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RESEARCH ARTICLE

THE EFFECT OF GUIDED IMAGERY THERAPY ON THE LEVEL OF DEPRESSION IN PATIENTS WITH CHRONIC OBSTRUCTIVE LUNG DISEASE

(PENGARUH TERAPI GUIDED IMAGERY TERHADAP TINGKAT DEPRESI PADA PASIEN PENYAKIT PARU OBSTRUKSI KRONIK)

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ABSTRACT

Chronic obstructive pulmonary disease (COPD) is a disease that can lead to morbidity and mortality worldwide. This experimental study aimed to evaluate the effectiveness of guided imagery interventions in COPD patients treated in the Pulmonology Unit of Sebelas Maret University Teaching Hospital, Surakarta. An analytical experimental design with a randomized controlled trial (pre and post test) approach was used. Paired T-test results showed that the intervention group had a p-value < 0.001, indicating a significant change in the Hamilton Depression Rating Scale (HRDS) scores, while the control group had a p-value of 0.578, showing no significant change. It can be concluded that guided imagery effectively decreased HRDS scores in the intervention group compared to the control group; in other words, guided imagery decreased depression levels among COPD patients.

Keywords: COPD, guided imagery, HRDS

ABSTRAK

Penyakit paru obstruksi kronik (PPOK) merupakan penyakit yang menyebabkan morbiditas dan mortalitas di dunia. Penelitian ini bertujuan untuk menguji efektivitas terapi guided imagery untuk menurunkan tingkat depresi pada pasien dengan PPOK di poli rawat jalan paru RS UNS Surakarta. Penelitian dilakukan dengan menggunakan randomized controlled trial pre and post-test design. Hasil Uji beda t-test berpasangan menunjukkan, terjadi penurunan yang signifikan pada skor Hamilton Depression Rating Scale (HDRS) pada kelompok perlakuan (p<0.05). Sementara itu, tidak ada perubahan yang signifikan pada skor HDRS pada kelompok kontrol (p=0,578). Penelitian ini menyimpulkan bahwa guided imagery efektif menurunkan tingkat depresi pada pasien PPOK dibandingkan dengan kelompok kontrol.

Kata kunci: guided imagery, HDRS, PPOK

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is one of leading causes of morbidity and mortality worldwide. According to a study by the World Health Organization, COPD ranked fifth in the global burden of disease between 1990 and 2013.[1] Currently, COPD is the fourth leading cause of death globally and was projected to become the third leading cause by 2020.[1]

The results of the 2018 Basic Health Research (Riskesdas) reported that the prevalence of COPD in Indonesia was 4.5%, with the highest prevalence observed in Central Sulawesi province (5.5%).[2] Central Java ranked seventh, with 31,817 cases or 2.1%.[2]

According to Moretta et al.[3] depression is the most common psychiatric disorder among patients with COPD, primarily due to the functional problems and social isolation associated with the disease. Guided imagery therapy has been introduced as an alternative treatment modality to help reduce depression levels in COPD patients. According to Tusek and Cwynar (2000), guided imagery therapy is a mind-body intervention intended to relieve stress and increase a sense of peace and calm. It is a process of combining the power of the mind to relax and the body to heal through inner communication involving all the senses, including touch, smell, sight and sound.[3]

The goal of guided imagery is to establish an emotional connection between mind, body, and soul. Bernstein and Barkovec (1977) stated that relaxation exercises are effective in reducing subjective tension and influencing various physiological processes.[4]

Based on the description above, researchers were interested in examining the effectiveness of guided imagery therapy on depression levels among COPD patients, as previous literature has indicated that there was an influence of guided imagery on depression levels in COPD patients.

MATERIALS AND METHODS

Research Design

The study adopted an analytical experimental design using a randomized controlled trial with pre- and post-test method. Patients in the intervention group received guided imagery therapy in the form of relaxation audio recordings. Meanwhile, patients in the control group were provided with psychoeducational audio recordings about COPD and its available treatments.

Research subject

The study subjects were patients with COPD who were treated in the outpatient clinic of UNS Surakarta Hospital between January and February 2022. The inclusion criteria for this study were as follows:

i) Patients diagnosed with COPD for ≤ 3 years in the pulmonary

outpatient clinic of UNS Surakarta Hospital ;

ii) Patients who provided informed consent, either verbally or in writing, at the beginning of the study;

iii) Ability to understand and speak Indonesian;

iv) A diagnosis of depression based on the HDRS instrument, with scores between 8 and 23;

v) Ability to operate a mobile phone and use WhatsApp.

