

Original Research

Spiritual Deep Breathing Exercise Is Effective In Reducing Anxiety And Stabilizing Oxygen Saturation In COVID-19 Patients

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ABSTRACT

Background: Problems that arise in COVID-19 patients include, often experiencing deep anxiety characterized by fear of pain, fear of death, fear of losing personal independence, fear of losing role functions that can cause physiological changes, namely a decrease in Oxygen Saturation (SaO₂).

Methods: A quasi-experimental approach with a Pretest-Posttest Control Group Design approach. The population of all COVID-19 patients at the Surabaya A. Yani Islamic Hospital is 187 people. The sample size is 34 respondents according to the established criteria with purposive sampling technique. The intervention group was given Spiritual Deep Breathing Exercise for 15-20 minutes and the control group was given an intervention according to hospital standards for 1 week. Analysis on anxiety used the Wilcoxon Signed Rank Test and mann whitney test. The Oxygen Saturation (SaO₂) used paired sample T test and independent sample T test.

Results: The results of the Anxiety analysis in the intervention group obtained a p value of 0.000 and a p value of 0.197 in the control group. The results of the Oxygen Saturation (SaO₂) analysis in the intervention group obtained a p value of 0.000 and in the control group a p value of 0.884. The results of the analysis on anxiety p value 0.000 and Oxygen Saturation (SaO₂) value p value 0.003 between the intervention group and the control group which means there is a difference in anxiety and Oxygen Saturation (SaO₂) between the intervention group and the control group in COVID-19 patients.

Conclusion: Spiritual Deep Breathing Exercise theory is effective in reducing anxiety and stabilizing the value of Oxygen Saturation (SaO₂) in COVID-19 patients, and this technique is easy to do, so it can be applied as a nursing intervention in isolation rooms for the development of nursing science in hospitals.

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INTRODUCTION

Coronavirus Disease 2019 (COVID-19) has now become a worldwide pandemic. This COVID-19 pandemic has a negative impact on the psychological response and physical health of individuals or the wider community who are exposed (Susilo et al., 2020). Psychological responses during the pandemic include anxiety disorders, post-traumatic stress disorder (post-traumatic stress disorder), feeling indecisive, restless, frustrated, anxious about inflammation, unable to sleep and feeling helpless.

The results of a literature review (Jannah et al., 2020) showed that most of the COVID-19 patients experienced mental health disorders, especially feelings of fear, although the levels were different. Mental health (anxiety) can be caused by both biological and psychological aspects. Not only that, patients with COVID-19 have clinical indications that arise, including cough, fever, myalgia, weakness and diarrhea.

The severity of symptoms varies, ranging from asymptomatic, mild to severe indications. Shortness of breath is a common complaint of severe COVID-19 conditions and is often accompanied by hypoxemia. Hypoxemia is a feature of poor prognosis in patients with COVID-19. However, there are still many people with COVID-19 with low oxygen saturation values without any complaints of shortness of breath (Wang et al., 2020; Zakiyatul Fuadah et al., 2021).

Based on data from the WHO, on April 6, 2020 the number of people with COVID-19 was 1,278,523 people and a total of 1.2 million were infected with the Corona virus, of which 69,757 (5.46%) died and the remaining 266,732 (20.9%) healed. Based on the COVID-19 development report from the Ministry of Health on October 3, 2020, 299,506 confirmed cases were found, with details of 63,399 in the treatment period, 225,052 recovered cases, and 11,055 deaths. The data above proves that COVID-19 is very dangerous for the world community (Kemenkes, 2020). East Java Province ranks first in the number of confirmed cases of COVID-19 as well as cases of death.

Based on data from the East Java Provincial Health Office, on October 3, 2020, there were 44,649 cases with 38,087 recovered cases, 3,302 cases during treatment, and 3,260 deaths (Wulandari & Hidayat, 2020). Based on an initial survey on January 20, 2021, COVID-19 patients in the isolation room of the Islamic Hospital A. Yani Surabaya, from 10 people interviewed online, it was found that 7 people experienced high levels of anxiety, and based on nurse information and medical records the average patient COVID-19 has decreased Oxygen Saturation (SaO₂).

