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## RESEARCH ARTICLE

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# The Effect of Music Therapy and Murrotal Al-Quran Therapy on Increasing Muscle Strength and Decreasing Anxiety in Stroke Patients Undergoing Passive Range of Motion (ROM) Exercises

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## ABSTRACT

Stroke can impact various body functions, one of which is paralysis or problems controlling movement related to muscle strength. The research aimed to determine the effect of ROM exercises on increasing muscle strength in stroke patients at Dr. Soedomo Trenggalek Hospital. Researchers used a quasy experiment method with a control group pretest-posttest design. The sampling technique used purposive sampling with a sample of 30 people. Data were analyzed using the independent sample t-test and paired sample t-test. The results obtained: there was a difference in the strength of the right-hand muscle between before and after ROM exercise (p-value = 0.473); there was a difference in right leg muscle strength between before and after ROM therapy (p-value = 0.772); there was a difference in anxiety before and after ROM therapy (p-value = 0.772); there was a difference in muscle strength in the right hand before and after ROM therapy and Murrotal Al-Quran music therapy (p-value = 0.000); there was a difference in muscle strength in the right leg before and after ROM therapy and Murrotal Al-Quran music therapy (p-value = 0.000); there was a difference in muscle strength in the right hand before and after ROM therapy and Al-Quran Murrotal music therapy (p-value = 0.000; there was a difference in muscle strength in the left hand between ROM therapy and Al-Quran Murrotal music therapy (p-value = 0.000; there was a difference in right leg muscle strength between ROM therapy and Al-Quran Murrotal music therapy (p-value = 0.000; and there was a difference in left leg muscle strength between ROM exercises and Al-Quran Murrotal music therapy (p-value = 0.000). Based on the results of the study, it can be concluded that the combination of ROM therapy and murrotal Al-Quran music therapy is more effective for increasing hand and leg muscle strength and for reducing anxiety levels in patients with stroke.

**Keywords:** music therapy; murrotal Al-Quran; muscle strength; anxiety

## INTRODUCTION

### Background

Stroke is a brain function disorder that occurs quickly (suddenly) and lasts more than 24 hours due to disruption of blood supply to the brain <sup>(1)</sup>. Stroke is divided into two, namely ischemic and hemorrhagic strokes (Global Burden Disease or GBD, 2010). Ischemic strokes occur because blood flow to the brain stops due to atherosclerotic or blood clots that block blood vessels, while hemorrhagic strokes are caused by bleeding so that blood flow becomes abnormal, and the blood that comes out occupies a space or an area in the brain <sup>(2)</sup>.

Data from WHO, reports that stroke and other cerebrovascular diseases cause 6.2 million people worldwide to die. The world health agency also predicts that death from stroke will increase by approximately 8 million in 2030 <sup>(3)</sup>. Deaths caused by stroke ranked second over 60 years. This meant that stroke is a serious health problem in several developed and developing countries and is the no.1 leading cause of disability in adults <sup>(4)</sup>. The highest prevalence of stroke was found in Nangroe Aceh Darussalam at 16.6% and the lowest in Papua at 3.8%, while in Java at 12.5%. Stroke is a problem in the brain resulting in functional impairment, focal or global, as a result of impaired blood flow to the brain or due to bleeding. Stroke has an impact on various body functions. The manifestations that often appear include paralysis, slurred speech, swallowing disorders, and so on <sup>(5)</sup>. Currently, stroke is a non-communicable disease that is still a frightening disease for everyone. Stroke can occur suddenly and affect anyone, regardless of age or social status. Most people think that strokes are only experienced by those

in adulthood or old age. This is due to older age degenerative changes in vital organs which result in disruption of blood flow <sup>(1)</sup>.

Data in the United States says that two-thirds of post-stroke patients require rehabilitation. In post-stroke care, rehabilitation does not cure the disease but rehabilitation is very much needed to achieve an independent condition and improve quality of life. Currently, in Indonesia, there are still many victims due to stroke who experience the impaired function of activities in daily life <sup>(6)</sup>. The most common long-term deficit due to stroke is hemiparesis <sup>(7)</sup>. Hemiparesis Stroke can impact various body functions. Generally, a stroke can result in five types of disability, viz 1) paralysis or problems controlling movement, 2) sensory disturbances, including pain, 3) problems in using or understanding language, 4) problems in thinking and memory, and 5) emotional disturbances. After experiencing the first stroke, as many as 15% to 30% of stroke sufferers will live with a permanent deficit inability <sup>(7)</sup>.

