

## The Effectiveness of BmT Accompanied by Music Therapy for Neurology Patients at Martha Friska Multatuli Hospital

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### ABSTRACT

*This research focuses on the application of BmT (Box Music Therapy) as a music therapy medium for treating neurological patients in Martha Friska Multatuli hospital, Medan. The aim of this research is to test the performance of BmT and its effectiveness in treating patients with neurological disorders. In this case, the nervous disorders experienced by the patient are mild/severe strokes, pinched nerves, and weak nerves. The BmT is an instrument equipped with four main components, namely the Galvanic Skin Response (GSR) sensor to detect stress levels, the MPX5050dp sensor to detect Beat Per Minute (bpm). Memory card as a storage medium for 16 instrumental music works and songs created by composer Prof. Junita Batubara, S.Sn., M.Sn and headphones as a medium for listening to music. Through the use of quasi-experimental methods, the results of this study show that out of 22 (twenty two) outpatients in the neurology unit at Matha Friska Hospital in Medan, the patients experienced a decrease in GSR and BPM numbers based on the results of the numbers that appeared on the BmT monitor screen before and after being given music therapy treatment. Furthermore, researchers also obtained information that the patient experienced a feeling of relaxation, which eased the pain in the patient's limbs both during the process and after music therapy.*

### KEYWORDS

*BmT  
Therapy  
Instrumental  
Music  
Neurologi*

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### INTRODUCTION

This research was motivated by data from the World Health Organization (WHO) in 2015 which estimates that by 2025 there will be 1.5 billion people in the world affected by hypertension, which will have a major impact on nervous disorders. A total of 9.4 million of them will die every year. Meanwhile, in Indonesia itself, the prevalence of hypertension ranges from 6-15% and is considered a cause of premature death in the world (Mayasari, 2019). This situation encourages researchers to contribute to the handling of this health problem, which is considered very serious so it is hoped that it can reduce the number of people suffering from nervous disorders caused by hypertension and diabetes.

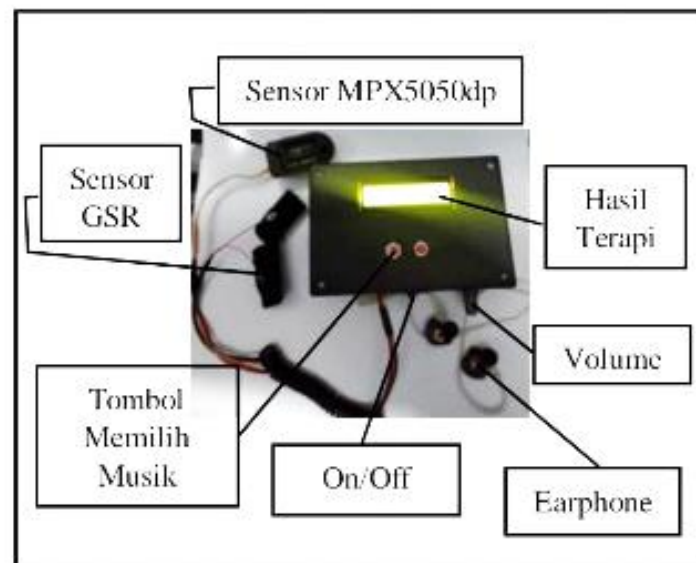
It is known that the use of music as a therapeutic medium in the world of health is not something new. Several studies have been conducted that talk about the use of music therapy as a medium in the treatment of certain diseases. For example, Eckart Altenmuller in his article Neurologic music therapy: The beneficial effects of music making on neurorehabilitation notes that music can restore impaired nervous processes or neural connections by involving and connecting brain regions with each other (Altenmu, 2013). In several studies, music has also been proven to improve the quality of healthy life for the elderly. This can be seen since the Covid-19 pandemic began in Europe in 2020, several