The randomization method for this sample was carried out using a website-assisted method. Of the 20 samples, those assigned to the intervention and control groups were determined through this process. No wait-list design was adopted in this study.

Ethical Aspects of Research

This research has received ethical approval from the Health Research Ethics Committee of Dr. Moewardi Regional Hospital, Surakarta, under registration number 1.108/XII/HREC/2021.

Data Analysis

The T-test was performed if the normality assumption was met, while the Mann-Whitney test was used when the normality assumption was not satisfied. The probability value, *p*-value (sig.), of less than 0.05 was considered statistically significant. All statistical analyses were conducted using SPSS version 21.0.

RESULTS AND DISCUSSION

This study involved 38 patients diagnosed with COPD who were treated at the Pulmonary Outpatient Clinic of UNS Surakarta Hospital. It employed an experimental designm in which 19 patients in the experimental group (treatment) received guided imagery therapy, while the remaining 19 patients in the control group received standard therapy to serve as a comparison for evaluating the effectiveness of guided imageryThe results are presented as follow:

Characteristics of Research Subjects

The characteristics of the research subjects measured in this study are described in several categories. Age was measured in years,while gender was classified as male or female. Educational background was grouped into three levels: elementary, middle, and high school. The participants' socioeconomic characteristics were described based on monthly income and occupation. Income was divided into four categories, and occupation into six categories, as shown in Table 1. Additional characteristics included COPD risk factors, such as smoking history and duration of illness, with detailed results also provided in Table 1.

Table 1 Characteristics of research subjects

Characteristics	Group		*p-value*
	Treatment (n=19)	**Control (n=19)**	
Age[a]	60.84 ±8.28	65.58± 6.47	0,077
Gender[b]			0,721
Male	13 (68.4%)	14 (73.7%)	
Female	6 (31.6%)	5 (26.3%)	
Education[a]			0.160
Elementary school	9 (47.4%)	4 (21.1%)	
Junior high school	3 (15.8%)	6 (31.6%)	
Senior High School	6 (31.6%)	6 (31.6%)	
College	1 (5.3%)	3 (15.8%)	
Income[a]			0.586
< 1 million	1 (5.3%)	4 (21.1%)	
1-2 million	14 (73.7%)	10 (52.6%)	
2-3 million	3 (15.8%)	5 (26.3%)	
>4 million	1 (5.3%)	0 (0.0%)	
Work[b]			0.482
Worker	4 (21.1%)	5 (26.3%)	
Housewife	5 (26.3%)	2 (10.5%)	
Retiree	5 (26.3%)	6 (31.6%)	
Private Employment	1 (5.3%)	0 (0.0%)	
Self-Employed	3 (15.8%)	6 (31.6%)	
Unemployed	1 (5.3%)	0 (0.0%)	
Smoking History[b]			0.721
No	6 (31.6%)	5 (26.3%)	
Yes	13 (68.4%)	14 (73.7%)	

Description:

Numerical data are presented as mean ±standard deviation (SD), while categorical data are expressed as frequency distribution (%).

a. Mann-Whitney test was used for ordinal or numeric categorical data thta are not normally distributed).
b. Chi-square test was used for nominal categorical data.

Based on Table 1, the mean age in the treatment group was 60.84 ± 8.28 years, whereas in the control group it was 65.58 ±6.47 years. The statistical test yielded a p value of 0.077 (p> 0.05), indicating that there was no significant difference between the two groups in terms of baseline age characteristics.

The gender of the treatment group was predominantly male, with 13 people (68.4%), and the majority of the control group was also male, with 14 people (73.7%). The statistical test results obtained a p value of 0.721 (p>0.05), which means

that there was no significant difference in the basic characteristics of the research subjects based on gender.

In term of education level, most subjects in the treatment group were elementary school graduates (47.4%; n = 9), while the majority of the subjects in the control group were junior high and senior high school graduates (31.6%; n = 6 each). The statistical test produced a p-value of 0.586 (p>0.05), indicating that there was no significant difference between groups of the study subjects based on educational background.