Based on research data (Jannah et al., 2020) stated that COVID-19 patients are very susceptible to suffering from psychological disorders including anxiety and fear. The consequence of this psychological response is that patients have excessive feelings of anxiety, especially in their physical condition and interaction patterns when scaled-down restrictions are made in order to suppress the spread of COVID-19. Anxiety is a form of condition that is natural and experienced by every human being, which is the effect of stressors that come from within himself or from his environment (Hardiyati et al., 2020).

Individuals may feel anxious when facing new things. Anxiety is a vague feeling of fear accompanied by feelings of discomfort, insecurity, helplessness, and isolation (Stuart, 2014; Heru Suwardianto, 2018). Several things related to anxiety which are a response to the COVID-19 pandemic situation can include, among others: insomnia, changes in concentration, irritability, reduced productivity and interpersonal conflict,

stigma in society, fear of transmission to the vulnerable (have comorbidities) (Rababa et al., 2020). Increased anxiety in the community is one of the mental health disorders that occurs during the current COVID-19 pandemic (WHO, 2020).

The COVID-19 pandemic situation can increase anxiety, especially when there is a potential risk of death. A healthy and vulnerable individual (having co-morbidities) has a very high potential to experience health problems, therefore it is very important to anticipate so that the health of COVID-19 patients is maintained (Fu et al., 2020).

The results of a literature review (Hardiyati et al., 2020) state that there are several factors that influence the occurrence of anxiety which are classified as reinforcing factors, namely predisposing factors which are activities to prevent or reduce anxiety levels during the COVID-19 pandemic. To help understand the development and maintenance of anxiety it is necessary to study the factors that influence anxiety, and possibly therapeutic intervention. In COVID-19 patients, besides experiencing increased anxiety, they also experience happy hypoxia which does not appear to have shortness of breath but there is a decrease in Oxygen Saturation (SaO₂).

A decrease in oxygen saturation usually occurs in the early stages of the disease which changes the oxygen level in the blood causing a sudden decrease in oxygen in the arteries (Setiawan & Suwardianto, 2021; Syaifulloh et al., 2020). The results of the study (Syaifulloh et al., 2020). showed the average value of Oxygen Saturation (SaO₂) in COVID-19 patients was 94.88%, where this value indicated low or decreased Oxygen Saturation (SaO₂) values in COVID-19 patients.

If anxiety in COVID-19 patients is not managed properly, it can interfere with recovery and hinder the release of disorders from the respiratory system. Anxiety can also trigger the activation of sympathetic nerves, resulting in an increase in blood pressure, heart rate, respiratory rate caused by narrowing of the airways. This can cause fatigue (Hardiyati et al., 2020). Providing supportive interventions can reduce the anxiety felt by COVID-19 patients. The results of the study (Kurniyati & Bakara, 2018) state that Deep Breathing Relaxation can reduce the scale of anxiety levels in pregnant women.

Supported by research (Yusuf et al., 2020) says that Spiritual deep breathing exercise therapy is proven to be effective in reducing pain and anxiety scales in postoperative orthopedic patients, so it is recommended that Spiritual deep breathing exercise therapy as a non-pharmacological therapy option in pain management and reducing pain anxiety scale. In addition, the results of research (Yusuf et al., 2020) related to deep breathing state that position and deep breathing can stabilize Oxygen Saturation (SaO₂) in patients with respiratory system disorders (asthma). Another study by (Syaifulloh et al., 2020) stated that breathing exercises in COVID patients can also increase the value of Oxygen Saturation (SaO₂) -19.

Nurses have a very important role in terms of physical and psychological preparation for COVID-19 patients undergoing isolation. Psychological support and effective communication are keys to a successful treatment process. Deep breathing relaxation exercises are one of the relaxation techniques that are very easy to apply to people with COVID-19. The purpose of deep breathing exercise is to increase ventilation in the alveoli, maintain gas exchange, prevent lung atelectasis, increase cough efficiency, reduce stress (both physical and emotional stress) by reducing anxiety (Kurnia & Suwardianto, 2011; Smeltzer & Bare, 2014; Sunartono, 2021).