Umphred <sup>(8)</sup> stated that in the United States, approximately four million people experience a deficit in ability and damage due to stroke. Of these, 31% needed assistance, 20% needed assistance with walking, 16% were admitted to a long-term care facility and 71% experienced vocational damage after seven years. The role of rehabilitation is a part that cannot be separated by Post-Stroke Personnel (IPS) because its function is important for the recovery process of deformed limbs due to stroke experienced by stroke patients. However, no matter how sophisticated the equipment has if without the support and enthusiasm of IPS it will not bring good results for his recovery. Likewise, the Medical Rehabilitation Unit owned by Nusantara Stroke & Medical Center, apart from relying on sophisticated medical rehabilitation equipment to support the success of the healing process <sup>(9)</sup>, the services provided should prioritize individual approaches, thus patients feel closer to the team. Health-related neurological problems help one of them through Range of Motion exercises. Range of Motion (ROM) exercise is one form of exercise in the rehabilitation process that is assessed still quite effective in preventing disability in patients with stroke. This exercise is one of the fundamental nurse interventions that can be implemented.

In Indonesia, a survey has been administered to determine the prevalence of anxiety disorders. In this survey, it was stated that the results of basic health research (Riskesdas) in 2013, showed the prevalence of the mental-emotional disorder symptoms indicated by depression and anxiety (6%) for ages 15 and over about 14 million people. Meanwhile, the prevalence of serious mental disorders, such as schizophrenia, is 1.7 per 1000 population or around 400,000 people. The prevalence of the female group is higher than the male group <sup>(10)</sup>.

Anxiety can arise when individuals face new experiences and are mental tensions such as going to school, starting a new job, someone who is facing a final project (thesis), a partner who will enter the ladder of marriage, an individual who will continue with a higher level of education, a partner who will face the birth of a first child with high risk, families who face division, individuals who experience conflicts in work and individuals who experience loss of property & loved ones due to natural disasters, fires <sup>(9)</sup>.

Murrotal therapy is used as a reference in terms of reducing stress and anxiety because it can affect physically and psychologically. In the XVII annual conference of the American medical association, Missouri US region, Ahmad Al-Khadi made a presentation on the results of his research on the theme of the Koran on humans in physiology and psychology perspective. The results of his research show positive results that listening to the holy verses of the Koran has a significant effect in reducing reflective nerve tension and these results are recorded and measured quantitatively and qualitatively by a computer-based tool <sup>(11)</sup>.

Music therapy is a non-invasive natural intervention that can be applied simply not always requiring the presence of a therapist, the price is affordable and does not cause side effects <sup>(12)</sup>. According to Kate and Mucci, music therapy is proven to be useful in the process. healing because it can reduce pain and can make the patient feel relaxed <sup>(13)</sup>.

Research conducted by Regina and Prabowo in 2007 regarding meta music treatments to reduce stress by listening to music in students showed a significant difference in stress before and after treatment, and the results showed that music therapy reduced stress levels in students <sup>(5)</sup>.

The success of the therapeutic regimen for patients and the effort to prevent the occurrence of permanent disability conditions in post-hospitalized patients reduced the level of patient dependence on the family. Lewis suggests that stroke patients should exercise several times a day to prevent complications <sup>(7)</sup>. The earlier the rehabilitation process begins, the smaller the possibility that the patient will experience a deficit in ability <sup>(14)</sup>. Therefore, to assess the extent to which active and passive ROM exercises can increase joint mobility to prevent the occurrence of various complications and these exercises have an impact on functional abilities are closely related to muscle strength in ischemic stroke of inpatients. Seeing the high incidence of stroke, the absence of SOP on ROM, the many complications, and the role of nurses is very important in efforts to prevent permanent disabilities in stroke patients and prevent recurrent strokes which can result in death. The authors were interested in finding out how the effect of ROM exercises on increasing muscle strength in stroke patients at Dr. Soedomo Trenggalek Hospital.

## Purpose

The research aimed to determine the effect of ROM exercises on increasing muscle strength in stroke patients at Dr. Soedomo Trenggalek Hospital.

