

Health Polytechnic of Palangka Raya

A Heritage of Healing: Traditional Song and its Anxiety- Mitigating Effects During Pregnancy

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A Heritage of Healing: Traditional Song and its Anxiety-Mitigating Effects During Pregnancy

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Abstract

Introduction: Pregnancy is a period of profound physiological and emotional transformation, often leading to heightened **anxiety** due to hormonal shifts, body image changes, and the anticipation of motherhood. This anxiety can significantly impact both maternal and fetal well-being. Recognizing the need for effective interventions, non-pharmacological approaches like **music therapy** are gaining traction due to their low risk of side effects. This study highlights the historical use of music for relaxation and its ability to influence physiological responses, such as hormone release. Specifically, it introduces the **Sape' Dayak**, a traditional Indonesian instrument known for its calming qualities, as a potential therapeutic tool. While Sape' music has cultural significance, its specific efficacy in reducing anxiety in pregnant women remains under-researched.

Objectives: This study attempts to address the gap by investigating whether Sape' Dayak music can reduce anxiety levels in pregnant mothers as successfully as traditional lullabies, therefore promoting holistic health practices and maintaining cultural heritage.

Methods: Thirty-two pregnant women will be recruited from midwifery clinics. A total of 16 pregnant women will receive the traditional Sape' Dayak music, while another 16 pregnant women will undergo the lullaby music therapy. Following a non-randomized design, we will collect data on an anxiety assessment using the PASS before and after the music intervention. Data will be analysed using the linear mixed model.

Keywords: anxiety, pregnancy, music therapy, lullabies, traditional music, mental health

1. Introduction

A woman's life undergoes significant transformation during the gestational period, which is characterized by a symphony of physiological and emotional adaptations designed to support the growing fetus (1). These substantial changes could have far-reaching effects, affecting not only the woman's physical health but also her emotional and psychological stability (2). The increase of hormones, the changing perceptions of body image, and the expectation of motherhood together create a unique emotional environment, resulting in pregnant women possibly being more susceptible to increased levels of anxiety (3). This sensitivity is worsened by worries about the pregnancy, the fetus's health, and the labor and delivery process. Anxiety during pregnancy is a common experience, frequently arising from the numerous uncertainties and challenges associated with this phase of life, and it can have significant repercussions, affecting both the mother and the developing child (4). The occurrence of anxiety disorders during pregnancy highlights the necessity for effective intervention strategies, particularly considering the potential long-term effects on both maternal and offspring well-being (5).

Diverse therapeutic approaches have emerged in response to the urgent need for successful solutions, including psychosocial support, alternative therapies, and pharmacological interventions. There is an increasing interest in non-pharmacological interventions, like music therapy, which have shown effectiveness in alleviating anxiety and fostering relaxation during pregnancy (6). Non-pharmacological interventions are especially attractive because they carry a low risk of negative side effects for both the mother and the developing fetus. Music therapy has become acknowledged as a gentle and approachable method that can successfully reduce anxiety and promote relaxation during pregnancy. Mindfulness-based approaches are preferred for managing stress and improving well-being during pregnancy (7). Relaxation techniques are essential for minimizing or preventing the potential negative impacts of maternal stress (8). In addition to standard therapeutic methods, there is increasing acknowledgement of the advantages of traditional cultural practices, including lullabies and traditional songs, for improving maternal well-being during pregnancy.

According to Ni Gusti Made Ayu Agung Budhi and Sasnitiari (9), music therapy is a non-pharmacological method that can help with pain relief, stress reduction, and anxiety reduction, particularly during childbirth. This is true regardless of the mother's age, education level, religion, socioeconomic status, number of children, or social support. Music has been utilized as a means of relaxation since ancient times, with historical evidence indicating its presence

across various cultures. It is known to generate positive sensory stimuli that can trigger endorphin release (10). Music influences the parasympathetic nerve and autonomic nervous system, either directly or indirectly (10). Listening to music exerts a soothing and uplifting effect on individuals and positively influences unborn babies. The beneficial sound from music facilitates prenatal stimulation, aiding pregnant mothers in bonding with their unborn children (11). Music can influence hormone release, as relaxing music has been shown to reduce cortisol levels and may also affect other hormones associated with stress and well-being. Research indicates that family-centered music therapy positively impacts the well-being of parents and infants in neonatal intensive care units (12). Music during labor correlates with reduced pain and anxiety levels, along with lower postpartum analgesic needs (13).