Efforts to increase the effectiveness of providing deep breathing exercise using a spiritual approach. Spirituality is something that is multidimensional including: existential and religious dimensions. The existential dimension focuses on the purpose and meaning of a life, while the religious dimension focuses more on one's relationship to God Almighty (Yusuf et al., 2016). The results of the study (Supriani et al., 2017) stated that spiritual relaxation guidance can reduce anxiety levels. It is also supported by research (Yono et al., 2020) which states that Spiritual Psychotherapy and Islamic Education can overcome anxiety disorders in the face of the COVID-19 pandemic.

Spiritual deep breathing exercise is a form of breathing exercise using slow and deep breathing techniques, using the diaphragm muscles, thus allowing the abdomen to be lifted slowly and the chest to expand fully coupled with a spiritual approach in the form of support, sentences of motivation, gratitude and resignation. Giving spiritual deep breathing exercise interventions to COVID-19 patients is interesting to study so that patients can improve their quality of life both psychologically and physiologically, so that by being given Spiritual deep breathing exercises, it is expected to reduce anxiety levels and stabilize Oxygen Saturation (SaO₂) in COVID-19 patients.

MATERIALS AND METHOD

This research is a quantitative research that uses a quasi-experimental research design with a pretest - posttest control group design approach that functions to find a cause and effect relationship between the independent variable and the dependent variable within a certain period of time. The aim of the study was to explain the effect of spiritual deep breathing exercise on anxiety and oxygen saturation (SaO₂) in COVID-19 patients. This research uses purposive sampling technique and the researcher selects respondents according to the inclusion criteria, so that respondents have the same opportunity to be selected. In the intervention group respondents were given Spiritual Deep Breathing Exercise.

The results obtained were to see changes in Anxiety and Oxygen Saturation (SaO₂) in COVID-19 patients at the Surabaya A. Yani Islamic Hospital. The results of the sample were 34 respondents, so that the sample in the intervention group was 17 respondents and the control group was 17 respondents. This research was conducted in the Isolation Room of the Surabaya A. Yani Islamic Hospital. The selection of this research location was due to the large number of COVID-19 patients undergoing isolation.

The research was carried out for 1 month from June 20, 2021 to July 10, 2021. The research instrument in this research used SOP Spiritual Deep Breathing Exercise, Anxiety Questionnaire using Zung Self-Rating Anxiety Scale (SAS/SRAS), Measurement of Oxygen Saturation (SaO₂) using Pulse Oximetry, instrument characteristics of respondents include: gender, age, education and occupation.

The research objective is to conduct a pretest - posttest analysis using a paired sample T test and an independent sample T test on the variables of anxiety and Oxygen Saturation (SaO₂), but if the test results are normality and the homogeneity of the p value <0.05, a non-parametric difference test will be carried out, namely the Wilcoxon Signed Rank Test and the Mann Whitney test with a significance level of 5%, meaning that if the p value <0.05, it means that there is an influence of Spiritual Deep Breathing Exercise on Anxiety and Saturation. Oxygen (SaO₂) Patients with COVID 19.

This study has passed the ethical review conducted by the Research Ethics Committee tian (KEP) Islamic Hospital A. Yani with No.012.EC.KEP.RSIAY.06.2021.

RESULTS

Table 1. Distribution Frequency Data Of Respondents' Age, Sex, Education And Occupation

Characteristic Data	Intervention		Control	
	Frequency	%	Frequency	%
Age				
21-30	4	23.5	5	29.4
31-40	13	7.5	12	70.6
Total	17	100	17	100
Gender				
Man	11	64.7	10	58.8
Woman	6	35.3	7	41.2
Total	17	100	17	100
Education				
Elementary	2	11.8	1	5.9
Education	10	58.8	9	52.9
College	5	29.4	7	41.2
Total	17	100	17	100.0
Profession				
Work	13	76.5	14	82.4
Does not work	4	23.5	3	17.6
Total	17	100	17	100

Based on table 1, the age of respondents in the intervention group and the control group according to the inclusion criteria, which is between 21 years to 40 years. Most of the respondents in the intervention group (64.7%) were male and in the control group most (58.8%) were also male. The education level of the respondents in the intervention group was mostly high school (58.8%) and in the control group most of the respondents (52.9%) were senior high school students. In the intervention group almost all (76.5%) of the respondents worked and in the control group almost all (82.4%) of the respondents also worked.