nursing homes in the Netherlands explored the impact of the pandemic on providing music therapy for the elderly (Chakraborty, 2020). Music therapy as an alternative treatment for hypertension patients at RSUD dr. H. Soewondo Kendal (Finasari et al., 2018), research on Sundanese Degung music on reducing blood pressure in hypertension patients (Mulyati & Sudirman, 2017), also the use of Indian classical music/ragas which is believed to cure various health problems (Sarkar & Biswas, 2015). Apart from that, the use of music therapy to reduce anxiety levels in cancer patients has also been done previously (Sun et al., 2023). Thus, the fact is that the world of modern medicine has now discovered that music therapy is one of the best alternatives for curing several diseases of the human body and mind.

Suzanne Langer in Oliver emphasizes that apart from music being able to bring back memories of the past, music also evokes emotions and moods (Sacks, 2006). According to research, this is caused by the presence of various musical elements of rhythm, melody, harmony and tempo which can stimulate cognitive and emotional responses consisting of the affective component of pain. Positively, this situation can affect mood, resulting in a better healing process. In 2021, one of the lecturers in the Music Arts Study Program, Faculty of Languages and Arts, HKBP Nommensen University, Prof. Junita Batubara, together with several students created a tool called BmT (Box music Therapy). As the name suggests, this tool is in the form of a box which is equipped with several components, namely the MPX5050dp sensor, memory card and headphones (see Figure 1.1). The Galvanic Skin Response (GSR) sensor is a sensor that can detect stress levels through skin tissue. Meanwhile, the MPX5050dp sensor is a sensor that can detect blood pressure through the patient's heart rate (BPM). A memory card device as a music audio storage medium that can be heard using headphones/earphones.

The use of BmT was previously carried out on hypertensive patients at Medan Methodist Hospital in 2021 (Batubara, Junita, Marbun & Sembiring, 2023). The results of this study show that music therapy using BmT has an effective impact on reducing blood pressure in hypertensive patients in hospitals. Medan Methodist. The next research will be applied to patients in the neurology unit at Martha Friska Multatuli Hospital, Medan. This research is carried out twice a week, namely every Tuesday and Friday from 09.00 – 16.00 WIB. Previously, a letter of application had been given to the hospital to be permitted to carry out research. Before starting observations, the researcher first requested a certificate of passing the ethical review (Ethical clearance) with letter number 486/KEPK/FK/VI/2023. The purpose of the EC is as one of the ethical requirements for research protocols in an effort to protect the human rights of researchers and patients in medical ethics. This is done so that the research results are recognized in the medical world.

Box Music Therapy (BmT) is a music therapy tool that has a square shape (box) which is designed to meet the needs of the community. In BmT there are components that support the working system of music therapy. These components are: (1) Galvanic Skin Response (GSR) sensor; (2) MPX5050dp sensor; (3) on/off button; (4) music select button; (5) volume; (6) monitor the results of your therapy physical; (7) earphones. The components above can be seen in the image below.



**Figure 1.** BmT (*Box Music Therapy*)

As shown in the image above, there is a button to select therapy music. Therapy music was created by Prof. Junita Batubara, S.Sn., M.Sn., Ph.D is an Indonesian female composer who cares about public health through her works. The works created for music therapy have different sound colors. This is the result of his research on natural sounds, bird sounds, wind sounds, river water sounds, rain sounds and human voices. Research into the sound color of each of his works began with research in Tanjung Malim, Malaysia; research in Medan City, research around Parapat and the voices of native people (marginalized tribes in Malaysia). There were 16 pieces of therapeutic music created for BmT, namely: (1) After rain comes sunshine; (2) Activities; (3) Nature Greet; (4) Human of the storm; (5) Dream; (6) In the Morning Shade; (7) I am grateful V1; (8) I am grateful V2; (9) Reflection; (10) Nature's Hum; (11) Angel's Song; (12) The Power of dreams; (13) Nature Sounds; (14) Sound of Water; (15) Song of the angels; (16) Blessings.

