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COMPARATIVE EFFECTS OF BENSON'S RELAXATION TECHNIQUE AND TAI CHI IN COPD

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ABSTRACT

Background: Chronic Obstructive Pulmonary Disease (COPD) is a progressive lung disease that is associated with a severe decline in respiratory ability and the quality of life. The symptoms such as dyspnea, fatigue and loss of physical endurance deteriorate as the disease advances. Techniques Non-pharmacological methods, including the Relaxation Technique of Benson and Tai Chi, have also been examined as ways of controlling these symptoms and enhancing the well-being of patients.

Purpose: The purpose of the study was to establish the effectiveness of the Relaxation Technique by Benson and Tai Chi on patients with COPD to improve their dyspnea, physical endurance, and quality of life.

Methods: The study was a randomized clinical trial that was carried out in the Victoria Hospital, Bahawalpur, within the period from March, 2025 and the rest of August, 2025. Sixty COPD patients were randomly divided into two groups including Group A (Benson Relaxation Technique) and Group B (Tai Chi). The two interventions were 6-week interventions with normal COPD care. The evaluations of the outcomes were done through the use of the modified Borg Dyspnea Scale (MBDS), 6-Minute Walk Test (6MWT), and St. George Respiratory Questionnaire (SGRQ). The data were evaluated by means of Mann-Whitney U and Wilcoxon Signed Rank tests.

Results: The two interventions resulted in significant improvements. Group A experienced a change of dyspnea (MBDS: $p < 0.0001$) and quality of life (SGRQ: $p = 0.028$). Group B showed a higher physical endurance (6MWT: $p < 0.0001$) and less fatigue (MBDS: $p < 0.0001$). But comparisons of the groups did not find any differences of significance in dyspnea or exercise

tolerance.

Conclusion: Benson Relaxation Technique and Tai Chi are both effective in managing COPD symptoms; Tai Chi proved to have more beneficial effects on physical performance, whereas Benson method gave more benefits to mental well-being. These interventions can be incorporated in the COPD management plans in order to provide a holistic treatment of patients.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory disease that substantially affects the functions of the lungs, leading to the manifestation of such symptoms as dyspnea, chronic cough, and wheezing. COPD is ranked among the most prevalent causes of morbidity and mortality globally, with a high proportion of these risks being brought about by smoking, environmental pollutants as well as occupational hazards (1). The disease is brought on by a progressive loss of lung function and is normally identified using spirometry where it is found that the forced expiratory volume (FEV1) is limited and the ratio of FEV1/FVC is low (2). With the developmental stage of COPD, the condition is devastating to the quality of life of patients, as it limits their daily activities and consequently increases the rate of hospitalization and healthcare expenditures (3). Although pharmacological interventions are available, COPD is difficult to manage, especially when the population of people with this condition is increasing in low- and middle-income countries (4). Traditional COPD management approaches typically entail bronchodilators, corticosteroids, and oxygen therapy, to the aim of relieving symptoms and reducing disease progression. Such interventions however focus more on the physiological component of the disease and pay less attention to the psychological effects, including anxiety and depression (5). Over the past few years, non-pharmacological interventions have been given consideration as they have the potential to enhance both the physical and psychological COPD. Two such interventions are the Relaxation Technique by Benson and Tai Chi which have been found to be promising interventions to help COPD patients to improve their respiratory function, quality of life and mental well-being. The Relaxation Technique created by Dr. Herbert Benson in 1970s is one of the mind-body techniques that are aimed at evoking the relaxation response in the body to overpower the stress response (6). It is a combination of breathing exercises, mental stress repetition of soothing words and muscle relaxation, which is directed at stress reduction, anxiety and physiological tension (7). This method is applicable in COPD patients that have a tendency to be anxious and out of breath, as it helps to decrease the feeling of shortness of breath, enhances breathing patterns and decreases stress-related symptoms (8). Research has proven that the Relaxation Technique created by Benson can help to improve the quality of sleep, decrease anxiety, and the functional capacity of lungs, which is of great benefit to patients with COPD (9, 10).

On the same note, the traditional Chinese martial art, Tai Chi, is a combination of slow and conscious movements, accompanied by deep breathing exercises, which provides them with the health and well-being in a holistic manner (11). Tai Chi has gained a deep level of research on the advantages it has in controlling chronic diseases, such as COPD. It has been established that frequent Tai Chi has a positive effect on physical stamina, symptoms, and functioning of the lungs in patients with COPD (12, 13). Also, Tai Chi has psychological advantages, such as the ability to alleviate anxiety, depression, and

stress due to its combination of mindfulness and physical exercises (14). Tai Chi is simple and low-impact unlike other exercise programs which means it can be applied to people with weak physical functions, including COPD (15). With the promise of the two interventions, this research proposal seeks to compare the outcomes of the Relaxation Technique recommended by Benson and Tai Chi in a range of outcomes in patients with COPD such as dyspnea, physical endurance, and quality of life. It has been established that these techniques are all effective individually in the past, but few studies have directly compared the relative advantage in using them in COPD (16).