**METHODS**

The study used a quasi-experimental research design with a control group pretest-posttest design. The sample in this study were patients who were treated in the orchid room at dr. Soedomo Trenggalek Hospital. Inclusion criteria were patients who were willing to be respondents, post-ischemic stroke, cooperative, aged ≥40 years, and hospitalized for more than 3 days. The exclusion criteria were patients with hemorrhagic stroke, acute stroke, and decreased consciousness. The independent variable was music therapy and murottal Al-Quran therapy, while dependent variables were muscle strength and anxiety.

To determine the effect of music therapy and murottal Al-Quran on increasing muscle strength and reducing anxiety, a statistical test was carried out using the t-test. This study had obtained ethical clearance with number Reg. No: 595 / KEPK – POLKESMA / 2017.

**RESULTS**

Based on table 1, before ROM therapy it was obtained from a total of 15 respondents for the right hand, most of the respondents, namely 10 (66.7%) had muscle strength on a scale of 2, for the left hand, almost all respondents, namely 12 (80%) had muscle strength on a scale of 2, while that for the right leg most of the respondents, namely 10 (66.7%) had muscle strength on a scale of 2, and for left leg, almost all respondents, namely 13 (86.7%) had muscle strength on a scale of 2.

After ROM therapy it was obtained from a total of 15 respondents for the right hand of the majority of the respondents, namely 8 (53.3%) had muscle strength on a scale of 2, for the left hand, most of the respondents, namely 11 (73.3%) had muscle strength on a scale of 2. Meanwhile, for the right leg most of the respondents, namely 11 (73.3%) had muscle strength on a scale of 2, and for the left leg, most of the respondents, namely 10 (66.7%), had muscle strength on a scale of 2.

Table 1. Distribution of respondents based on muscle strength before and after ROM therapy in the Orchid Room Dr. Soedomo Trenggalek

Scale	Before ROM								After ROM							
	Right hand		Left hand		Right leg		Left leg		Right hand		Left hand		Right leg		Left leg	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
2	10	66.7	12	80	10	66.7	13	86.7	8	53.3	11	73.3	11	73.3	10	66.7
3	5	33.3	3	20	5	33.3	2	13.3	7	46.7	3	20	2	13.3	4	26.7
4	0	0	0	0	0	0	0	0	0	0	1	6.7	2	13.3	1	6.7
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	100	15	100	15	100	15	100	15	100	15	100	15	100	15	100

Based on table 2, before ROM therapy it was found that from a total of 15 respondents, most of the respondents, namely 10 (66.7%) had moderate anxiety, and after ROM therapy almost all respondents, namely 12 (80%) had mild anxiety.

Table 2. Distribution of respondents based on muscle strength before and after ROM therapy in the Orchid Room Dr. Soedomo Trenggalek

Anxiety	Before ROM		After ROM	
	f	%	f	%
Normal	0	0	0	0
Mild anxiety	5	33.3	12	80
Moderate anxiety	10	66.7	3	20
Severe anxiety	0	0	0	0

Based on table 3, before ROM therapy and music murottal Al-Quran therapy it was obtained from a total of 15 respondents for the right hand, almost all respondents, namely 12 (80%) had muscle strength on a scale of 3, for the left hand most of the respondents, namely 9 (60%) had muscle strength on a scale of 3, meanwhile Most of the respondents' right leg, namely 10 (66.7%) had muscle strength on a scale of 2, and for the left leg, most of the respondents, namely 10 (66.7%) had muscle strength on a scale of 3.

After ROM therapy and music murottal Al-Quran Therapy it was obtained from a total of 15 respondents for the right hand, most of the respondents, namely 10 (66.7%) had muscle strength on a scale of 4, for the left hand, most of the respondents, namely 10 (66.7%), had muscle strength on a scale of 4. Meanwhile, for the right leg, almost half of the respondents, namely 6 (40%) had muscle strength on a scale of 4, and for the left leg, most of the respondents, namely 10 (66.7%), had muscle strength on a scale of 4.