Martha Friska Hospital is the research object. The selection of this location was based on patients who used the BPJS program and the hospital was still class C. This means that the researchers wanted to create something new for the hospital so that the music therapy that was carried out became something new at the hospital. The Martha Friska Multatuli Hospital in Medan was officially opened on July 24 2010, as a branch of the Martha Friska Pulo Brayon Hospital with different management. This hospital is located at Jalan Multatuli, Taman Multatuli Indah Complex No.1 Medan.

Based on the results of interviews with dr. Jhoni Sastra Manurung, MKM as head of the medical services management section said that the Martha Friska Multatuli Hospital in Medan was reopened during the 2020 pandemic and was then used as a referral hospital for the North Sumatra Provincial Health Service. Until 2021, this hospital will be open to BPJS patients and the general public. The number of patients continues to increase from year to year, numbering one hundred to three hundred people. In 2023, Dr Jhoni explained that there will be  $\pm$  600 inpatients and 300 - 2000 outpatients with BPJS and general status. Next, Dr. Jhoni also added that currently Martha Friska Multatuli Hospital Medan provides health services such as pediatric clinic, internal medicine clinic, mental health clinic, urology clinic,

neurology clinic, surgical clinic, ob-gyn clinic, skin clinic, ENT clinic, pathology clinic, radiology and eye clinic. . In this case, the researcher's focus is on outpatient neurology clinics which are carried out every Tuesday and Friday from 09.00 to 16.00 WIB. Researchers collaborated with a neurologist, namely Dr. Rani Fitria Dewi, Sp.N.

## METHOD

This research was conducted using a quasi-experimental method with a pre test – post test control approach (Hastjarjo, 2019). This research involved patients from the neurology unit at Martha Friska Multatuli Hospital, Medan, as respondents. There were 22 (twenty two) neurological patients who were given music therapy treatment using BmT. Respondents are outpatient BPJS patients who come to Martha Friska Hospital once a month for control and taking medication in the neurology poly unit.

The data collection technique used by researchers is by recording the initial GSR and GSR resulting from music therapy, initial BPM and BPM resulting from music therapy. This can be seen through the display on the BmT monitor screen when the patient is receiving music therapy treatment. This recording aims to obtain test data on BmT performance to reduce stress where this stress has different levels. According to Regina Seran, stress levels with GSR (bits) are divided into six levels, namely: (1) Normal (0-300); (2) Relax (301-525); (3) Light Stress (526-600); (4) Moderate Stress (601-725); (5) Heavy Stress (726-825); (6) Extremely Stressful (826-1023). This is also combined with bpm (heart rate) with the aim of collaborating heart rate with measuring stress levels through the skin tissue on the fingers.



**Figure 2.** Position Of The Gsr And Bpm Sensors On The Fingers

The data analysis technique used is an interactive analysis model. The procedures used are (1) data collection (focusing the collection data); (2) data reduction (analysis during data collection, within site analysis, cross site analysis); (3) data presentation (matrix displays some general suggestion); and (4) drawing and verifying conclusions (Ahyyar et al., 2020). This theory is applied in collecting research data with objects that are patients with neurological disorders. Apart from that, data collection techniques were carried out by

interviewing patients, treating doctors and managers of the Martha Friska Multatuli Hospital. Interviews conducted with patients, doctors and hospital managers were free interviews and structured interviews.

Researchers conducted a study of music therapy procedures, which must have operational standards (SOP) to carry them out. The SOPs carried out by researchers when observing neurology patients are:

1. The patient is a patient of Dr. Rani Fitria Dewi, Sp.N (specialist in neurology Martha Friska Medan).
2. Patients can participate in music therapy after obtaining permission and being examined by Dr. Rani Fitria Dewi, Sp.N.
3. The patient is interviewed regarding general identity (name, age, nervous disorders experienced/felt by the patient).
4. Patients are given education about the benefits and uses of BmT.
5. Patients are given education about 16 pieces of therapeutic music so that patients can choose what music they want to listen to.
6. Patients are given time to choose the therapy music they will listen to.
7. The patient must sit relaxed so that observations can be made.
8. The patient is given time to listen for 3 minutes to 3 minutes. 8 minutes (depending on the time duration of each therapy music).
9. After listening, the researcher will explain the results of observations via BmT to the patient.
10. The patient is advised to come back so that a second and third observation can be carried out.