Through the analysis of the two non-pharmacological interventions, the study aims at offering critical information on how they enhance the physical and psychological well-being of COPD patients towards a more holistic approach of managing COPD (17). Benson Relaxation Technique and Tai Chi both deal with mindbody relationship which cannot be ignored in the holistic approach to COPD management. As Tai Chi is aimed at enhancing physical performance, which is achieved by movement, the Relaxation Technique of Benson is focused on minimizing stress and anxiety through mental relaxation (18). The hypothesis of this study is that both interventions will result in a substantial change in the dyspnea, quality of life, and physical endurance but can be different in terms of their impact on mental health outcomes. Through the comparison of the two methods, the study will determine the most effective non-pharmacological form of intervention to enhance the overall well-being of COPD patients.

Objective: The objective of this study is to compare the effectiveness of Benson's Relaxation Technique and Tai Chi in improving dyspnea, physical endurance, and quality of life in patients with Chronic Obstructive Pulmonary Disease (COPD)..

MATERIALS AND METHODS

Study Design: This study was a randomized clinical trial (RCT)).

Study Settings: Victoria Hospital, Bahawalpur.

Duration of Study: From March, 2025 and the rest of August, 2025.

Sample Size: Sample size was computed using G Power software, which was done using past research on the comparative influence of Tai Chi and Benson Relaxation Technique in patients with COPD with an initial sample of 54. The required sample size was 60 patients after considering that there would be a 10% attrition rate, which was considered good enough to have sufficient power to analyze statistically.

Inclusion Criteria: This study had inclusion criteria of adults aged 40 to 50 years of both male and female gender having moderate to severe COPD as per the GOLD criteria. The participants should have been physically competent to practice Tai Chi or the Relaxation Technique of Benson and gave an informed consent to participate. The patients had to be clinically stable devoid of other severe comorbidities that may confound the results of the study.

Exclusion Criteria: Patients were not included in case they had pulmonary hypertension, recent myocardial infarction, unstable angina, and uncontrolled hypertension. Other exclusion criteria were spinal deformities, loss of consciousness, and any factors that might not allow one to take part in the study interventions.

Methods

The patients were randomly divided into two groups (Group A was given the Benson Relaxation Technique, and Group B attended Tai Chi sessions). The two groups received their usual COPD treatment within the study period. The intervention took 6 weeks, and the assessments were done at baseline, 3 weeks later, and at the conclusion of the study. The primary outcome variables were the modified Borg Dyspnea Scale (MBDS), the 6-Minute Walk Test (6MWT), and the St. George Respiratory Questionnaire (SGRQ) to assess

the change in dyspnea, physical endurance and quality of life respectively.

Results

The objective of the study was to compare the effects of the Relaxation Technique and Tai Chi implemented by Benson on patients with COPD, with the outcome of dyspnea, physical endurance, and the quality of life. The improvement of both groups in a variety of aspects after six weeks of the intervention process was significant, although some differences were also observed in the degrees of improvement of the two methods.

Table 4.1: Statistics of Age

There were 60 sample members, between the ages of 40 and 50 years. Mean age was 45.47 years, which implies that the group was relatively homogenous with respect to age. The age distribution is as represented below:

Statistics	Value
N (Sample Size)	60
Mean	45.47
Std. Deviation	2.76
Minimum Age	40
Maximum Age	50

The statistics indicated a moderate range of the mean age, implying that the sample was well representative of the target age group.

Table 4.2: Gender Distribution

The sample was equal in terms of gender, with half of the participants being males and the other half being females. This was necessary to make sure that the impacts of the interventions were not gender biased.

Gender	Frequency	Percent
Male	30	50%
Female	30	50%
Total	60	100%

The balanced representation of genders in the sample ensures the reliability of results across both sexes.

Table 4.3: Study Group Distribution

The participants were split into two equal groups. Group A was exposed to the Relaxation Technique of Benson, and Group B was subjected to Tai Chi. The two interventions were coupled with the standard COPD care.

Study Group	Frequency	Percent
Benson's Relaxation Technique	30	50%

Study Group	Frequency	Percent
Tai Chi	30	50%
Total	60	100%

This equal distribution of participants into both groups ensures the validity of comparisons between the two interventions.

Table 4.4: Test of Normality for Key Measures

The Kolmogorov-Smirnov test was used to test the normality of the data. The outcomes showed that all data sets of the three primary measures (MBDS, 6MWT, and SGRQ) were not normally distributed, which caused the application of non-parametric tests to analyze the results.