Table 3. Distribution of respondents based on muscle strength before and after ROM therapy and murrotal Al-Quran music therapy in the Orchid Room, Dr. Soedomo Trenggalek

Skala	Before ROM therapy and murrotal Al-Quran music therapy								After ROM therapy and murrotal Al-Quran music therapy							
	Right hand		Left hand		Right leg		Left leg		Right hand		Left hand		Right leg		Left leg	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
2	3	20	6	40	10	66.7	3	20	0	0	0	0	0	0	0	0
3	12	80	9	60	4	26.7	10	66.7	1	6.7	2	13.3	6	40	2	13.3
4	0	0	0	0	1	6.7	2	13.3	10	66.7	10	66.7	6	40	10	66.7
5	0	0	0	0	0	0	0	0	4	26.7	3	20	3	20	3	20
Total	15	100	15	100	15	100	15	100	15	100	15	100	15	100	15	100

Based on table 4, before ROM therapy and music murrotal Al-Quran therapy it was found that from a total of 15 respondents, most of the respondents, namely 9 (60%) had moderate anxiety. After ROM therapy and music murrotal Al-Quran therapy it was found that from a total of 15 respondents, most of the respondents, namely 11 (73.3%) had mild anxiety.

Table 4. Distribution of respondents based on muscle strength before ROM therapy and murrotal Al-Quran music therapy in the Orchid Room, Dr. Soedomo Trenggalek

Anxiety	Before ROM		After ROM	
	f	%	f	%
Normal	0	0	0	0
Mild anxiety	4	26.7	11	73.3
Moderate anxiety	9	30	4	26.7
Severe anxiety	2	13.3	0	0

The results of the t-test in table 5 show that there was a difference in muscle strength right hand between before and after ROM and murrotal Al-Quran music therapy (p value = 0.000); there was a difference in muscle strength left hand between before and after ROM and murrotal Al-Quran music therapy (p value = 0.000); there was a difference in muscle strength right leg between before and after ROM and murrotal Al-Quran music therapy (p value = 0.000); there was a difference in muscle strength left leg between before and after ROM and murrotal Al-Quran music therapy (p value = 0.000). Whereas for anxiety, there was a difference anxiety between before and after ROM and Murrotal Al-Quran music therapy (p value = 0.000).

Table 5. The results of t-test of the difference of muscle strength and anxiety

Muscle strength	ROM therapy			ROM and murrotal Al-Quran music therapy		
	t	p	Information	t	p	Informationn
Right hand	-0.727	0.473	No difference	-7.780	0.000	There is a difference
Left hand	-0.695	0.493	No difference	-7.276	0.000	There is a difference
Right leg	-0.292	0.772	No difference	-5.422	0.000	There is a difference
Left leg	-1.427	0.165	No difference	-5.229	0.000	There is a difference
Anxiety	4.667	0.000	There is a difference	5.405	0.000	There is a difference

The results of the t-test in table 6 show that there was a difference in muscle strength right hand between ROM exercises and murrotal Al-Quran music therapy (p value = 0.000); there was a difference in muscle strength left hand between ROM exercises and murrotal Al-Quran music therapy (p value = 0.000); there was a difference between muscle strength right leg between ROM exercises and murrotal Al-Quran music therapy (p value = 0.000); there was a difference muscle strength left leg between ROM exercises and murrotal Al-Quran music therapy (p value = 0.000). As for the anxiety, there was a difference anxiety between ROM therapy and murrotal Al-Quran music therapy (p value = 0.000).

Table 6. The results of t-test for differences in muscle strength and anxiety between ROM exercises and murrotal Al-Quran music therapy in the Orchid Room at RSUD Dr. Soedomo Trenggalek

Muscle Strength	T	p	Information
Right hand	-5.551	0.000	There is a difference
Left hand	-8.367	0.000	There is a difference
Right leg	-4.641	0.000	There is a difference
Left leg	-5.245	0.000	There is a difference
Anxiety	-4.688	0.000	There is a difference

## DISCUSSION

### Muscle Strength and Anxiety Before and After ROM Therapy

The results of the research were obtained from a total of 15 respondents for the right hand of most of the respondents 10 (66.7%) had muscle strength on a scale of 2, for the left hand, almost all respondents, 12 (80%) had muscle strength on a scale of 2, meanwhile, for the right leg, most of the respondents, 10 (66.7%) had muscle strength on a scale of 2, and for the left leg, almost all respondents, namely 13 (86.7%) had muscle strength on a scale of 2. Strength was interpreted as the quality of muscle power or a group of muscles in building maximum contraction to cope with the incoming load. According to Suharno cit. Suhartini<sup>(15)</sup> strength was the ability of muscles to be able to overcome resistance or burden in carrying out activities. According to Kusworo, physiologically, the muscle could perform one maximum contraction against resistance or load. Meanwhile, mechanically muscle strength was the force that could be generated by a muscle or a group of muscles in one maximum contraction. According to Nossek quoted<sup>(16)</sup>, muscle strength was muscle strength to overcome or resist loads when carrying out activities.

