

Effect of "Sape" Music Therapy on Decreasing Anxiety, Physiological Response, and Sleep Quality among Post Sectio Caesarea Patients

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Article information	Abstract
<p>Article history: Received: December 23th, 2021 Revised: January 15th, 2022 Accepted: January 29th, 2022</p> <hr/> <p>Corresponding author: Andarias Pilang Politeknik Kesehatan Kemenkes, Jl. Tirta Agung, Pedalangan, Kec. Banyumanik, Kota Semarang, Jawa Tengah 50268 E-mail: lang.borneo2@gmail.com</p> <hr/> <p>International Journal of Nursing and Health Services (IJNHS) Volume 5, Issue 1, February 20th, 2022 http://doi.org/10.35654/ijnhs.v5i1.560 E-ISSN: 2654-6310</p>	<p>Introduction: Sectio Caesarea is an act of delivery assistance through a surgical procedure that can cause disturbances such as changes in anxiety, physiological responses, and sleep quality. Objective: This study aims to analyze the effectiveness of "sape" music therapy on changes in anxiety, physiological responses, and sleep quality in post-operation Sectio Caesarea patients. Methods: True experiment with pre-test and post-test randomized control group design. The intervention group (n=21) received "sape" music therapy and routine nursing care in the midwifery room, while the control group (n=21) only received routine nursing care. Results: After giving "sape" music therapy, it was found that there was a difference in the decrease in anxiety on the average score of the Hamilton Anxiety Rating Scale ($p = 0.000$), there was no difference in the reduction of systolic blood pressure ($p = 0.984$) and diastolic blood pressure ($p = 0.905$), there is a difference in the decrease in pulse rate ($p = 0.004$), there is a difference in the reduction in respiratory rate ($p = 0.035$), and there is a difference in the increase in sleep quality ($p = 0.005$). Conclusion: "Sape" music therapy is effective in reducing anxiety, pulse, and respiratory rate, stabilizing systolic and diastolic blood pressure within normal limits, and improving sleep quality in post-operation Sectio Caesarea patients. Recommendation: Further studies can be carried out to determine whether extending the time of the "sape" music therapy intervention will have the desired impact, namely, reducing the systolic and diastolic blood pressure more optimally.</p> <p>Keywords: "sape" music therapy, anxiety, physiological response, sleep quality, Sectio Caesarea.</p> <p>This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License CC BY -4.0</p>



Introduction

Sectio Caesarea is an act of delivery assistance to give birth to a fetus through a surgical procedure by opening through an incision in the abdominal wall and uterus that are still intact(1). Sectio Caesarea is implemented to save the life of the mother and the fetus when complications in pregnancy and childbirth (2). However, Sectio Caesarea often disrupts or develops difficulties for the mother and baby during the operation period (3-5).

Disturbances can occur at the post-operative stage Sectio Caesarea such as pain in the surgical wound, sleep disturbances, activity limitations, gastrointestinal disorders, physiological response disorders, anesthetic complications, depression, loss of control, image disturbances. Body and anxiety(6). A study by Denney et al. showed that patients before and after surgery cesarean section could experience anxiety disorders because of the pain experienced by patients(7). While the study of Schaal et al. showed that the first and second post-operative could experience anxiety disorders because of the wound and the appearance of pain in the surgical wound(8).

Research by Lee, Wu, Lee, Ho, and Shih shows that post-operative patients with spinal anesthesia can experience anxiety disorders and impaired physiological responses due to pain and anxiety (9). A study by Karakul and Bolisik shows that post-operative patients can experience anxiety disorders and changes in vital signs due to the emergence of feelings of fear, loss of control, pain, feelings of isolation, and an unfamiliar hospital environment(10). A study by Ndode, Ardiyani, and Yasin showed that post-operative patients, in general, could experience sleep quality disturbances due to pain from the surgical wounds they experience(11). Ranto and Septiani's research showed that post-major surgery patients experienced sleep quality disturbances due to pain from the surgical wound(12).

