



# **The Effectiveness of Recitation Al-Qur'an Intervention and Deep Breathing Exercise on Improving Vital Sign and anxiety Level among Congestive Heart Failure (CHF) Patients**

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Article info	Abstract
<p><b>Article history:</b> Received; July 19<sup>th</sup>, 2020 Revised: August 23<sup>th</sup>, 2020 Accepted: September 20<sup>th</sup>, 2020</p> <hr/> <p><b>Correspondence author:</b> Yudi Herdiana E-mail: <a href="mailto:yudimst20@gmail.com">yudimst20@gmail.com</a></p> <hr/> <p><b>DOI:</b> <a href="http://doi.org.10.35654/ijnhs.v4i1.369">http://doi.org.10.35654/ijnhs.v4i1.369</a></p>	<p>Congestive heart failure (CHF) is a non-communicable disease caused by failure to pump blood. An alternative treatment with complementary therapies, such as recitation Al-Qur'an intervention and deep breathing exercise, improved oxygen saturation, and anxiety levels CHF patients. This study aimed to examine the effectiveness of recitation Al-Qur'an intervention and deep breathing exercises on strengthening the vital signs (oxygen saturation) and anxiety level among patients with congestive heart failure (CHF). The true experimental study approach post-test only with a control group design was applied in this study. Forty congestive heart failure (CHF) patients were selected through simple random sampling. The intervention group received the recitation Al-Qur'an therapy and deep breathing exercise, while the control group only received the medical treatment according to hospital standards. The findings showed that the intervention group was better on oxygen saturation and lowering anxiety levels than the control group (p-value = &lt;0.05). In conclusion, recitation Al-Qur'an intervention and deep breathing exercises are useful to increase oxygen saturation and lowering anxiety levels in patients with congestive heart failure (CHF). This study can be used as a source for further research with larger sample size and better control over medical therapy.</p> <p><b>Keywords:</b> deep breathing, vital sign, oxygen saturation, anxiety level, congestive heart failure</p>
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## INTRODUCTION

Indonesia is experiencing an epidemiological transition in the health sector. The problem of non-communicable diseases has not been appropriately resolved while non-communicable diseases continue to increase. The Global Report on Non-Communicable Disease stated that the incidence of non-communicable diseases causes death by 70% of all causes (1). Heart and blood vessel disease is a progressive health problem with high mortality and morbidity rates in Indonesia (2).

Basic health research data in 2018 showed that the prevalence of heart disease in Indonesia was 1.5% from the total population. The highest prevalence of heart disease from North Kalimantan (2.2%), Yogyakarta province was 2%, and Gorontalo province was 2% (2). In addition, the medical record data of regional public hospital 45 Kuningan Regency reported that the incidence of heart disease in 2018 reached 769 people from 9,368 all hospitalized patients.

The commonly of heart disease was congestive heart failure. Congestive heart failure due to inability to pump blood to meet the body's cells for adequate nutrients and oxygen. CHF is in a chronic phase affecting patients' quality of life with various causes, so it becomes a severe problem in the health care system (3). Dyspnea is a symptom most often felt by sufferers due to a lack of oxygen supply due to pulmonary malfunction (4).

Changes in the vital signs that occur in CHF patients, namely respiratory rate, blood pressure, heart rate, and decreased oxygen saturation, impact increased sensation dyspnea due to changes in the muscles respiratory tired. This happened because fluid accumulation in the alveoli makes the heart unable to pump blood optimally (4-5). Monitoring vital signs is very important regarding the symptoms that arise and the interventions that will be carried out. This situation will be harmful if not handled because it will cause other organs' failure (6).

Psychological problems occur with CHF. Psychological issues in heart disease, especially CHF, are influenced by feelings of anger, depression, stress, and anxiety. The anxiety felt by CHF patients has several reasons, namely anxiety because of the condition of the disease, anxiety because of fear of death, and anxiety because of the tightness they feel. Anxiety would have a harmful effect if left untreated and will cause increased oxygen demand and heavier heart burden (7-8).

The management of CHF was administering diuretic therapy, vasodilator therapy, and administration of cardiac glycosides. Meanwhile, non-medical management consisted of maintaining physical stability, avoid behaviors that can worsen the condition, and detect early symptoms of worsening heart failure (9). American Heart Association (AHA) states that actions that could be implemented are providing education, increasing functional capacity, and exercising. Giving positions and exercises can be carried out to reduce effort and improve respiratory muscle function. Tolerable physical exercise is also an effort to increase tissue perfusion and improve tissue circulation (10). Other non-medical treatments performed by nurses are deep breathing exercises, meditation, yoga therapy, hypnosis, and relaxation (11).