Table 2. Analysis Of The Difference In Anxiety Between The Intervention Group And The Control Group

Variable	Group	N	Mean Rank	Sum of Rank	Mann-Whitney U	p value
Anxiety	Intervention	17	25.53	434.00	8.000	0.000
	Control	17	9.47	161.00		

Based on the above, the results of the analysis using the Mann-Whitney test obtained an p value of 0.000 for anxiety and the value of Oxygen Saturation (SaO2) using an independent sample T test.

Table 3. Analysis Of Differences In Anxiety And Oxygen Saturation (SaO2) Values Between The Intervention Group And The Control Group

Variable	F	Sig.	t	df	Sig. (2-tailed)	Mean	SE	95% CI	
								Lower	Upper
Oxygen Saturation (SaO2)	10.235	.003	7.361	32	.000	2.529	.344	1.829	3.229
			7.361	21.781	.000	2.529	.344	1.816	3.242

Table show that p value of 0.003 between the intervention group and the control group, which means there is a difference in anxiety and saturation values. Oxygen (SaO2) between the intervention group and the control group in COVID-19 patients.

DISCUSSION

The results of research conducted at the Islamic Hospital of Surabaya A. Yani showed that the Oxygen Saturation (SaO2) before being given Spiritual Deep Breathing Exercise in the intervention group had a lot of bad scores, namely 64.7% and after being given the intervention, an increase in Oxygen Saturation (SaO2) was found to be good. that is 100%. While the control group before being given treatment according to hospital standards obtained good Oxygen Saturation (SaO2) in the amount of 64.7% and after being given treatment according to the standard, a good decrease in Oxygen Saturation (SaO2) was found to be 58.8%.

Giving Spiritual deep breathing exercise has a significant effect on changes in the value of Oxygen Saturation (SaO2). This phenomenon is shown in the results of research conducted in table 5.3 which proves that there is an effect of giving Spiritual deep breathing exercise to increasing the value of Oxygen Saturation (SaO2) in COVID-19 patients, with a p value of 0.000. This study is in line with research conducted by (Destanta et al., 2019) which states that acute and chronic deep breathing exercises provide a significant increase in the Oxygen Saturation value of active smokers.

Research (Yulia et al., 2019) related to deep breathing states that deep breathing and positioning can increase oxygen saturation (SaO2) in patients with respiratory system disorders (asthma). Another study by (Syaifulloh et al., 2020) stated that breathing exercises can also increase the value of Oxygen Saturation (SaO2) in COVID-19 patients. Spiritual deep breathing exercise is a form of breathing exercise with slow and deep breathing techniques, using the diaphragm muscle, allowing the abdomen to slowly lift and the chest to expand fully with a spiritual approach in the form of support, sentences of motivation, gratitude and resignation.

This is what ultimately has an impact on the physiological functions of the body, namely an increase in the value of Oxygen Saturation (SaO2) in COVID-19 patients. Spiritual relaxation deep breathing exercise causes inhibition of the Hering-Breuer reflex which causes a delay in the expiration process. Voluntary stretching of the chest wall can result in an increase in lung tidal volume and stimulate the production of surfactant which will reduce the alveolar resistance to incoming air. The expansion of the alveolar sacs becomes more effective due to the increase in the volume of

inspiratory capacity that occurs (Yulia et al., 2019). The larger surface area of the active alveolus affects and improves the process of gas exchange (Astriani et al., 2020).

In theory, through breathing exercises with Spiritual Deep Breathing Exercise will cause smooth blood circulation to the respiratory muscles. Smooth blood flow will bring nutrients (including calcium and potassium) and more oxygen to the respiratory muscles. This trained respiratory muscle strength will increase lung compliance and prevent the alveoli from collapsing (atelectasis) (Yulia et al., 2019). Breathing exercises with Spiritual Deep Breathing Exercise that are carried out regularly and routinely can help a person use his diaphragm properly so that when he breathes there will be an increase in tidal volume, a decrease in functional residual capacity, and an increase in optimal oxygen uptake so that the value of Oxygen Saturation (SaO₂) will increase) be good.

