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Research Article

Effectiveness of Jacobson Progressive Muscle Relaxation and Deep Breathing Exercises on Quality of Life in Prolonged Hospitalised Patients

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I N F O

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A B S T R A C T

Background: Middle age is a crucial period of life during which mental health-related problems may become a cause or an effect of various physical health problems, among which anxiety, psychological distress, and sleep difficulties are commonly observed. The prevalence rate for sleep disturbance in hospitalised adults is 40% to 50%. Barriers to proper sleep in hospitalised older patients include environmental factors like noise and light disruption, and medical care-related factors like early morning vital signs, phlebotomy, and patient factors like pain.

Methods: The study consisted of prolonged hospitalised patients, and the sample size was selected based on inclusion and exclusion criteria.

Results: Out of a total of 30 subjects, there was a significant difference between the pre-intervention score of Group A, which was 294 ± 67.38. and Group B, which was 262 ± 72.32 and the post-intervention score of Group A, which was 321 ± 63.90, and Group B, which was 523 ± 66.72, in the quality of sleep, with a p value of 0.0001 and t value of 5.344 in Group A and 13.116 in Group B, which was extremely significant in the subjects who received Jacobson progressive relaxation technique and deep breathing exercises. Conclusion: The results of the deep breathing exercises and the Jacobson progressive muscle relaxation technique demonstrated a significant reduction in anxiety as well as an improvement in the quality of life and sleep.

Keywords: Quality of Life, Jacobson Progressive Muscle Relaxation, Deep Breathing Exercises

Introduction

Middle age is a crucial period of life during which mental health-related problems may become a cause or an effect of various physical health problems, among which anxiety, psychological distress, and sleep difficulties are commonly observed. The prevalence rate for sleep disturbance in hospitalised adults is 40% to 50%.[1]Barriers to proper sleep in hospitalised older patients include environmental factors like noise and light disruption, and medical care-related factors like early morning vital signs, phlebotomy, and patient factors like pain. Jacobson progressive muscle relaxation and deep breathing exercises are techniques that can increase the quality of sleep in prolonged hospitalised patients.[2,3] The association of anxiety disorders is moderately associated with reduced quality of sleep, resulting in reduced quality of life. Recently studies have revealed a significant association between higher anxiety, depression, and poor sleep quality in chronically ill hospitalised older patients. Poor sleep results in an increased risk of significant morbidity and mortality. Complications of poor sleep quality include Parkinson's disease, Alzheimer's disease, arthritis pain, cardiovascular disease, or any neurological condition.[4]

So, the need for the study is to increase the quality of life by utilising Jacobson's progressive muscle relaxation and deep breathing exercises to reduce the risk of anxiety and poor quality of sleep in prolonged hospitalised patients.[5]

Quality of life is a multidimensional concept that measures a person's well-being. The discussion and use of QOL as a measurable outcome in health have increased in recent decades as healthcare has shifted from a disease-focused biomedical model to a more holistic, well-being-focused biopsychosocial model. QOL has also become more important with improvements in medical treatments and disease management leading to longer lives for people in general, and particularly those living with chronic diseases.[3,6]

Poor quality sleep, as well as sleep loss or poorly regulated sleep, can have a negative impact on physical and mental function. It can cause sleepiness and a decline in performance, as well as affect psychological and physical functions such as memory, learning, metabolism, and immunity.