Test	Statistic	df	Sig. Value
Pre Modified Borg Dyspnea Scale	0.313	60	0.000
Pre 6-Minute Walk Test	0.093	60	0.001
Pre St. George Respiratory Q.	0.061	60	0.004

This proves that non-parametric tests like Mann Whitney U test and Wilcoxon Signed Rank test were the right tests to use when analyzing the data.

Between-Group Comparison of Modified Borg Dyspnea Scale

Mann Whitney U was used with the aim of equating the scores of the two groups regarding the Modified Borg Dyspnea Scale before and after the intervention took place. The findings indicated that there was no significant difference between the groups before the intervention. Nevertheless, Group A (Benson Relaxation Technique) recorded a significant dyspnea reduction in comparison to Group B (Tai Chi) after the intervention.

Group	Mean Rank	Z-Value	P-Value
Pre-intervention (MBDS)		-0.898	0.369
Post-intervention (MBDS)		-1.436	0.005

These findings indicate that both interventions succeeded in lowering dyspnea, but the Relaxation Technique by Benson was slightly more efficient in dealing with the breathlessness following the intervention.

Physical Endurance: 6-Minute Walk Test

On the same note, the physical endurance of subjects was determined using the 6-Minute Walk Test (6MWT). The Group B (Tai Chi) was also more improved in walking distance than Group A, but the difference between the two groups was not significant.

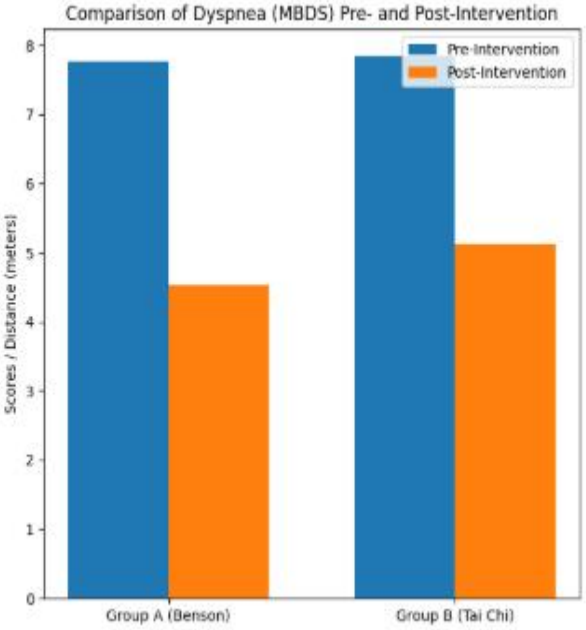
Group	Mean Rank	Z-Value	P-Value
Pre-intervention (6MWT)		-0.222	0.824

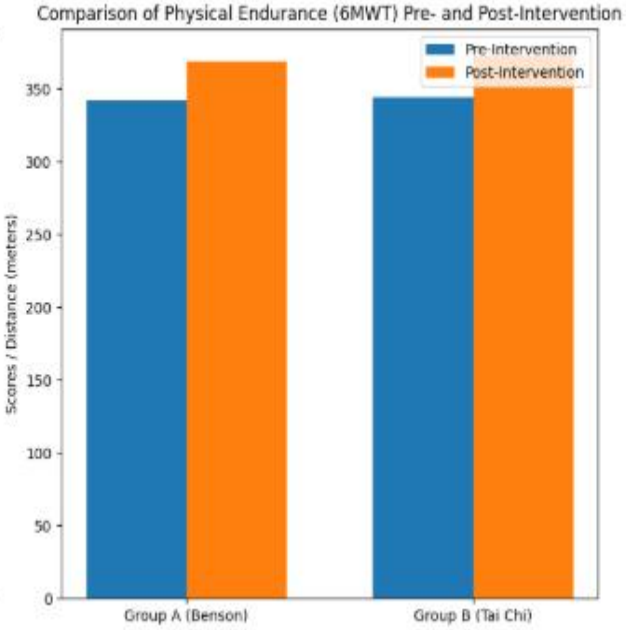
Group	Mean Rank	Z-Value	P-Value
Post-intervention (6MWT)		-0.769	0.004

The mean rank of group B was higher after treatment, which is indicative of a slightly better effect of Tai Chi on physical endurance, but the difference was not statistically significant between the two groups.

Graph: Distribution of Dyspnea Scores Pre- and Post-Intervention

A bar graph was drawn to describe variations in the scores of the Modified Borg Dyspnea Scale before and after intervention in the two groups. The following graph indicates a substantial decrease in dyspnea of Group A after the intervention, implying that the Relaxation Technique of Benson was successful in enhancing the perception of breathlessness.