The aim of the SOP is to provide education to patients who take part in music therapy at Martha Friska Multatuli Hospital, Medan.

## RESULTS AND DISCUSSION

Nervous disease is a disorder that occurs in the body's nervous system, including the brain and bone marrow (central nervous system), as well as the nerves that connect the central nervous system to the body's organs (peripheral nervous system). Disruption of the nervous system can cause disruption of all or some of the body's functions, such as difficulty moving, breathing, speaking, memory problems, and disruption of the function of internal body organs, such as the heart and lungs (Kahar & Lestari, 2018).

Martha Friska Multatuli Hospital Medan provides polyclinic services for patients with neurological disorders. This hospital is located at Jl. Multatuli No.1, A U R, Kec. Medan Maimun, Medan City. Specifically for the neurology unit, one of the doctors on duty is Dr. Rani Fitria Dewi, Sp.N. According to Dr. Rani said that there were several patient medical histories which were generally treated in the hospital's neurology unit. Martha Friska Multatuli Medan, namely mild stroke, weak nerves and pinched nerves. Based on this data, the researchers discussed the use of BmT as an 'alternative treatment' offered by researchers to neurology patients with Dr. Rani Fitria Dewi, Sp.N. From the results of the researcher's interview with Dr. Rani Fitria Dewi, Sp.N., she supports research activities by directing patients who have completed control and are immediately directed to the music therapy room provided by the management of Marta Friska Multatuli Hospital, Medan.



**Figure 3.** Music Therapy Room in Martha Friska Multatuli Hospital

Music therapy treatment at Martha Friska Multatuli Hospital in Medan uses BmT (Music Therapy Box), which is a tool consisting of a GSR (Galvanic Skin Responsive) sensor, MPdx5050dp, memory card, and headphones. Each of these components has a function, GSR takes into account the skin resistance of two fingers, namely as a sensor measuring stress levels through skin tissue. Skin conductance is thought to be a function of the activity of sweat glands and skin pores. Although a person's skin conductance can be influenced by various conditions, including gender, blood type, skin and situation. Sweat gland activity is controlled in part by the sympathetic nervous system. If anxiety occurs there will be a rapid increase in skin conductance. The more anxious a person is, the greater their body's resistance value will be (Bakti & Wardati, 2019). Next, the MPX5050dp sensor is a heart rate sensor. The MPX5050dp pressure sensor is a piezoresistive transducer made of silicon and designed for various applications, especially those using microcontrollers. This sensor is equipped with a signal conditioned, temperature compensated and calibrated chip. This sensor detects air pressure with an output of voltage in Volts (Madona et al., 2013). Memory cards as a music storage medium for therapy and headphones as a medium for listening to music from a memory card device. Look at the following image :



**Figure 4.** Bmt Components

The main element in BmT is therapeutic music. In BmT there are two categories of music, namely 2 (two) pieces of vocal music that use accompaniment and 14 (fourteen) pieces of instrumental music. The total of therapy music is 16 (sixteen) selected pieces of music. Furthermore, the four components (GSR, MPX5050dp, internal music (memory

card), and headphones) are integrated into BmT so that they become the main indicators in reviewing the effectiveness of BmT during music therapy treatment for hospital neurology patients. Martha Friska Multatuli Medan. The music therapy research was carried out in several stages, namely: (1) patients who had completed control in the neurology clinic room were immediately directed to the music therapy room; (2) Researchers socialize the aims and benefits of music therapy to patients; (3) the researcher asked for the patient's consent to be given music therapy treatment (informed consent); (4) Researchers educate music choices on BmT and ask patients to choose the music they want to hear. After the patient chooses a song, they continue with installing the BmT device on the patient. GSR and BPM are attached to both fingers of the patient's right/left hand. Next, the researcher looked at the BmT display screen to ensure that GSR and bpm were detected by the appearance of numbers on the monitor screen. After ensuring that the numbers appeared on the BmT monitor screen, the researcher then put on a headset on the patient being treated.