Quality of life is a concept which aims to capture the well-being, whether of a population or individual, regarding both positive and negative elements within the entirety of their existence at a specific point in time.[7]

It is a well-recognised fact that hospitalisation can significantly disrupt sleeping patterns due to stress. Stress related to hospitalisation can be attributed to the unfamiliar environment, changes in routine, anxiety, and depression.[8] Non-pharmacological techniques such as Jacobson progressive muscle relaxation and deep breathing exercises like diaphragmatic and pursed-lip breathing have been proven effective in promoting sleep in hospitalised patients. One can be relaxed without sleep, but sleep rarely occurs until one is relaxed. Jacobson Progressive muscle relaxation is another effective and widely used strategy for stress relief. It involves a two-step process in which one systematically tenses and relaxes different muscle groups in the body.[9,10]

The five aspects of quality of life are physical health, mental health, everyday functioning in social activities, everyday functioning in role activities, and general perceptions of well-being.[11]

Methodology

This study assesses the effectiveness of the Jacobson progressive muscle relaxation and deep breathing exercises on anxiety and quality of sleep in prolonged hospitalised patients. It was conducted in Krishna Vishwa Vidyapeeth 'Deemed to be' University, Karad. This is experimental type of study in which randomized control trial was designed. Sample size was 40 with study duration of 6 months. Instat was the statistical tool used for analysis of this study. It was ethically approved from the authority of Krishna Vishwa Vidyapeeth 'Deemed to be University',Karad.

The study population included both males and females selected based on inclusion criteria, according to which the subjects who belonged to the age group of 40–60 years, underwent prolonged hospitalisation, were willing to participate, voluntarily provided their socio-demographic information, and were willing to engage in Jacobson progressive muscle relaxation and deep breathing exercises to improve sleep quality and reduce anxiety were included in the study.

Individuals below the age of 40 years or above 60 years, those who were unconscious, disoriented, or experiencing critical problems, and those unable to provide appropriate information and perform the exercises were excluded.

The quality of sleep was assessed using the sleep disturbance scale, while anxiety was evaluated with the anxiety inventory scale, both of which included socio-demographic information.

Data were obtained from the responses received.

Study Procedure: The subjects were divided into two groups, with 15 participants in each group (Group A and Group B). Both groups received the Jacobson progressive muscle relaxation technique for 15 minutes and deep breathing exercises for 5 minutes, totalling 20 minutes of protocol for each group over a 4-week treatment period.

After 4 weeks, pre-test and post-test data were collected, analysed, and compared.

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Results

A total of 30 subjects participated in the study. Table 1.1 includes three variables:

- Age: 7 subjects (23.3%) were aged 40–50 years, while 23 (76.6%) participants belonged to the age group of 50–60 years.
- Gender: Of the total, 18 (60%) participants were male, and 12 (40%) were female.
- BMI: Among the participants, 11 (36.6%) were underweight, 16 (53.3%) were normal weight, and 3 (10%) were overweight.

Out of a total of 30 subjects, there was a significant difference between the pre-intervention score of Group A, which was 294 ± 67.38, and Group B, which was 262 ± 72.32, and the post-intervention score of Group A, which was 321 ± 63.90, and Group B, which was 523 ± 66.72 in the quality of sleep. The p value for both pre and post-intervention was 0.0001, and the t value was 5.344 in Group A and 13.116 in Group B, which was extremely significant in the subjects who received the Jacobson progressive relaxation technique and deep breathing exercises.

The pre-intervention score for Group A was 1.46 ± 0.516, and for Group B was 1.34 ± 0.442. The post-intervention score for Group A was 2.16 ± 0.459, and for Group B was 3.77 ± 0.502 in anxiety, with a p value of 0.0001. The t value for Group A was 6.808, and for Group B was 16.205, which was extremely significant in the subjects who received the Jacobson progressive relaxation technique and deep breathing exercises.