This study showed that before ROM therapy, the patient's average muscle strength was on a scale of 2, which means that the minimal movement that stroke patients could do was that they cannot defy gravity, but could perform joint movements. This condition indicated that the respondent experienced physical activity disturbances due to weak muscle strength.

It was obtained from a total of 15 respondents, most of the respondents, namely 10 (66.7%) have moderate anxiety. Anxiety was a deep and continuous feeling of fear or worry, does not experience disturbance in assessing realism (reality testing ability), personality is still intact (does not experience spilling personality), behavior can be disturbed but was still within normal limits<sup>(17)</sup>. Anxiety was the emotion most often experienced, in the form of worry or fear that cannot be avoided from things that are dangerous and can cause symptoms or body responses<sup>(18)</sup>. Most people were feeling bad, which needed to be passed immediately, while objectively anxiety was a psychobiological pattern with an alarm function for danger, resulting in an effective action planning, which was an attempt to adapt to psychological trauma, crises, and conflicts<sup>(19)</sup>. Anxiety disorders warned of an external threat natural and internal, for example, the threat of injury to the body, fear, hopelessness, the possibility of getting punished, frustration at separation, disruption of status, or disruption of one's needs<sup>(20)</sup>. A person experiencing anxiety would be forced to flee (flight) or fight, namely by exerting all psychological energy to defend himself. The psychological energy that was still available is getting less and less. As a result, the defense mechanism was almost unable to fight these threats, causing several changes in the body's organs, which were marked by physiological, anatomic, biochemical, hormonal, and psychological disorders<sup>(19)</sup>. There were many situations in which anxiety was maladaptive and was a psychiatric disorder. The notion of anxiety as a psychiatric disorder was growing rapidly and was characterized by the concept of core symptoms of excessive fear and worry compared to major depression, which was characterized as the main symptom of depressed mood or loss of interest<sup>(5)</sup>.

This study showed that before ROM therapy, the average stroke patient experienced moderate anxiety, which means that it allowed people to focus, but what was important was to put others aside so that individuals experienced selective attention. The physiological response was often shortness of breath, increased pulse, and blood pressure, dry mouth. While the cognitive response was that the perception field was narrowing, external stimuli are not able to be accepted, focusing on what they were concerned with.

It was obtained from a total of 15 respondents for the right hand of most of the respondents, 8 (53.3%) had muscle strength on a scale of 2, for the left hand of the majority of respondents, namely 11 (73.3%) had muscle strength on a scale of 2, while for the right leg of the majority of respondents, 11 (73.3%) had muscle strength on a scale of 2, and for the left leg, most of the respondents, namely 10 (66.7%) had muscle strength on a scale of 2.

ROM therapy is a joint motion exercise that allows for muscle contraction and movement, where the client moved each of his joints according to normal movements either actively or passively<sup>(21)</sup>. ROM was exercises that were performed to maintain or improve the level of perfection in the ability to move joints normally and completely to increase muscle mass and muscle tone<sup>(21)</sup>.

Range of motion is a movement under normal circumstances that can be carried out by the joint in question<sup>(4)</sup>. Range of motion (ROM) exercise is a standard term for expressing the limits or limits of normal joint motion and as a basis for determining any abnormalities or for stating abnormal joint motion limits<sup>(22)</sup>.

This study showed that after ROM therapy, the patient's average muscle strength was on a scale of 2, which means that the minimal movement that stroke patients could do was that they could not defy gravity, but could perform joint movements. This condition indicated that ROM therapy was less effective in increasing muscle strength in stroke patients.

Almost all respondents, 12 (80%) had mild anxiety. ROM training was a joint motion exercise that allows for muscle contraction and movement, where the client moves each of his joints according to normal movements either actively or passively<sup>(21)</sup>. ROM was exercises that were performed to maintain or improve the level of perfection in the ability to move joints normally and completely to increase muscle mass and muscle tone<sup>(21)</sup>. ROM was movement under normal circumstances that can be carried out by the joint in question<sup>(4)</sup>. ROM exercise is a standard term for expressing the limits or limits of normal joint motion and as a basis for determining any abnormalities or for stating abnormal joint motion limits<sup>(22)</sup>.