Disorders experienced during the post-operative Sectio Caesarea. Suppose it continues to rise and is not adequately. In that case, it can cause complications or other

conditions, such as anxiety increases, the pain felt worse, fatigue, lack of confidence, and the mother's inability to care for her baby(13). A study from Helina, Alyensi, and Ayu showed anxiety in patients with post-operative Sectio Caesarea psychologically due to the failure of patients to adapt well to the status and its new role as a mother. If not appropriately addressed, it can result in further psychological disorders known as the postpartum blues(14).

Research Schaal et al. shows that the disorders experienced by post-operative patients Sectio Caesarea, if they continue to increase and are not handled properly, can cause complications that can slow down the recovery process and increase the length of hospital stay (15). This, of course, must be taken into account because, based on the research of Betran et al., sectio Caesarea in the last 24 years has continued to increase by 4.4% annually in the world(16). Sectio Caesarea in Indonesia, based on RISKESDAS data in 2018, has reached 17.6%,(17) this number has exceeded the maximum standard limit set by WHO, which is 10-15%(18). Based on medical record data at Ade Muhammad Djoen Sintang Hospital in 2019, Sectio Caesarea has reached 797 people and increased to 838 people in 2020.

Handling anxiety, changes in physiological responses, and sleep quality disorders in hospitals are usually done using sedative-hypnotic therapy (19,20) belonging to the class benzodiazepine (12). Drug-sedative drugs hypnotic are central nervous system depressants side effects to watch out for in their use. Drug-sedative hypnotics may lead to depression in the central nervous system, anterograde amnesia, and respiratory depression (20). Sedative drugs hypnotic can pass through the walls of the placenta and is excreted into breast milk, resulting in the use of drugs sedative-hypnotic are hazardous and can have a negative impact on the mother and baby (21).

Handling anxiety, physiological response disorders, sleep quality, and medical therapy can also use complementary therapies as complementary therapies for health service interventions. Complementary

therapy based on research by Dimitriou, Mavridou, Manataki, and Damigos is an alternative treatment option with minimal adverse effects and can provide psychological support (22). Complementary therapy is one form of implementation that can be carried out by nurses based on nursing intervention classification (NIC),(23) so that in its application and integration as a nursing care intervention, it is the primary responsibility of a nurse in its implementation (24).

Complementary therapies in nursing that can treat anxiety, physiological response disorders, and sleep quality consist of many types of treatment, one of which is music therapy(23). According to research by Denney et al. shows, music therapy consisting of a choice of classical, country, pop, R & B, gospel, and soft rock music given to the intervention group of post-operative patients Sectio Caesarea (n=25), with a volume of fewer than 80 decibels using portable mp3 and headphones during 30 minutes proved to be able to stabilize mood and reduce anxiety levels with a value significance of $p < 0.05$ (7).

A study shows that classical Mozart music therapy given to the post-operative intervention group Sectio Caesarea (n=15) for 30 minutes every day for three days using headphones and an MP3 player has been shown to reduce anxiety and prevent postpartum blues. with p -value = 0.000.(14).

Research by Lee, Wu, Lee, Ho, and Shih shows music therapy with 6 categories of selected music, namely natural sound music, piano, harp, orchestra, jazz, and synthetic, given for 30 minutes with a maximum volume of 60 dB using mp3 player and headphones the supplied. In the intervention group, post-operative patients with spinal anesthesia (n=50) were shown to reduce anxiety ($p < 0.001$), heart rate ($p = 0.012$), respiratory rate ($p = 0.026$), systolic blood pressure ($p = 0.026$), and blood pressure. diastolic blood ($p = 0.004$). (9) Karakul and Bolisik's study using classical music therapy for 20 minutes using an mp3 player and headphones given to the post-operative intervention group (n=65) was proven to reduce anxiety, pulse, systolic, and diastolic

blood pressure, and respiratory frequency(10).