Nirmalasari's study using deep breathing exercise therapy and active range of motion (ROM) in CHF patients was carried out for three days, proving that deep breathing exercise and active ROM affected dyspnea significantly (12). Another study conducted by Witowo, namely Hypno-breathing exercise, by combining hypnosis therapy and deep breathing exercise can reduce dyspnea and improve the hemodynamic status of CHF patients, but not all nurses can hypnosis patients (13).

It has been researched and proven that listening to the recitation (murottal) Al-Qur'an can reduce stress and psychological disorders. Muslims have used the Qur'an for centuries to heal and treat people suffering from stress and psychological disorders (14). One of the advantages of listening to the recitation Al-Qur'an is that it has a healing effect (15-16).

Mansouri examined the effects of the Koran's sound with headphones via an mp3 player on

the improvement of blood pressure, pulse, respiration, and O<sub>2</sub> saturation in patients hospitalized in ICU. The improvement in physiological response in treated patients is due to increased metabolism, increasing body temperature, cardiac output, increased blood pressure, heart rate, and respiratory rate. The results showed that after 15 minutes of listening to the Koran, there was a decrease in systolic and diastolic blood pressure in mean arterial pressure, heart rate, and respiration and an increase in the percentage of oxygen saturation in patients treated in the ICU (17).

Deep breathing exercises could be combined with several other types of therapy for optimal results. Intervention combinations of spiritual relaxation with a deep breathing exercise on religion are considered universal and positively influence perceptions. Zulkurnaini et al. proved that the Koran verses could increase the signal Alpha band, creating a calming state (more relaxing) (15, 18).

Deep Breathing exercises aim to train how to breathe appropriately, flex and strengthen the respiratory muscles and improve circulation (19). The deep breathing exercise has not had a maximum effect on CHF patients. Therefore, it is necessary to provide appropriate strategies and techniques for administration by controlling the breath before and during breathing exercises accompanied by giving relaxation actions. One of the relaxation techniques that nurses can provide is by listening to the recitation Al-Qur'an.

Based on this background and referring to cognitive therapy science to improve vital sign (oxygen saturation) and CHF patients' anxiety levels, this study was investigated in this study by combining recitation Al-Qur'an nursing intervention and deep breathing exercise.

## **OBJECTIVE**

This study aimed to examine the effectiveness of recitation Al-Qur'an intervention and deep breathing exercises on improving the vital signs (oxygen saturation) and anxiety level among patients with congestive heart failure (CHF).

## **METHOD**

The true experimental post-test only with control group design was applied in this study. Researchers divided patients into the intervention group who received the recitation Al-Qur'an therapy and deep breathing exercises. The control group received the medical treatment according to hospital standards for CHF patients. Recitation Al-Qur'an therapy and deep breathing exercises were carried out for four days for 20 minutes.

The oxygen saturation was accessed using the oximetry instruments and anxiety levels using the Zung Self-Rating Anxiety Scale questionnaire. Measurement of oxygen saturation and respondent anxiety was carried out on day 1 to day 4 with four measures (pretest, post-test 1, post-test two, and post-test 3).

In this study, the populations were CHF patients classified as NYHA II and NYHA III in the Regional Public Hospital 45 Kuningan Regency internal disease ward. We randomly selected 40 patients and allocated them to the experimental group (n=20) and control group (n=20).

In this study, researchers collected data using observation, identification, interview, and filling out observation sheets. The collected data were analyzed through the IBM SPSS program version 24.0 and continued with different tests, namely the parametric test (Dependent t-test and Independent t-test). The processed data is used to discuss the problem statement, which is then presented in tabular form to conclude.

## RESULT

### Demographic data

Table 1 showed the characteristic of respondents. The data showed that most of respondents in the intervention group (65.0%) and control groups (60.0%) were male. The majority respondents had comorbidities such as hypertension (70.0%). Meanwhile, the mean age of respondents in the intervention group was 49.30 years with a standard deviation of 6.105. While in the control group was 49.10 years with a standard deviation of 6.095. The significance was 0.609 which is indicated that there is no difference between intervention group and the control group.

Table 1. Demographic data

Characteristics	Intervention (n=20)		Control (n=20)		P
	N	%	N	%	
<b>Gender</b>					0.534
Male	13	65.0	12	60.0	
Female	7	35.0	8	40.0	
<b>History of diseases</b>					
Hypertension	14	70.0	14	70.0	0.434
Diabetes Mellitus	3	15.0	2	10.0	
Kidney Failure	2	10.0	2	10.0	
Anemia	1	5.0	2	10.0	
<b>Total</b>	20	100	20	100	
	<i>Mean ± SD</i>		<i>Mean ± SD</i>		
<b>Age</b>	49.30±6.105		49.10±6.095		0.609

**Table 2 mean difference of oxygen saturation before and after receiving the intervention among the intervention group and control group**

Table 2 showed the mean difference of oxygen saturation before and after receiving the intervention among the intervention and the control group. The mean oxygen saturation among the intervention group increased from the first day was 1.85%, the second day was 1.80%, the third day was 1.80%, and the fourth was 2.05%. While the increase in the mean oxygen saturation in the control group on the first day was 0.25, the second day 0.40, the third day 0.25, and the fourth day 0.15%.