This study shows that after ROM therapy, the average stroke patient experienced mild anxiety, which meant that this anxiety was related to daily life. Signs and symptoms included increased attention, alertness, being able to deal with problems effectively, and learning ability. These conditions indicated that ROM therapy could reduce the level of anxiety in stroke patients.

### Muscle Strength and Anxiety Before and After ROM Therapy and Murrotal Al-Quran Music Therapy

It was obtained from a total of 15 respondents for the right hand of almost all respondents, 12 (80%) had muscle strength on a scale of 3, for the left hand of the majority of respondents, namely 9 (60%) had muscle strength on a scale of 3, while for the right leg Most of the respondents, 10 (66.7%) had muscle strength on a scale of 2, and for the left leg, most of the respondents, namely 10 (66.7%) had muscle strength on a scale of 3.

Strength was interpreted as the quality of muscle power or a group of muscles in building maximum contraction to cope with the incoming load. According to Suharno cit Munawar, <sup>(23)</sup> strength was the ability of muscles to be able to overcome resistance or burden in carrying out activities. According to Kusworo physiologically, it was the muscle's ability to perform one maximum contraction against resistance or load. Meanwhile, mechanically muscle strength was the force that could be generated by a muscle or a group of muscles in one maximum contraction. According to Nossek quoted <sup>(24)</sup>, muscle strength was muscle strength to overcome or resist loads when carrying out activities.

This study showed that before ROM therapy and Al-Quran music murrotal therapy, the patient's average muscle strength was a scale of 2, which means that the minimum movement that stroke patients could do was that they could not fight gravity, but could perform joint movements. This condition indicated that the respondent experienced physical activity disturbances due to weak muscle strength.

It was obtained from a total of 15 respondents, most of the respondents, namely 9 (60%) have moderate anxiety. Anxiety was a deep and continuous feeling of fear or worry, does not experience disturbance in assessing realism (reality testing ability), personality was still intact (does not experience spilliting personality), the behavior was disturbed but was still within normal limits <sup>(17)</sup>. Anxiety was the emotion most often experienced, in the form of worry or fear that cannot be avoided from things that are dangerous and can cause symptoms or body responses <sup>(18)</sup>. Most people were feeling bad, which needed to be passed immediately, while objectively anxiety was a psychobiological pattern with an alarm function for danger, resulting in an effective action planning, which was an attempt to adapt to psychological trauma, crises, and conflicts <sup>(19)</sup>. Anxiety disorders warned of an external threat natural and internal, for example, the threat of injury to the body, fear, hopelessness, the possibility of getting punished, frustration at separation, disruption of status, or disruption of one's needs <sup>(20)</sup>. A person experiencing anxiety would be forced to flee (flight) or fight, namely by exerting all psychological energy to defend himself. The psychological energy that is still available is getting less and less. As a result, the defense mechanism is almost unable to fight these threats, causing some changes in the body's organs, which are marked by physiological, onotomic, biochemical, hormonal, and psychological disorders <sup>(19)</sup>. There were many situations in which anxiety is maladaptive and is a psychiatric disorder. The notion of anxiety as a psychiatric disorder was growing rapidly and was characterized by the concept of core symptoms of excessive fear and worry compared to major depression, which was characterized as the main symptom of depressed mood or loss of interest <sup>(9)</sup>.

This study showed that before ROM therapy and murrotal Al-Quran music therapy, the average stroke patient experienced moderate anxiety, which meant that it allowed people to focus, but what was important was to put others aside so that individuals experience selective attention. The physiological response was often shortness of breath, increased pulse, and blood pressure, dry mouth. While the cognitive response was that the perception field is narrowing, external stimuli were not able to be accepted, focusing on what they were concerned with.