A study applied Mozart classical music therapy for 30 minutes every night for two days using headphones and an MP3 player. It has been shown to improve the quality of sleep of post-operative patients by p -value = 0.000(11). A previous study showed that instrumental music therapy as a form of treatment given to 30 respondents for 30 minutes every day for three days was proven to provide a sense of calm and comfort to help ease sleep in post-major surgery patients with average test results. the results obtained p -value = 0.000.(12)

Research Rahman, Santoso, and show Sudirman music used as therapy should be familiar music are heard, distantly related to the patient's culture, values, and lifestyle. The use of traditional music sharing Kabayan given over 30 minutes using a digital primary audio player and headphones proved to reduce pain experienced by patients with acute myocardial infarction ($p = 0.005$)(25). Irman, Nelista, and Keytimu showed that traditional gong waning music therapy given for 30 minutes every morning for three days using an mp3 player and headphones effectively reduced anxiety significantly in patients with acute coronary syndrome with a p -value = 0.000(26).

There are various types of traditional Indonesian music. One of them is a musical instrument that is familiar to hear and is characterized by the culture of the Dayak tribe from Kalimantan called the sape(27). Sape is a traditional musical instrument standard for the Dayak people who live in all provinces on the island of Kalimantan and the Sabah and Sarawak regions of Malaysia. Researchers have never been studied as a complementary therapy in the health sector. Haryanto, in his book "Dayak Music: A Travel Note in the interior of Kalimantan," reveals a few sources of reference that he can use in researching sape music(27).

Sape, as a traditional musical instrument with a unique and melodic sound, is classified as a chordophone and stringed instrument that has similarities to a conventional Sundanese musical instrument

called the kecapi(28). Based on the research of Sepriyani, Mulyani, and Diana, Kecapi effectively reduces pain in post-operative patients surgery Sectio Caesarea (n=50) after being given traditional Sundanese flute music therapy for 15 minutes using a digital primary audio player and headphones with p-value = 0.000(29). Research by Alamsah, Rahayuwati, and Purba showed that flute harp therapy given two times a day for 30 minutes for two weeks was effective in reducing anxiety in chronic kidney failure patients undergoing hemodialysis (p<0.005).(30)

The application and integration of music therapy as part of nursing care by a nurse can be made by applying behavior caring. Based on research by Lumbantobing, Adiningsih, Praptiwi, and Susilaningsih, Caring is central in nursing practice that uses a nurse's dynamic, caring, empathetic, and caring approach (31). Research by Valentina, Susilaningsih, and Dadi shows that caring in practice is always based on the values of kindness, concern, and compassion so that it can ease the burden on patients and families, improve health and dignity, and can increase the self-actualization of the nurses themselves(32).

Based on the identification and evaluation described, the researchers were interested in carrying out research into the use of musical instruments sape as a complementary therapy. It could reduce anxiety, cope with changes in physiological responses such as changes in blood pressure, pulse, and respiratory rate and improve the quality of sleep in patients post-operation section caesarian.

Objective

This study aims to examine the effectiveness of "sape" music therapy on anxiety changes, physiological responses, and sleep quality among patients with post-operation Sectio Caesarea.

Methods

Design

The true experimental, pre-test, and post-test with non-equivalent control group

design was applied in this study. Researchers divided into two groups, including the intervention group who received "sape" music therapy and routine nursing care in the midwifery room. In contrast, the control group only received routine nursing care without "sape" music therapy.

Instrument

Measurement of anxiety levels using the assessment sheet instrument Hamilton rating scale for anxiety (HARS), examination of physiological responses by examining vital signs (blood pressure, pulse, and respiration), measuring sleep quality with a sleep quality questionnaire while for pain using an instrument. Numeric Rating Scale (NRS). Measurement of anxiety level, physiological response, sleep quality, and respondent's pain was done before and after treatment (pre-test and post-test).

Sample and Sampling Technique

The population in this study were all post-operative Sectio Caesarea patients in the obstetrics ward of Ade Muhammad Djoen Sintang Hospital. Determination of the minimum sample size using the technique of non-probability sampling with method simple random sampling. After selecting the samples using the inclusion and exclusion criteria. We included 42 respondents, which is divided into two groups such as 21 respondents in the intervention group ("sape" music therapy and routine nursing care in the obstetrics room) and 21 respondents for the control group (routine nursing care without "sape" music therapy).