The majority of participants in the treatment group' had a monthly income of 1-2 million(73.7%; n = 14), while most participant in the control group also earned 1-2 million (52.6%; n = 10). The statistical test results obtained a p-value of 0.586 (p>0.05), which means there was no significant difference in the baseline characteristics of the research subjects based on income.

The majority of participants in the treatment group were housewives and retirees (26.3%; n = 5 each), while most participants in the control group were retirees and self-employed, (31.6%; n = 6 each). The statistical analyses yielded a p-value of 0.482 (p>0.05), indicating no significant difference in the baseline characteristics of the research subjects based on their occupation.

A history of smoking was reported in 13 individuals (68.4%) in the treatment group and 14 participants (73.7%) in the control group. The statistical test results obtained a p-value of 0.721 (p>0.05), which means there was no significant difference in the baseline characteristics of the study subjects based on smoking history.

Overall, these results suggest that there were no significant differences in the baseline characteristics of the research subjects between the treatment and control groups, confirming that the research subjects were homogeneous.

The Effect of Guided Imagery on Reducing Depression Levels Based on the HDRS Instrument Compared with Control (Standard Therapy) in COPD Patients

Guided imagery is a relaxation exercise designed to help patients visualize a calming environment, thereby reducing stress and distracting or distressing thoughts. In this study, the effectiveness of guided imagery in lowering depression levels among COPD patients was assessed using the HDRS instrument and compared with a control group receiving standard therapy. The results are presented in Table 2.

Table 2 Effectiveness of guided imagery in reducing depression levels based on the HDRS instrument compared with control (Standard Therapy)

Group	HDRS			
	Pretes[a] (*means* ± SD)	**Posttes[a] (*means* ± SD)**	***p-value***	***Pre– Posttest[b]***
Treatment[c]	16.95 ±2.17	15.63 ±2.36	<0.001	-1.32 ±0.95
Control [c]	14.58 ±3.75	14.53 ±3.64	0.578	-0.05 ±0.40
P	0.024	0.276		<0.001

Description: Data are presented as mean ± SD. The unpaired group difference test that meets the normality requirement was analyzed using the independent t-test; b the unpaired group difference test that does not meet the normality requirement was analyzed using the Mann- Whitney test; and the paired group difference test that meet the normality requirement was analyzed using the pair *t*-test. A result was considered statistically significant if $p < 0.05$.

The treatment group (guided imagery) had an average pre-test HDRS score of 16.95 ± 2.17 and an average post-test HDRS score of 15.63 ±2.36. The mean difference between the pre-test and post-test HDRS scores in the treatment group showed a decrease of -1.32 ± 0.95, corresponding to a reduction of -7.8% in HDRS scores

The control group had an average pre-test HDRS score of 14.58 ± 3.75, and an average post-test of 14.53 ± 3.64. The mean difference between the pre-test and the post-test HDRS scores in the control group showed a slight increase of 0.05 + 0.40, representing a -0.4% rise in HDRS scores.

The paired difference test in the treatment group (p<0.001) showed a *p*-value less than 0.05, indicating a statistically significant change in HDRS scores. In contrast, the control group (p = 0.578) had a p-value greater than 0.05, idicating no significant change in HDRS scores.

Subjects who received guided imagery treatment experienced a greater decrease in HDRS scores compared to the control group, which actually showed a slight increase. Statistically, this difference was significant, as indicated by the unpaired difference test on the pre-posttest change scores, which obtained a p-value < 0.001 (p < 0.05). Thus, guided imagery was effective in reducing HDRS scores compared to the control group, indicating that guided imagery was effective in lowering the depresion levels in COPD patients.