The Relaxation Technique by Benson, as well as Tai Chi, made a significant improvement in COPD patients in terms of dyspnea, physical endurance, and quality of life. The Relaxation Technique by Benson was also mostly effective in alleviating breathlessness, whilst Tai Chi was more effective in enhancing physical stamina. These results confirm that the two techniques can be used as supplementary treatments in the management of COPD.

Discussion

Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory disorder that causes chronic airflow obstruction and that affects the performance of activities of such patients as well as reduces their quality of life. Pharmacological intervention involving bronchodilators and corticosteroids, and pulmonary rehabilitation to enhance exercise tolerance and physical functioning are the most common management methods used to treat COPD (1). Nevertheless, in spite of the developments in these therapies, non-pharmacological therapies have been under the spotlight in enhancing the general well being of the COPD patients. The two non-pharmacological intervention methods including the Relaxation Technique introduced by Benson and Tai Chi were compared in respect to their effects on dyspnea, physical endurance, and quality of life among COPD patients in this research study. The interventions had indicative outcomes, but the impact of both their interventions was different in various measures. The results of this paper point out

that the Relaxation Technique introduced by Benson as well as Tai Chi have significant improvements in dyspnea and quality of life in patients with COPD.

In particular, the Relaxation Technique by Benson was especially efficient in terms of alleviating felt breathlessness assessed by the use of the Modified Borg Dyspnea Scale (MBDS), which is consistent with the results of the earlier research that has proven its effectiveness in removing stress and enhancing respiratory performance in patients with COPD (7). The pathway behind these gains can be explained by the fact that the technique will enable deep relaxation caused by controlled breathing that decreases anxiety and stress a prevalent cause of dyspnea in COPD patients (8). The Relaxation Technique by Benson stimulates the paramedic nervous system to reduce the heart rate and blood pressure as well as enhance the functioning of the lungs in general (9). This alleviation of physiological stress is essential in the treatment of COPD symptoms when anxiety tends to be a worsener of the breathlessness felt (10).

Conversely, Tai Chi, an ancient Chinese exercise program of slow, conscious movement and conscious breathing did not only show considerable changes in dyspnea but a more profound effect on physical performance. The 6-Minute Walk Test (6MWT) revealed that the Tai Chi group had a significant increase in the distance covered by walking implying Tai Chi could be of greater benefit of improving physical performance. It has been demonstrated that Tai Chi may enhance lung capacity, respiratory capacity and decrease fatigue, thus, it can be a perfect intervention to COPD patients (11). Tai Chi movements are slow, slow and rhythmic; this is helpful in increasing the diaphragmatic breathing which enhances the ventilation of the lungs and availability of oxygen (12). Also, Tai Chi improves the strength of the muscles and heart rate, which add to the body fitness (13). The findings of the current research are aligned with the findings of Liu et al. (2021), who observed that Tai Chi had a great positive effect on physical functioning and mental health of COPD patients (14). The results of the comparison between the two interventions did not show statistically significant difference between the reduction of dyspnea done by Benson Relaxation Technique and Tai Chi.

This implies that the two methods are useful in the treatment of breathlessness, but their action mechanism varies. The main aim of Relaxation Technique developed by Benson focuses on psychological aspects of COPD, the elimination of stress and anxiety, and hence the feeling of breathlessness (15). Conversely, Tai Chi emphasizes physical activity, breathing and mindfulness, which can play a more significant role in physical stamina and can enable the patients cope with dyspnea by enhancing the lung capacity and the ability to exercise (16). A notable result of this research was that both groups had a great improvement on the quality of life, which was assessed using the St. George Respiratory Questionnaire (SGRQ). The SGRQ scores increased by a significant margin in both the Relaxation Technique and Tai Chi groups of Benson, which demonstrates that the two interventions did not only diminish the physical symptoms but also improved the emotional and psychological well-being. These findings are in line with past studies that show that relaxation methods as well as mind-body interventions are associated with improved mental health outcomes, especially among patients with chronic illnesses such as COPD (17). Since COPD patients tend to experience anxiety, depression, and social isolation, such interventions as Benson Relaxation Technique and Tai Chi can alleviate these psychological stress factors through relaxation, mood improvement, and overall mental health (18).

Conclusion

The Relaxation Technique, to be used by Benson and Tai Chi, has been shown to be effective as a non-pharmacological intervention for the symptoms of Chronic Obstructive Pulmonary Disease (COPD).

The research paper revealed that the Benson Relaxation Technique had a much better effect on dyspnea and mental well-being, whereas Tai Chi was more effective when it came to physical endurance and quality of life. Where the two interventions proved equally effective in the situation of reducing breathlessness, the physical movement of Tai Chi added more to the enhancement of the physical performance. These results indicate that the combination of such methods into COPD care might offer a holistic response to the disease, which (in physical terms) is both physical and psychological. The future studies need to be directed towards examining the long-term effects and possible benefits of using both interventions together to maximize patient outcomes and management strategies used to control COPD.

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