Intervention

Music therapy "sape" is a stringed instrument typical of the Dayak tribe from Kalimantan, which has a unique and melodious sound, one of Indonesia's original traditional music. The sape's musical instrument visually resembles a boat, complete with its distinctive carvings, making it unique considering that boats are the primary means of transportation for the people of Kalimantan. Sape is classified as a type, *chordophone*, a group of musical

instruments whose sound source comes from the primary material, which can be in the form of strings or strings being stretched(33). Giving intervention to respondents in sound recordings from the musical instrument "sape" with a sound intensity of 58-64 dB, delivered two times a day for 30 minutes within two days.

Data Analysis

In this study, researchers collected data using observation, identification, interviews, and filling out observation sheets. The collected data were analyzed through the IBM SPSS version 24.0 program and followed by a different test, namely the parametric test (Repeated Measure ANOVA). The processed data is used as a basis for discussing the statement problem, which is then presented in tabular form so that conclusions can be drawn.

Ethical consideration

Prior to nursing action, this research has passed the proposal test stage. It has permission to conduct research by submitting *ethical clearance* to the Bioethics Commission for Medical / Health Research, Faculty of Islamic University Sultan Agung Semarang and taking care of a cover letter for research permits from Poltekkes, Ministry of Health Semarang, which is addressed to the Director Ade Muhammad Djoen Sintang Hospital. Next, conduct expert consultations with those who are experts in their fields.

Results

Characteristic of respondents

Based on the table above, data obtained that age, ethnicity, pregnancy history, childbirth history, miscarriage history, and cesarean section frequency in the intervention group and the control group had the same significant p-value >0.05, meaning the same or homogeneous.

Mean difference of anxiety levels between the intervention and control groups

The table above shows a significant difference in the mean decrease in anxiety

levels before and after treatment between the intervention group and the control group with a p-value <0.05. In conclusion, the intervention group reduced anxiety levels than the control group.

Table 2 The mean difference of anxiety levels between the intervention and control groups

Variable	Group	Mean ± SD	P
Anxiety pre-test	Intervention	22.52±2.400	0.949
	Control	22.48±2.358	
Anxiety post day 1	Intervention	11.33±1.197	0.000
	Control	14.43±1.535	
Anxiety post day 2	Intervention	7.67±1.017	0.000
	Control	11.29±1.007	

*Repeated Anova Test **Parameter Estimates

The mean difference of systolic blood pressure between the intervention and control groups

The table above shows that there is no significant difference in the mean decrease in systolic blood pressure before and after treatment between the intervention group and the control group with a p-value > 0.05. However, even so, the "sape" music therapy given to the intervention group can maintain the stability of systolic blood pressure to remain in normal conditions.

Table 3 The mean difference of systolic blood pressure between the intervention and control groups

Variable	Group	Mean ± SD	P
SBP pre-test	Intervention	114.19±10.501	0.686
	Control	112.76±12.173	
SBP post day 1	Intervention	117.62±7.845	0.647
	Control	116.29±10.664	
SBP post day 2	Intervention	112.86±5.534	0.138
	Control	115.48±5.680	

*Repeated Anova Test **Parameter Estimates

Table 1 Characteristic of respondents among the intervention and control group

Characteristics		Intervention (n=21)			Control (n=21)			p
		Σ	%	Mean ± SD	Σ	%	Mean ± SD	
Variable	Group			35.86 ± 4.757			26.19 ± 5.963	0.201
Diastolic blood pressure (16-25)	Intervention	11	52.4	71.95 ± 5.336	11	52.4		
Diastolic blood pressure (26-35)	Control	8	38.1	71.90 ± 6.940	8	38.1		
Late adult (36-45)	-	2	9.5	-	2	9.5		
Diastolic blood pressure post day 1	Intervention	21	100	73.71 ± 5.071	21	100		
	Control	17	81	73.19 ± 4.179	17	81		
Ethnic				1.48 ± 0.512			1.52 ± 0.512	1.000
Diastolic blood pressure (post China)	Intervention	10	47.6	72.95 ± 4.430	10	47.6		
	Control	11	52.4	73.00 ± 4.623	11	52.4		
Total		21	100		21	100		
Pregnancy history				1.76 ± 0.700			1.76 ± 0.700	1.000
Primigravida		8	38.1		8	38.1		
Multigravida		13	61.9		13	61.9		
Total		21	100		21	100		
Childbirth history				1.67 ± 0.730			1.67 ± 0.730	1.000
Never		8	38.1		8	38.1		
1 time		10	47.6		10	47.6		
2 time		3	14.3		3	14.3		
Total		21	100		21	100		
Miscarriage history				1.14 ± 0.359			1.14 ± 0.359	1.000
Never		18	85.7		18	85.7		
1 time		3	14.3		3	14.3		
Total		21	100		21	100		
Section frequency	Caesarea			1.05 ± 0.218			1.05 ± 0.218	1.000
Never		20	95.2		20	95.2		
1 time		1	4.8		1	4.8		
Total		21	100		21	100		