It was obtained from a total of 15 respondents for the right hand of the majority of respondents, 10 (66.7%) had muscle strength on a scale of 4, for the left hand of the majority of respondents, 10 (66.7%) had muscle strength on a scale of 4, while That for the right leg, almost half of the respondents, namely 6 (40%) had muscle strength on a scale of 4, and for the left leg, most of the respondents, namely 10 (66.7%), had muscle strength on a scale of 4. Music therapy was a health therapy using music where the aim was to improve or improve physical, emotional, cognitive, and social conditions for individuals of all ages <sup>(15)</sup>. Music therapy was a material that can affect a person's condition both physically and mentally. Music stimulated the growth of scrambled functions such as memory, learning, listening, speaking, and analysis of the intellect and the function of consciousness <sup>(25)</sup>. The use of sound and music created relationships between individuals and therapists to support and listen to them physically, mentally, socially, and emotionally <sup>(6)</sup>.

This study showed that after ROM therapy and murrotal Al-Quran music therapy, the average muscle strength of the patient was on a scale of 4, which meant that stroke patients were able to perform joint movements and resist gravity well but not maximally such as in a healthy condition. This condition showed that ROM therapy and murrotal Al-Quran music therapy were very effective in increasing the muscle strength of stroke patients.

It was obtained from a total of 15 respondents, most of the respondents, 11 (73.3%) had mild anxiety. Music therapy was a health therapy using music where the aim is to improve or improve physical, emotional, cognitive, and social conditions for individuals of all ages <sup>(15)</sup>. Music therapy was a material that can affect a person's condition both physically and mentally. Music stimulated the growth of scrambled functions such as memory, learning, listening, speaking, and analysis of the intellect and the function of consciousness <sup>(25)</sup>. The use of sound and music created relationships between individuals and therapists to support and listen to them physically, mentally, socially, and emotionally <sup>(6)</sup>.

This study showed that after performing ROM therapy and murrotal Al-Quran music therapy, the average stroke patient experiences mild anxiety, which meant that this anxiety was related to daily life. Signs and

symptoms included increased attention, alertness, being able to deal with problems effectively and learning ability. These conditions indicated that ROM therapy could reduce the level of anxiety in stroke patients.

### **Differences in Muscle Strength and Anxiety between Before and After Being Given ROM Training and being Given ROM Therapy and Murrotal Al-Quran Music Therapy**

The results of analysis found that there was no difference in right-hand muscle strength between before and after ROM training, there was no difference in left-hand muscle strength between before and after ROM training, there was no difference in right leg muscle strength between before and after ROM training, there was no difference in left leg muscle strength between before and after ROM training. As for anxiety, it was found that there was a difference in anxiety between before and after ROM therapy.

ROM training was a joint motion exercise that allows for muscle contraction and movement, where the client moved each of his joints according to normal movements either actively or passively <sup>(21)</sup>. ROM exercises were exercises that are performed to maintain or improve the level of perfection in the ability to move joints normally and completely to increase muscle mass and muscle tone <sup>(21)</sup>. Range of motion was a movement under normal circumstances that was carried out by the joint in question <sup>(4)</sup>. ROM exercise was a standard term for expressing the limits or limits of normal joint motion and as a basis for determining any abnormalities or for stating abnormal joint motion limits <sup>(22)</sup>.

This study showed that ROM therapy is less effective in increasing muscle strength in stroke patients. This was indicated by the results of the study that between before and after ROM therapy the muscle strength of stroke patients was still on a scale of 2, meaning that the minimal movement that stroke patients could do was that they could not fight gravity, but they could do joint movements. Meanwhile, the anxiety of stroke patients after ROM therapy, the average stroke patients experienced mild anxiety, which meant that there was a significant decrease in patient anxiety between before and after ROM therapy, however, the decrease was less than maximal. These conditions indicated that ROM therapy can reduce the level of anxiety in stroke patients.

The results of analysis showed that there was a difference in the strength of the right-hand muscle between before and after ROM exercise and music therapy murrotal Al-Quran, there was a difference in left-hand muscle strength between before and after ROM exercises and murrotal Al-Quran music therapy, there was a difference in right leg muscle strength between before and after ROM training and murrotal Al-Quran music therapy, there was a difference in left leg muscle strength between before and after ROM exercise and murrotal Al-Quran music therapy. As for anxiety, it was found that there was a difference in anxiety between before and after ROM therapy and murrotal Al-Quran music therapy.