Researchers observed whether the headset and how the patient sat relaxed. After that, the researcher will ask which music therapy number will be played as music therapy. Usually the duration of therapeutic music in BmT ranges from  $\pm$  3 minutes to 7 minutes. During the process of listening to therapeutic music according to the patient's request, the researcher observed the numbers on the BmT monitor screen. This is done to see and confirm the numbers that come out when the therapy music is finished. So the patient's stress level is known and the final figures for both GSR and BPM will be recorded by researchers as a reference to see the effectiveness of music therapy in reducing the patient's stress level. After completing the recording, the researcher conducted brief interviews with the patients to get their perceptions regarding the music they heard and what they felt both during the music therapy and after the music therapy was completed.



**Figure 5.** One of the Neurology Patients Who Was Treated Using Bmt (Doc. Researcher, August 2023)

The number of patients in the neurology unit at Martha Friska Multatuli Hospital in Medan who received music therapy treatment was 22 (twenty two) people, of which 13

(thirteen) men or 59.10% and 9 (nine) women or 40.90%. The age of neurology patients in this study was in the range of 17 years-87 years. This can be seen in the table below:

**Table 1.** Data on Neurological Patients Who Participated in Music Therapy

No.	Patient's Initials Name	Age/ Years	Gender	Day/Date of Check
1	BH	67	L	25/08/2023
2	JH	62	P	18/08/2023
3	AT	38	L	22/08/2023
4	OSB	62	P	22/08/2023
5	AH	59	L	22/08/2023
6	PS	68	L	22/08/2023
7	IG	61	P	25/08/2023
8	EF	27	L	22/08/2023
9	MS	60	L	18/08/2023
10	MEL	47	P	25/08/2023
11	LST	58	P	18/08/2023
12	AS	17	L	18/08/2023
13	BN	70	L	18/08/2023
14	BL	69	L	18/08/2023
15	SD	38	L	18/08/2023
16	LD	87	L	15/08/2023
17	WP	81	P	15/08/2023
18	BG	72	L	18/08/2023
19	RP	50	L	18/08/2023
20	MAS	66	P	11/08/2023
21	ES	70	P	11/08/2023
22	FEL	71	P	11/08/2023

Researchers observe patients by making initials. The purpose of these initials is to maintain patient confidentiality in accordance with Ethical Clearance. From the results of the data above, the researcher made observations for the first treatment. However, some patients receive music therapy treatment two to three times. There were patients who underwent three music therapy treatments with the initials EF and MS. Patient EF is 27 years old and MS is 60 years old. EF patients are patients who have weak nerves so that muscle development is not very good. EF did music therapy on 08/22/2023; 08/25/2023 and 08/29/2023. The first treatment was with an initial BPM of 116 and an initial GSR of 514 with the selection of therapy music number 5 (Dream).

