total	**50**	**100%**

Very good = 0; Fairly good = 1–7; Fairly bad = 8–14; Very bad = 15–21

Assessment of level of sleep among the 50 samples showed that 29 (58%) of them have very bad sleep and 21 (42%) of them have fairly bad. None of them have very good sleep and fairly good sleep.

Reassessment of level of sleep among the 50 samples showed that 34 (68%) of them have fairly good sleep and 10 (20%) of them have very good sleep and 6 (12%) of them have a fairly bad pattern.

There is a significant difference between pre-test and post-test levels of sleep among elderly persons. The mean value of pre-test is 15 and the mean value of post-test is 3.62. The '*t*' test shows the difference between pre-test and post-test of value 20.96, thus showing a significant improvement in sleeping pattern as given in Table 3.

Association between socio-demographic variable in pre-test. There is a significant association between age, gender, type of family, diet, hobbies, marital status, time of going to bed, health status, and there is no significant association between time of waking and medication.

CONCLUSION

A study conducted on progressive muscle relaxation with deep breathing exercise for sleep showed that one of the biggest obstacles to get sleep is effectively shutting the mind down. Old age people often go to bed exhausted, but unable to turn off the noise in their heads. They are bombarded with mental images of what happened today, what is going to happen tomorrow and what should have happened yesterday. Deep breathing exercises serve two objectives: they calm the central nervous system and act as a meditation to

Table 3. *Comparison between pre-test and post-test levels of sleep among elderly persons.*

Group	Mean Score						'*t*' value	Level of significance
	Pre-test		Post-test		Improvement value			
	Mean	SD	Mean	SD	Mean	SD		
Elderly persons	15	3.2340	3.62	2.37	11.38	0.861	20.96	P<0.001

quiet the mind. While deep breathing works more effectively when combined with other relaxation techniques. Always do breathing exercises at bedtime, when you are already in bed.

LIMITATIONS

- Data collection is limited to 50 samples.
- Data collection period is limited to 1 week
- The persons who are not interested to do exercise
- This study was limited in bedridden people, people after CABG.

ETHICAL CONSIDERATION

Obtained ethical clearance from the institutional ethical committee.

CONFLICT OF INTEREST

Nil

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