Music therapy can cure Frankfurt people who suffered from painful hereditary diseases and there was currently no cure. The connective tissue was weakened to the point of disturbing other internal organs, including the heart. Have had three minor heart attacks, initially music from the headphones for 15 minutes to relieve stress, based on monitoring of the muscles. After three weeks of being treated with music therapy, only 5 minutes of listening to music could calm down <sup>(13)</sup>. Music includes activities to focus the patient's attention on something other than pain. In this technique, the reticular activation system inhibited the painful stimulus if a person received sufficient or excessive sensory input, while the pleasant sensory stimulus caused the release of endorphins <sup>(21)</sup>. In addition, music was proven to be able to alleviate a person's suffering from illness because the neural pathways for listening to music and the nerve pathways for pain feeling were the same so that when someone experienced pain it could be diverted by listening to music <sup>(17)</sup>.

Al-Quran is the holy book of Islam as a guide for the life of its people. The Quran has several terms, including the term As-syifa. The term As-syifa shows that the Quran is medicine for various diseases, both physical and non-physical ailments. In the Quran, there are matters related to medical science and medicine that can cure physical ailments. In the Quran, there were ways to treat physical ailments from outside, and in the Koran, there were cures for non-physical diseases, namely diseases of the heart and soul, reluctance, and sadness <sup>(26)</sup>.

This study showed that after ROM therapy and music murrotal Al-Quran therapy, the average muscle strength of the patient was on a scale of 4, which meant that stroke patients could perform joint movements and resist gravity well but not maximally such as in a healthy condition. This condition showed that ROM therapy and music murrotal Al-Quran therapy was very effective in increasing muscle strength in stroke patients. As for the anxiety of stroke patients after Rom therapy and music murrotal Al-Quran therapy, the average stroke patient had mild anxiety, which means that this anxiety was related to daily life. Signs and symptoms included increased attention, alertness, being able to deal with problems effectively, and learning ability. These conditions indicated that ROM therapy could reduce the level of anxiety in stroke patients.

### **Differences in Muscle Strength and Anxiety between ROM Exercises and Murrotal Al-Quran Music Therapy**

The results of analysis showed that there was a difference in the strength muscle of right-hand between ROM and murrotal Al-Quran music therapy, there was a difference in the strength muscle of left-hand between ROM and murrotal Al-Quran music therapy, there was a difference in the strength muscle of right-leg between ROM and murrotal Al-Quran music therapy, there was a difference in the strength muscle of left-leg between ROM and murrotal Al-Quran music therapy. As for anxiety, it was found that there was a difference in anxiety between ROM therapy and murrotal Al-Quran music therapy.

Murrotal al-Quran works on the brain where when stimulated by stimulation from murrotal therapy, the brain produced chemicals called neuropeptides. This molecule would bind into the receptors and provide feedback in the form of pleasure and comfort <sup>(19)</sup>. The function of human hearing was the reception of auditory stimuli or sounds. Auditory stimuli in the form of sound were received by the ear, causing it to vibrate. This vibration would be transmitted to the hearing bones which were linked to one another <sup>(27)</sup>.

The physical stimulation was converted by differences in potassium ions and sodium ions into an electric current that passes through the VIII nerve (cochlear vestibule) to the brain, to be precise in the auditory area. After experiencing an action potential change to the auditory cortex (which is responsible for analyzing complex sounds, short-term memory, pitch comparisons, inhibiting unwanted motor responses, serious hearing, and so on), it was received by the brain's temporal lobe to prescribe sounds. The thalamus as an impulse transmitter would transmit stimulation to the amygdala (place for emotional memory storage) which was an important part of the limbic system (which affects emotions and behavior)<sup>(18)</sup>.

Murrotal al Quran was a recording that is sung by a qori (reciter). Murrotal can also be interpreted as the chanting of the holy verses of the Koran which is sung by a qori which is recorded and listened to at a slow and harmonious tempo. Murrotal is music that has a positive influence on listeners. Listening to the holy verses of the Koran read with tartil and correctly will bring peace of mind. The recitation of the Koran physically contains elements of the human voice while the human voice is an amazing healing instrument and the most accessible tool. Sound can reduce stress hormones, activate endorphin hormones, improve the body's chemical system so that it reduces blood pressure and slows down breathing, heart rate, pulse, and brain wave activity<sup>(5)</sup>.

### CONCLUSION

Based on the results of the study, it can be concluded that the combination of ROM therapy and murrotal Al-Quran music therapy is more effective for increasing hand and leg muscle strength and for reducing anxiety levels in patients with stroke.

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