After completing music therapy, the BPM resulting from music therapy was 91 and the GSR resulting from music therapy was 411. Then a second treatment was carried out where the initial BPM was 62 and the initial GSR was 607. After completing music therapy, the BPM resulting from music therapy was 78 and the GSR resulting from music therapy was 584 by listening to the music number. therapy 16 (Blessing). Then the third treatment was given to EF where the initial BPM was 85 and the initial GSR was 658. After music therapy was carried out on EF, the BPM resulting from music therapy became 66 and the GSR resulting from music therapy was 589 with music therapy number No. 3 (nature greets). From the results of the researchers' observations of EF, the effect of music therapy on EF patients showed success. The reason is that the patient is able to walk, whereas up to now the patient has not been able to walk; The patient was able to talk with greater focus than



before music therapy was carried out. Apart from that, EF also experienced numb legs, weak nerves and leg cramps, pain in the feet, hands and waist. The pain occurs at night. The response of EF patients to music therapy is to feel calm, relaxed, carried away by the atmosphere of the music they hear and the music is able to relieve the pain they are experiencing.

MS patient (60 years/male) is a patient who suffered a major stroke (half body) and always uses a cane. MS patients are given education about music therapy. There is music therapy carried out on MS patients through BmT. MS patients received four treatments by choosing therapy music numbers number 3 (nature greets), number 5 (dream) and number 11 (an angel humming). MS did music therapy on 08/10/2023; 08/11/2023, 08/25/2023 and 09/01/2023. The first treatment was carried out on MS with an initial BPM position of 58 and an initial GSR of 692 by selecting music number 11 (an angel humming). As a result of the music therapy carried out, the BPM from music therapy was 52 and the GSR from music therapy was 624. Then the researchers carried out a second treatment for MS where the initial BPM was 60 and the initial GSR was 670 by choosing music number 3 (nature greets).

From the results of music therapy carried out on MS, the BPM resulting from music therapy remained 60, but the GSR resulting from music therapy became 634. Then MS received a third treatment for music therapy, where the initial BPM was 58, the initial GSR was 634 by choosing music therapy number 5 (dream). As a result of music therapy, the BPM from music therapy decreased to 52 and the GSR from music therapy decreased to 578. Next, MS received the fourth treatment where the initial BPM was 61 and the initial GSR was 667 by choosing therapy music number 11 (an angel humming). The results of music therapy treatment for MS were that the BPM resulting from music therapy became 60 and the GSR resulting from music therapy became 621.

Judging from observations made by researchers, MS experienced a decrease in stress levels with therapy music number 5 (Dreams) with stress levels from level 634 (moderate stress) to 578 (light stress). This proves that choosing therapy music number 5 really helps MS patients to feel relaxed, calm, make small movements in the hands and during music therapy the patient falls asleep.

LG patient (61 years/female) received two treatments, namely on 08/25/2023 and 08/29/2023. The first treatment found an initial BPM of 81 and an initial GSR of 439. After music therapy, the BPM resulting from music therapy became 72 and the GSR resulting from music therapy was 402 by selecting therapy music number 4 (Human of the storm). Then a second music therapy treatment was carried out with an initial BPM of 90 and an initial GSR of 643 with music therapy number 4 (Human of the storm). From the results of observations made by researchers, the BPM resulting from music therapy was 87 and the GSR resulting from music therapy was 566. With two treatments on LG patients, it can be concluded that LG experienced stress at a moderate stress level. After receiving music therapy treatment, LG experienced stress at a relaxed level.

Patient NA (60 years old/female) received three treatments for music therapy which were carried out on 08/22/2023, 08/28/2023 and 10/03/2023. NA has a history of stroke so the patient has difficulty speaking. The first treatment was carried out with an initial BPM of 78 and an initial GSR of 557 by selecting a number therapy music 3 (nature greets). The results of music therapy showed that the final BPM was 63 and the final GSR was 538. Then NA received a second treatment for music therapy with an initial BPM of 74 and an initial GSR of 676 by choosing music number 8 (I'm grateful Version 2). After receiving music therapy, it was found that the BPM resulting from music therapy was 71 and the GSR

resulting from music therapy was 623. Furthermore, NA also received treatment a third time with an initial BPM of 76 and an initial GSR of 458 with music number 16 (Blessing). From the results of observations made by researchers, it was found that the BPM resulting from music therapy was 69 and the GSR resulting from music therapy was 358. Thus, NA can be said to be a patient who experienced a reduction in stress levels using music therapy.