Oxygen Saturation	Intervention				Control			
	Pretest	Post-test	Delta	p	Pretest	Post-test	Delta	p
	Mean±SD	Mean±SD			Mean±SD	Mean±SD		
Day 1	92.70±1.174	94.55±1.317	1.85	0.000	92.80±1.196	93.05±1.1317	0.25	0.056
Day 2	93.20±1.056	95.00±1.257	1.80	0.000	93.20±1.056	93.60±1.603	0.40	0.042
Day 3	93.80±1.105	95.60±1.095	1.80	0.000	93.75±1.070	94.00±1.777	0.25	0.388
Day 4	94.10±1.021	96.15±1.268	2.05	0.000	94.15±0.988	94.30±1.867	0.15	0.735

\**Dependent t-test*

**Table 4.3 Analysis of the differences in oxygen saturation between the intervention group and control group**

Oxygen Saturation	Intervention group	Control group	p
	Mean±SD	Mean±SD	
Day 1	94.55±1.317	93.05±1.317	0.001
Day 2	95.00±1.257	93.60±1.603	0.004
Day 3	95.60±1.095	94.00±1.777	0.001
Day 4	96.15±1.268	94.30±1.867	0.001
Mean for four days	95.33±0.839	93.74±1.294	0.000

*\*Independent t-test*

The table above shows that the mean oxygen saturation in the intervention group and the control group after being given treatment shows a significant difference  $P = 0.000$ . After being given treatment for four days, average oxygen saturation became 95.33%, while the control group became 93.745%.

**Table 4. Mean differences of anxiety levels before and after treatment in the intervention group and control group**

Anxiety	Intervention				Control			
	Pretest	Post-test	Delta	p	Pretest	Post test	Delta	p
	Mean±SD	Mean±SD			Mean±SD	Mean±SD		
Day 1	52.10±4.115	47.15±4.056	4.95	0.000	52.00±4.000	51.80±4.250	0.20	0.330
Day 2	50.35±4.557	44.65±4.870	5.70	0.000	50.15±5.274	49.10±4.303	1.05	0.074
Day 3	49.05±4.582	44.00±5.211	5.05	0.000	49.05±4.536	48.70±4.092	0.35	0.358
Day 4	48.40±3.648	43.10±4.610	5.30	0.000	48.25±4.972	47.50±4.490	0.75	0.314

*\*Dependent test t-test*

Table 4 showed a difference of anxiety level after receiving the recitation Al-Qur'an and deep breathing exercise among the intervention group and the control group. The average anxiety level pretest and post-test decrease on the first day was 4.95, the second day 5.70, the third day 5.05, the fourth day 5.30. While the reduction of the average anxiety level before and after in the control group on the first day was 0.20, the second day was 1.05, the third day was 0.35, and the fourth day was 0.75.

**Table 4.5 Analysis of the differences in anxiety levels between the intervention group and the control group**

Anxiety	Intervention Group	Control Group	P
	Mean±SD	Mean±SD	
Day 1	47.15±4.056	51.80 ±4.250	0.001
Day 2	44.65±4.870	49.10±4.303	0.004
Day 3	44.00±5.211	48.70±4.092	0.003
Day 4	43.10±4.610	47.50±4.490	0.001
Mean for four days	44.73±3.507	49.28±3.577	0.000

*\*Independent t-test*

The table above shows that the average score of anxiety levels in the intervention group and the control group after being given treatment shows a significant difference  $p = 0.000$ . After being given treatment for four days, the average score of anxiety level became 44.73, while the control group became 49.28.

## DISCUSSION

### **The effectiveness of recitation Al-Qur'an intervention and deep breathing exercises on improvement vital sign (oxygen saturation) patients with congestive heart failure (CHF)**

The picture of oxygen saturation improved in both the control and intervention groups. The difference between the mean value of the pretest day one and the post-test day 4 in the intervention group was higher than the control group. The oxygen saturation picture in the intervention group increased from day 1 to day four by 3.45% compared to the control group by 1.5%. The daily increase indicated that oxygen saturation had increased acutely during the four days of the intervention.

Different test results for four days showed  $p < 0.05$ . This suggests that recitation Al-Qur'an interventions and deep breathing exercises effectively increase oxygen saturation levels compared to standard hospital therapy in CHF patients. The analysis of each group in the control group and the intervention group as a whole for four days showed  $p < 0.05$ . This indicates that both groups showed a significant change in oxygen saturation. Changes in oxygen saturation daily in the intervention group showed more significance with a  $p$ -value  $< 0.05$ . The improvement also occurred in the control group with a significant  $p < 0.05$  every day. The results of this study have an effect size of 1.458.