Exercising the respiratory muscles can improve respiratory muscle function, reduce the severity of respiratory disorders, increase tolerance to activity, and reduce symptoms of dyspnea, resulting in an increase in perfusion and an improvement in the performance of the alveoli for effective oxygen diffusion which will increase O₂ levels in the lungs and an increase in saturation Oxygen (SaO₂). The results of research conducted at the Surabaya Islamic Hospital A. Yani on COVID-19 patients based on the results of the analysis using the Mann-Whitney test, the p value was 0.000 on anxiety and the Oxygen Saturation (SaO₂) value using the independent sample T test, the p value 0.003 between the intervention group and the control group which means there is a difference in anxiety and Oxygen Saturation (SaO₂) values between the intervention group and the control group in COVID-19 patients.

So the results of hypothesis testing state that Spiritual deep breathing exercise can reduce anxiety and increase the value of Oxygen Saturation (SaO₂) in COVID-19 patients compared to interventions that are usually given by nurses on a daily basis, so it is necessary to add methods in providing nursing interventions based on evidence based practice in COVID-19 patients. Spiritual Deep Breathing Exercise can be useful to provide a feeling of calm, comfort and can reduce tension in the whole body. Doing Spiritual Deep Breathing Exercise can improve lung ventilation and increase blood oxygenation.

This is because the Spiritual Deep Breathing Exercise is an attempt to inspire and expirary in a solemn manner while praying so that it affects cardiopulmonary stretching. Cardiopulmonary stretching can increase baroreceptors so that they stimulate the parasympathetic nerves which can reduce tension, anxiety, and control heart rate function which makes the body relax (Heru Suwardianto, 2013; Yuliana, 2018). Spiritual deep breathing exercise will also affect the mind, relaxation response, comfort and tranquility of COVID-19 patients. In a safe situation and a calm atmosphere, a person will experience the opposite of anxiety and stress responses so that feelings of discomfort, tension, blood pressure, oxygen use and so on will decrease (Rusdiatin, 2021; H. Suwardianto et al., 2018; Heru Suwardianto & Richard, 2017).

This very important and desirable state is referred to as a relaxation response which of course can be obtained one of them by way of Spiritual deep breathing exercise. Patients with horizontal physiological disorders will also cause psychological disorders, one of which is anxiety due to disease and the treatment process and treatment and hospitalization when isolation is carried out in the hospital (Hi Ukum,

2021; Jannah et al., 2020). Therefore, Spiritual Relaxation deep breathing exercise can stimulate the center of the sense of reward, causing a feeling of calm.

As an ejector of a sense of relaxation (relaxed) and a feeling of calm that arises, the midbrain will release gamma amino butyric acid (GABA), enkephalin and beta endorphins, so that it can reduce stress both physical and emotional stress, namely reducing anxiety so that the patient's quality of life increases with a higher level of stress. minimal complaints. Spiritual deep breathing exercises can also be used to increase alveolar ventilation, maintain gas exchange, prevent lung atelectasis, increase cough efficiency so that the value of Oxygen Saturation (SaO₂) in COVID-19 patients increases.

CONCLUSION

Based on the results of research that has been conducted on the Effect of Spiritual Deep Breathing Exercise on Anxiety and Oxygen Saturation (SaO₂) in COVID-19 Patients at the Surabaya A. Yani Islamic Hospital, Deep breathing is very useful to do to increase saturation. Nurses and health workers can recommend this therapy to improve the quality of service for COVID-19 patients.

The Hospital can provide a policy regarding the provision of Spiritual Deep Breathing Exercise to reduce Anxiety and stabilize Oxygen Saturation (SaO₂) in COVID-19 Patients so that the quality of service increases. Nurses in the treatment room and isolation room can apply the results of this study in providing nursing interventions regarding the fulfillment of the psychological and physiological needs of COVID-19 patients.

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