Next, the patient who received three music therapy treatments was patient JH (62 years old/female). JH performed music therapy on 08/18/2023, 08/25/2023, and 09/01/2023. JH experienced spinal pain, numbness in his palms, knee pain and difficulty walking. The researcher carried out the first treatment on JH with an initial BPM of 78, an initial GSR of 686 with music selection number 11 (an angel humming). After music therapy was carried out on JH, the BPM resulting from music therapy became 72 and the GSR resulting from music therapy became 676. Then JH received a second treatment for music therapy with an initial BPM of 71 and an initial GSR of 617 with music number 3 (nature greets). After carrying out the second treatment, the BPM resulting from music therapy became 62 and the GSR resulting from music therapy became 557.

Finally, the researchers carried out the third treatment on JH with an initial BPM of 65 and an initial GSR of 661 with music number 11 (an angel humming). After receiving the third treatment for patient JH, the BPM resulting from music therapy became 45 and the GSR resulting from music therapy became 621. Judging from the results above, it can be said that JH experienced stress with a moderate level of stress and after receiving music therapy treatment became light stress. In BmT there are GSR and BPM where these components are integrated with songs/instrumental music created by a composer. The song/instrumental music contains natural sounds, bird sounds, wind sounds, rain sounds combined with melodies with certain pitch areas.

From all the songs/instrumentals presented by the researcher, the patient Dr. Rani Fitria Dewi, Sp.N at Martha Friska Multatuli Hospital Medan prefers songs number 1, number 3, number 4, number 5, number 7, number 8, number 10, number 11, number 12, and number 16. Out of twenty Two patients who took part in music therapy, songs number 3 and number 8 were the favorite choices. This can be seen from the percentage of song choices (22.72%), then the second most song chosen by patients was number 8 with a percentage of 13.63%. Music therapy number 4 was chosen 2 times (9.10%); number 5 and number 7 were chosen 2 times (9.10%), number 11 2 times (9.10%), number 1, number 10, number 12 and number 16 1 time (4.54%).

The average initial GSR of all patients before music therapy treatment ranged from 439 – 696. Then the average initial BPM was 32 – 116. After music therapy treatment, the average GSR changed to between 263 – 684 and the BPM resulting from music therapy became 46 – 105. Based on the results of the researcher's observations of the patient's stress level before and after music therapy, the stress level was moderate stress.

## CONCLUSION

The Martha Friska Multatuli Hospital in Medan was officially opened on July 24 2010, as a branch of the Martha Friska Pulo Brayon Hospital with different management. This hospital is located at Jalan Multatuli, Taman Multatuli Indah Complex No.1 Medan. The Martha Friska Multatuli Hospital in Medan has a bed capacity of 250 units consisting of SVIP, VIP, class 1, class 2 and class 3. There are also general practitioners and specialist doctors who work under the auspices of the Martha Friska Multatuli Hospital in Medan totaling  $\pm 100$  people. who are ready to serve patients.

Based on the results of interviews with dr. Jhoni Sastra Manurung, MKM as head of the medical services management section said that the Martha Friska Multatuli Hospital in Medan was reopened during the 2020 pandemic and was then used as a referral hospital for the Provincial Health Service. Until 2021, this hospital will be open to BPJS patients and the general public. The number of patients continues to increase from year to year, numbering from one hundred to three hundred people. In 2023, Dr Jhoni explained that there will be  $\pm$  600 inpatients and 300 - 2000 outpatients with BPJS and general status at Martha Friska Multatuli Hospital in Medan. Furthermore, Dr. Jhoni also added that currently Martha Friska Multatuli Hospital Medan provides health services such as children's polyclinic, internal medicine polyclinic, mental health polyclinic, urology polyclinic, neurology polyclinic, surgery polyclinic, ob-gyn polyclinic, skin polyclinic, ENT polyclinic, pathology polyclinic, radiology and eye clinic.