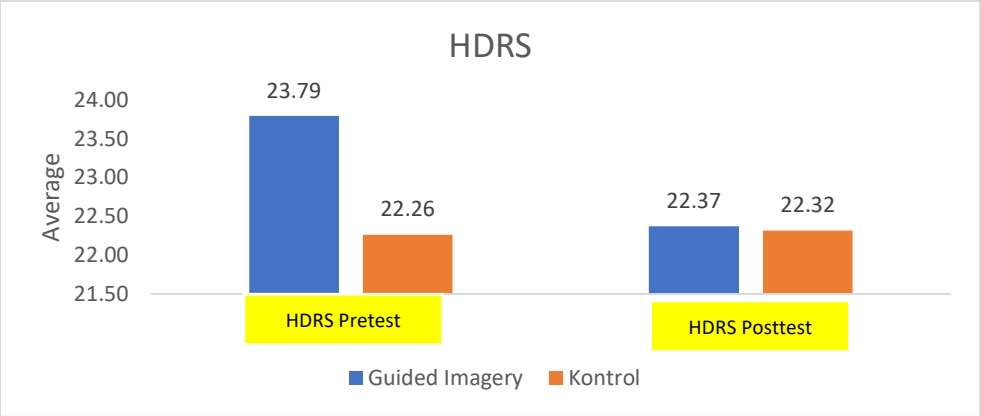

Figure 1 Bar chart comparing HDRS scores between control and treatment groups.

The results of this study indicate that there is a significant difference in depression between the treatment group (guided imagery) and the control group, which received psychoeducational audio. All characteristic and research variables were tested for normality before conducting statistical analyses .

The Effect of Guided Imagery on Depression Levels in COPD Patients

In the intervention group, a significant difference was observed between pre-treatment and post-treatment depression scores, with a p-value < 0.001. Following the guided imagery intervention, depression levels decreased, as reflected by changes in HDRS scores. The average pre-test HDRS scores in the treatment group was 23.79 ± 3.38, and the average post-test was 22.37± 3.27. The mean difference in pre-and post-test HDRS scores between the treatment and control groups was -1.32 + 0.95, indicating a -7.8% reduction in depression levels.

The control group's pre-test HDRS score averaged 14.58 + 3.75, and its post-test HDRS score averaged 14.53 + 3.64. The difference in pre-and post-test HDRS scores in the control group showed an increase of 0.05 + 0.40, representing a -0.4% change in HDRS scores.

Who described that guided imagery as mind-body intervention capable of reducing depression and promoting a state of calm. This process, which involves all the senses, forms a connection between the mind, body, and spirit.[4]

The relaxation performed can reduce muscle tension. When this occurs, it helps a person engage cognitive control in the central nervous system so that the patient can feel and recognize the pain through guided imagery.[5]

Guided imagery relaxation is effective in reducing depression and

dyspnea in people with COPD or other chronic respiratory conditions.[4]

Generally examined relaxation in patients with chronic respiratory diseases and did not specifically address COPD patients. Therefore, this study specifically focuses on the provision of guided imagery interventions in COPD patients with depression in pulmonary outpatient clinics.[5]

Investigated the effectiveness of recorded relaxation in reducing dyspnea and depression in people with COPD. Patients were divided into two groups, one given relaxation and one control, and the results showed significant improvements in the group received the relaxation intervention in reducing depression, dyspnea, and airway obstruction. The study demonstrated that relaxation training had a positive impact on reducing dyspnea, and there was an observed effect of guided imagery throughout four weekly relaxation sessions.[5]

Guided imagery is a relaxation exercise designed to help patients visualize a calming environment. Such visualizations help patients manage stress from intrusive thoughts. Cognitive behavioral theory suggests that emotions originate in the mind; therefore, if intrusive thoughts can be managed, the emotional responses are more manageable.[7]

One study found that focusing imagery in a positive manner can help patients improve their mood, allowing them to more easily rebuild their physical and mental well-being.[8]

Depressive disorders occur at a higher rate in patients with COPD compared to the general population. Depressive symptoms manifest in various ways, including physiological signs such as tachycardia and dyspnea. Depression in COPD patients is closely associated with feelings of impending doom, such as acute dyspnea episodes, and ultimately, a fear of death.[8]

A limitation of this study is that the sample size was limited to a single study site and the study duration was relatively short. Furthermore, there was no screening for assess participants' adherence to the audio-guided imagery provided by the researchers. This study also did not use a wait-list control method, which could serve as recommendation for future research.

Research indicates that depression correlates with COPD severity, as determined by FEV1%, and that the level of dyspnea is reported to be influenced by depressive symptoms. One possible explanation is that patients subjectively perceive the severity of their disease, which contributes to the development of depression.[9]

CONCLUSION

This study shows that guided imagery is effective in reducing depressive symptoms in COPD patients, as evidenced by a significant decrease in mean HDRS pre- and post-test scores. Future research should utilize a more comprehensive intervention module and a larger sample size.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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