The Repeated Measure Anova test (test of between-subject effects) in intervention and control groups

*Repeated ANOVA test

Table 4 The mean difference of blood pressure diastolic between the intervention and control groups

Variable	Measurement	Group	Type III Sum of Squares	Df	F	P
Anxiety	Between-group	Intervention and control	155.556	1	30.084	0.000
Systolic blood pressure	Between-group	Intervention and control	0.071	1	0.000	0.984
Diastolic blood pressure	Between-group	Intervention and control	0.960	1	0.014	0.905
Pulse	Between-group	Intervention and control	50.794	1	1.027	0.317
Respiratory rate	Between-group	Intervention and control	24.008	1	2.108	0.154
Sleep quality	Between-group	Intervention and control	84.198	1	8.798	0.005

*Repeated Anova Test **Parameter Estimates

The table above shows no significant difference in the mean decrease in diastolic blood pressure before and after treatment between the intervention and control groups with a p-value > 0.05. However, even so, the "sape" music therapy given to the intervention group can maintain the stability of diastolic blood pressure to remain in normal conditions.

Table 5 The mean difference of pulse between the intervention and control groups

Variable	Group	Mean ± SD	P
Pulse pre-test	Intervention	76.00±4.099	0.941
	Control	76.10±4.218	
Pulse post day 1	Intervention	82.48±4.191	0.945
	Control	82.38±4.674	
Pulse post day 2	Intervention	75.43±3.867	0.004
	Control	79.24±4.218	

*Repeated Anova Test **Parameter Estimates

The table above shows a significant difference in the mean pulse rate before and after treatment between the intervention group and the control group on day 2 with a p-value <0.05. In conclusion, the intervention group was very good at maintaining the stability of the pulse to remain in normal conditions compared to the control group.

Table 6 The mean difference of respiratory rate between the intervention and control groups

Variable	Group	Mean±SD	P
Respiratory pre-test	Intervention	19.00±2.049	0.940
	Control	19.05±2.037	
Respiratory post day 1	Intervention	17.10±1.972	0.037
	Control	18.43±2.039	
Respiratory post day 2	Intervention	16.71±1.765	0.035
	Control	17.95±1.910	

*Repeated Anova Test **Parameter Estimates

The table above shows a significant difference in the average respiratory frequency before and after treatment between the intervention group and the control group with a p-value <0.05. In conclusion, the intervention group was very good at maintaining the stability of the respiratory rate to remain in normal conditions compared to the control group.

Table 7 The mean difference of sleep quality between the intervention and control groups

Variable	Group	Mean±SD	P
Sleep quality pre-test	Intervention	12.10±2.047	0.821
	Control	11.95±2.012	
Sleep quality post day 1	Intervention	16.76±1.446	0.001
	Control	14.81±1.887	
Sleep quality post day 2	Intervention	18.81±1.436	0.000
	Control	16.00±1.975	

*Repeated Anova Test **Parameter Estimates

The table above shows a significant difference in the mean quality of sleep before and after treatment between the intervention group and the control group with a p-value <0.05. In conclusion, the intervention group was better at improving sleep quality than the control group.

Based on table 8 from the results of the repeated ANOVA test, the p-value <0.05. It was indicated that there are significant differences in the value of anxiety levels, pulse rate, respiratory frequency, and sleep quality in post-operative Sectio Caesarea patients between the intervention group and the control group. On the other hand, there is no significant difference between systolic blood pressure and diastolic blood pressure with a p-value > 0.05. However, "sape" music therapy given to the intervention group was able to maintain the stability of systolic and diastolic blood pressure to remain in normal conditions.