The operational standard carried out by researchers when observing patients is educating patients to carry out music therapy. The SOP carried out by researchers is: (1) The patient is a patient of Dr. Rani Fitria Dewi, Sp.N at Martha Friska Multatuli Hospital Medan; (2) Patients can participate in music therapy after obtaining permission and being examined by Dr. Rani Fitria Dewi, Sp.N; (3) The patient is interviewed regarding general identity (name, age, nervous disorders experienced/perceived by the patient); (4) Patients are given education about the benefits and uses of AMUR; (5) Patients are given education about 16 pieces of therapeutic music so that patients can choose what music they want to listen to; (6) Patients are given time to choose the therapy music they will listen to; (7) The patient must sit relaxed so that observations can be made; (8) The patient is given time to listen for 3 minutes to 3 minutes. 8 minutes (depending on the time duration of each therapy music); (9) After listening, the researcher will explain the results of observations via BmT to the patient; (10) Patients are encouraged to come back so that second and third observations can be carried out.

Researchers carried out observations of neurology patients in accordance with the SOP, where there were 22 patients, including 13 (thirteen) men or 59.10% and 9 (nine) women or 40.90%. The age of neurology patients in this study was in the range of 17 years-87 years. There were 1 male patients who received music therapy in the age range 15 -24 years (7.7%); patients aged 25 years -34 years (7.7%); 2 patients aged 35 years – 44 years (15.39%); patients aged 45 -54 years (7.7%); 2 patients aged 55 years – 64 years (15.39%); 4 patients aged 65 -74 years (30.77%); and 1 patient aged 85 – 94 years (7.7%). The patient suffered from mild stroke to severe nerve pain, hypertension, pinched nerves around the waist and below, pain in the right buttock, numbness in half the body, curved spine, lumbar spine, pain between the hips, high anxiety, non-functioning nasal nerves, have a tumor between the liver and kidney.

There were 9 (nine) female patients who participated in music therapy out of twenty-two patients (40.90%), with an age range of 47 years to 81 years. At the age of 45 years to 54 years, there was 1 female patient (11.11%). Furthermore, those aged between 55 years and 64 years were 4 people (44.44%); Ages 65 to 74 years were 3 people (33.33%), ages 75 to 84 years were 1 person (11.11%). The female patient had a history of back pain, numbness, knee and sole pain, stroke, slurred tongue.

The song/ instrumental music titles found on AMUR are (1) After rain comes Sunshine; (2) Activities; (3) Nature Greets; (4) Human of the storm (5) Dream; (6) In the Morning Shade; (7) I am grateful V1; (8) I am grateful V2; (9) Reflection; (10) Nature's Hum; (11)

Angel's Song; (12) The Power of dreams; (13) Nature Sounds; (14) Sound of Water; (15) Song of the angels; (16) Blessings.

From all the songs/instrumentals presented by the researcher, the patient Dr. Rani Fitria Dewi, Sp.N at Martha Friska Multatuli Hospital Medan prefers songs number 1, number 3, number 4, number 5, number 7, number 8, number 10, number 11, number 12, and number 16. Of the two Luh two patients who took part in music therapy songs number 3 and number 8 were the favorite choices. This can be seen from the percentage of song choices (22.72%), then the second most song chosen by patients was number 8 with a percentage of 13.63%. Music therapy number 4 was chosen 2 times (9.10%); number 5 and number 7 were chosen 2 times (9.10%), number 11 2 times (9.10%), number 1, number 10, number 12 and number 16 1 time (4.54%).

The average initial GSR of all patients before music therapy treatment ranged from 439 – 696. Then the average initial BPM was 32 – 116. After music therapy treatment, the average GSR changed to between 263 – 684 and the BPM resulting from music therapy became 46 – 105. Based on the results of the researcher's observations of the patient's stress level before and after music therapy, the stress level was moderate stress.

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