Table 1.Presenting the Variables, No. of Individuals, Percentage of Individuals participated in the study

Variables	No. of Individuals	Percentage of Individuals
1. Age (years)		
40–50	7	23.3
51–60	23	76.6
2. Gender		
Male	18	60.0
Female	12	40.0
3. BMI		
Underweight	11	36.6
Normal	16	53.3
Overweight	3	10.0

Table 2.Showing the comparision between Group A and Group B for Quality of Sleep

Quality of Sleep	Pre-Intervention Score	Post-Intervention Score	P Value	T Value	Inference
Group A	294 ± 67.38	321 ± 63.90	0.0001	5.344	Extremely significant
Group B	262 ± 72.32	523 ± 66.72	0.0001	13.116	Extremely significant
Inference	Not Significant	Extremely Significant	-	-	-

Table 3.Showing the comparision between Group A and Group B on Anxiety

Anxiety	Pre-Intervention Score	Post-Intervention Score	P Value	T Value	Inference
Group A	1.46 ± 0.516	2.16 ± 0.459	0.0001	6.808	Extremely significant
Group B	1.34 ± 0.442	3.77 ± 0.502	0.0001	16.205	Extremely significant
Inference	Not significant	Extremely significant	-	-	-

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Discussion

The study's findings demonstrated that when participants used the deep breathing exercises and Jacobson progressive muscle relaxation technique, their anxiety significantly decreased and their sleep quality increasedTable 2. There was no baseline difference in the anxiety scores across the groups of the thirty subjects; however, the groups showed significant differences following the intervention. The long-term hospitalised subjects' post-intervention anxiety scores showed a significant reduction, which was consistent with research showing progressive muscle relaxation reduces anxiety in older adults with a range of medical conditions (Nordhus et al., 2003).[2,5,11] Deep breathing techniques and Jacobson progressive muscle relaxation were found to be equally helpful in lowering anxiety when used in combination as well as individually (Singh et al., 2009). The results showed a marked improvement in the quality of sleep and the efficacy of self-relaxation training including progressive muscle relaxation in improving the quality of sleep among the elderly Table 3 .

Reduced anxiety is another factor contributing to better sleep quality. The results of Luo et al.[15] and Suh et al.[20], who discovered a substantial positive association between anxiety and sleep quality among the elderly, supported the conclusion of a significant positive correlation between anxiety and sleep quality. According to Ramasawh et al.[19], there is a moderate correlation between anxiety and poorer sleep, which in turn leads to a lower quality of life connected to mental health.

The absence of a significant relationship between age and anxiety contrasted with research showing that older people (60–74 years) experienced higher levels of anxiety than older adults (75 years) and that older age served as a protective factor for lower levels of anxiety.[9] The sample size (N = 60 vs 378 and 2049, respectively) and community sample may be to blame for this discrepancy. Studies indicated that older males reported better sleep quality and less anxiety than females, but there was no significant correlation between gender, anxiety, and sleep quality.[15,17] This can be the result of variations in the study's source population and sample size.

In the current investigation, anxiety levels were considerably lower in the groups one week following the intervention than they were at baseline. The groups' baselines did not differ from one another. Results from earlier research, where relaxation training was found to significantly reduce anxiety, are consistent with this finding (Jain et al., 2007). Although the study group was different, there was a substantial positive link between anxiety and sleep quality in this study, which was comparable to that found in a study by Javadpour.[12] It could be useful to note that deep breathing exercises and the Jacobson progressive muscle relaxation technique may have contributed to the groups' improved sleep quality by reducing anxiety.

The current research's findings are consistent with previous research, which suggests that deep breathing exercises and the Jacobson progressive muscle relaxation technique helped long-term hospitalised patients feel less anxious and sleep better. Similar results on patients with various medical conditions have also been reported regarding the effectiveness of deep breathing exercises and Jacobson progressive muscle relaxation in lowering anxiety (Georgiev et al., 2010)[10,14,18] and enhancing sleep quality.[8,22,23]

Conclusion

The combination of deep breathing exercises and the Jacobson progressive muscle relaxation technique proved to be effective in reducing anxiety and improving sleep quality in patients who had been hospitalised for an extended period of time. This study demonstrated that deep breathing exercises and Jacobson progressive muscle relaxation are an easy, quick, affordable, and less time-consuming combination for lowering anxiety and enhancing sleep quality in patients who have been hospitalised for an extended period of time.

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Conflict of Interest: None

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