Discussion

The Repeated ANOVA test obtained a p-value <0.05, meaning significant differences in the value of anxiety levels, pulse rate, respiratory frequency, and sleep quality in post-operative Sectio Caesarea patients between the intervention and control groups. On the other hand, there is no significant difference between systolic blood pressure and diastolic blood pressure with a p-value > 0.05. However, "sape" music therapy given to the intervention group was able to maintain the stability of systolic and diastolic blood pressure to remain in normal conditions.

The decrease in anxiety occurs because the "sape" music therapy provides a sense of comfort and relaxation. It can reduce

the release of the hormones epinephrine, norepinephrine, and dopamine which can cause stress. Another study shows that music therapy can provide comfort to patients because the rhythm, tone, and intensity of the incoming music will affect the limbic system and stimulate alpha brain waves which produce a sense of comfort. Then stimulates the parasympathetic nervous system to inhibit the action of the sympathetic nerves. This reduces adrenal corticotrophic hormone (ACTH) to suppress the hormone epinephrine, norepinephrine, and dopamine, leading to stress (34). the brain will be in beta waves that can affect the human subconscious, making people feel more relaxed(35-36).

"Sape" music therapy that is given can also affect the neuroendocrine system. Secretion hormones and chemicals into the blood by reducing catecholamines such as epinephrine and norepinephrine from the adrenal medulla. Blood pressure is within normal limits with systolic BP <120 mmHg and diastolic BP <80 mmHg. According to Natalina, the effect of music on the autonomic nervous system (sympathetic and parasympathetic nerves) is to produce a relaxation response in the body, and the characteristics of the relaxation response include a decrease in blood pressure, decreased pulse rate, relaxation of muscles including the heart and respiratory muscles and sleep (37).

"Sape" music therapy can cause a decrease in pulse rate because the effect of music on the autonomic nervous system (sympathetic and parasympathetic nerves) is to produce a relaxation response in the body and the characteristics of the relaxation response that occur, one of which is a decrease in pulse frequency. Natalina revealed that the neuroendocrine system affects maintaining the balance of the body through the secretion of hormones and chemicals into the blood. Relaxing could reduce catecholamines such as epinephrine and norepinephrine from the adrenal medulla, decreasing pulse frequency(37).

The decrease in the respiratory rate in the intervention group was more effective

than the control group because music therapy on the neuroendocrine system affects maintaining body balance through the secretion of hormones and chemicals into the blood by reducing the release of catecholamines as epinephrine and norepinephrine from the adrenal medulla. So that there is a decrease in respiratory frequency. According to Natalina, music affects the autonomic nervous system (sympathetic and parasympathetic nerves) by producing a relaxation response in the body. One of the relaxation response characteristics that occurs is a decrease in respiratory frequency(37).

The "sape" music therapy given affects the neuroendocrine system. The maintenance of body balance by secretion of hormones and chemicals into the blood by reducing the release of catecholamines such as epinephrine and norepinephrine from the adrenal medulla provides a relaxing effect that can increase efficiency. Sleep quality and improved sleep quality from poor to good category with a score above the average of 18(38). Based on the research of Feng et al. and Natalina, the effect of music on the autonomic nervous system (sympathetic and parasympathetic nerves) is to produce a relaxation response in the body so that it can improve sleep quality(37).

Conclusion

Based on data processing and analysis regarding the effectiveness of "sape" music therapy as an alternative to complementary therapy. it can be concluded that the average values of anxiety levels, pulse rate, respiratory frequency, and sleep quality between the intervention group and the control group were significantly different from those of the control group. p-value <0.05. On the other hand, there was no significant difference between systolic blood pressure and diastolic blood pressure with a p-value >0.05. In conclusion, the intervention group was better at reducing anxiety levels, stabilizing pulse and respiratory rates to keep them normal, and improving sleep quality than the control group. Although there was no statistical difference in blood pressure

values, "sape" music therapy effectively maintained stable blood pressure within normal limits.

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