Other studies that support that carried out by Sepdianto show that breathing exercises can increase oxygen saturation in heart failure patients by 0.8 with an effect size of 0.01<sup>(19)</sup>. Another study conducted by Bernadi with one month of breathing exercise intervention in heart failure patients showed an increase in oxygen saturation from  $92.5\% \pm 0.3$  to  $93.2\% \pm 0.4$  with an effect size of 0.003. This study's results are also consistent with that of Sivakumar, who stated that deep breathing exercises for 2-5 minutes have an acute effect on a significant increase in lung function ability so that it can improve oxygen saturation levels<sup>(20)</sup>.

Recitation Al-Qur'an intervention and deep breathing exercise will increase the need for oxygenation. Elzaki explained that patients suffering from heart disease showed improvement in heart function after listening to the sound of the Qur'an. Nurses' monitoring of blood pressure and heart rate is the key to maintaining good blood circulation to keep the patient's condition<sup>(21)</sup>. Deep breathing exercises will stimulate the release of surfactants secreted by type II alveolar cells. The surfactant that comes out will cause the surface tension on the alveoli to be lowered, thereby improving lung function. The need for adequate oxygenation would increase oxygenation in the tissue for increasing oxygen saturation. Slow breathing will increase the respiratory muscles and diaphragm movement to increase the ability to activity by reducing the onset of dyspnea<sup>(20)</sup>.

### **The effectiveness of recitation Al-Qur'an intervention and deep breathing exercises on improvement anxiety levels patient with congestive heart failure (CHF)**

The description of anxiety levels decreased in both the control group and the intervention group. The difference between the value of mean pretest day one and post-test day 4 in the intervention group was higher than the control group. The anxiety level score decreased gradually from day 1 to day 4. The mean post-test value on day 4 in the intervention group was nine, while in the control group was 4.5. The score for the decrease in anxiety indicated that it was better.

Different test results for four days showed  $p < 0.05$ . This suggests that recitation Al-Qur'an interventions and deep breathing exercises effectively reduce anxiety levels compared to standard

hospital therapy in CHF patients. The analysis of each group in the control group and the intervention group as a whole for four days showed  $p < 0.05$ . This indicates that both groups showed a significant change in improvement in anxiety levels. Changes in anxiety level every day in the intervention group showed more substantial-good with a  $p$ -value  $< 0.05$ . The improvement also occurred in the control group with a significant  $p < 0.05$  every day. The results of this study have an effect size of 1,284.

Various studies related to reading the Koran as a complementary therapy to reduce anxiety and provide calm and comfort for patients have been carried out. Research related to patient anxiety and comfort is fundamental because it can help the patient's healing process in treatment. Zulkurnaini's research shows that the EEG results show an increase in the alpha band before and after listening to the Al-Qur'an. This shows that listening to the Qur'an provides a more relaxed and calm atmosphere. This research is in line with the results of Shekah's study; listening to the recitation of the Qur'an can generate alpha waves and can help a person to be in a relaxed state to reduce anxiety levels<sup>(15, 22)</sup>.

The research conducted by FaridHajiri, namely, the combination of recitationAl-Qur'an and acupressure for 2x15 minutes a day, was more effective in reducing anxiety in coronary heart patients at measurement 1 ( $p=0.041$ ) and measurement 2 ( $p=0.002$ )<sup>(23)</sup>.

Recitation therapy has a positive psychological impact. When the recitation is heard and reaches the brain, this recitation will be translated by the brain. With recitation therapy, the quality of one's awareness of God will increase, whether that person knows the meaning of the Qur'an or not. Awareness will increase one's surrender to Allah SWT's power; in this state, the brain is in alpha waves, which are brain waves at a frequency of 7-14 Hz, a state of optimal brain function reduce to relieve stress<sup>(23-24)</sup>.

Listening to the recitation Al-Qur'an can affect one's emotional intelligence, intellectual intelligence, and spiritual intelligence. Listening to recitation will have a calm and relaxing effect on CHF patients, so it will also contribute to reducing anxiety<sup>(25)</sup>.

## CONCLUSION

Based on data processing and analysis regarding recitation, Al-Qur'an interventions and deep breathing exercise an alternative, complementary therapies. It concluded that the average increase in oxygen saturation and decrease in anxiety levels in the intervention group is more than the average oxygen saturation and anxiety levels in the control group with a  $p$ -value  $< 0.05$ . In conclusion, recitation Al-Qur'an therapy and deep breathing exercise effectively improve vital sign values (oxygen saturation) and anxiety levels, so the intervention group is better than the control group.

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