With its origins in cultural history, traditional music contains unique rhythmic patterns and aural structures that may influence both mental and physical states, making it a desirable choice for treating anxiety. Traditional music serves as a tool for alleviating anxiety symptoms and promoting relaxation through the integration of culturally relevant sounds in therapeutic environments (14). Known for its gentle, contemplative sounds, the Sape is a traditional Dayak musical instrument from East Kalimantan, Indonesia. The Sape' has historically been integral to Dayak healing rituals, spiritual offerings, and community entertainment. It conveys family history and cultural values as a sign of Dayak identity. With its delicate tones and repeating rhythms, the Sape' creates pentatonic melodies that promote healing and relaxation while fostering a calm, reflective, and emotionally calming environment. The cultural significance is well-established, and there is increasing acknowledgment of its potential therapeutic benefits, particularly in reducing anxiety. Because pregnancy frequently causes increased anxiety, research into non-pharmacological techniques like music therapy—like those utilizing the Sape'—is essential for the well-being of expectant mothers. Thus, examining the potential of Sape' Dayak to reduce anxiety in expectant mothers advances the study of holistic health therapies as well as the preservation of cultural heritage.

Discussions on the Sape' Dayak in academia and culture today mostly center on its cultural value, gender roles in its performance, and its changing position in modern society. A significant gap remains in the research on the therapeutic applications of Sape' music. Particularly, there is a scarcity of research that investigates the potential of traditional Dayak music, including the Sape', to enhance mental health, particularly in the context of maternal health, by reducing anxiety. This gap signifies an overlooked opportunity to integrate cultural

heritage with modern healthcare practices. While Nadia Anjani, Amir Razak (15) propose that Sape' music possesses anxiety-reducing properties, this claim necessitates additional empirical investigation, particularly in specific populations such as expectant women.

This study seeks to examine the efficacy of Sape' Dayak music in alleviating anxiety among pregnant women. The primary goals are to ascertain whether the anxiety levels of expectant women are similarly influenced by exposure to Sape's Dayak music as they are by conventional lullaby instruments.

2. Materials and Methods

2.1. Study design

This study is a quasi-experiment with a control group and is conducted in alignment with the JBI standard, published in 2020 (16). Pre- and post-tests are conducted to assess the effects of the music therapy.

2.2. Study participants

This study will involve 32 pregnant women who will receive standard antenatal care (ANC). All of them are ANC visitors at midwifery clinics between 1 February and 30 April 2025. A total of 16 pregnant women will receive the traditional Sape' Dayak music, while another 16 pregnant women will undergo the lullaby music therapy.

Participants will be recruited during their third trimester of pregnancy (28-40 weeks). They will be eligible if they are 1) at least 18 years old, 2) having a score on the Pittsburgh Sleep Quality Index (PSQI) > 5 , which indicates poor sleep quality, and 3) primiparous. Exclusion criteria included women who 1) are beyond the 40th week of pregnancy; 2) have mental illness that causes hallucinations or altered perception of reality; or 5) have a twin pregnancy.

Sample size is estimated by applying these parameters as follows: The effect size is considered to be 0.52 (17), with a power of 0.8 and a 0.05 level of significance. Sample size calculations for comparing the two independent means (18) indicates each group requires 14 participants. For dropout anticipation, we add an extra 10% of participants. Two participants are withdrawing due to preterm delivery ($n=2$). The test power is maintained by recruiting new participants.

2.3. Procedures

During the study period, trained assistants will approach potential pregnant women who attend midwifery clinics, and the 32 women are assessed for eligibility for the study by the research assistant. Firstly, women who will meet the inclusion criteria will be informed of the aim and content of the study, and their written informed consent will be obtained prior to the experiment. After inclusion in the study, participants ($n = 32$) will be purposefully allocated, with the rules that those who visit midwifery clinic A will be grouped in the intervention group (IG) ($n = 16$), while the control group (CG) ($n = 16$) will be made up of those who visit midwifery clinic B. The distance between clinics is 15 km, which minimizes interactions between participants in the two groups. The IG will listen to Sape' Dayak while gently massaging their abdomens and imagining their infants. The lullaby of Brahms will be played for the CG, who will also touch gently on the tummy and remind of their unborn children. Each piece of music will be performed for 20 minutes. Respondents will be instructed to wear earphones to listen to the music. The experiment will be conducted between 08:00 and 11:00 post-breakfast, during which no medical care, diagnostic assessments, or normal follow-ups are performed. Throughout the experiment, they will maintain standard care and treatments. The main investigator at the clinic will manage all practices that could potentially influence the study.

The participants will not interact with the researchers administering the intervention unless they receive important information about the experiment to minimize confounding effects on the research outcomes. The intervention will be conducted by the same assistant. The assistants and participants will not be blinded to the research given the characteristics of the music intervention. To avoid patient interaction between the two groups, the intervention will be carried out in each pregnant woman's home while she is comfortably seated in a chair in her room.

2.4. Lullaby intervention

The Sape' Dayak recital consists of only one song, which will be played for a duration of 20 minutes. This traditional Dayaknese song creates melodies with a pentatonic subtlety, a five-note scale popular in traditional Asian music, particularly the Indonesian archipelago. This musical scale leaves a simple yet profound effect, fostering a serene, contemplative, and emotionally relaxing environment. Sape's music has a contemplative quality due to its mild

sound and repeating beat, making it ideal for relaxation and healing, as well as anxiety relief (15).

While the Sape Dayak song is a traditional instrument, the lullaby recital is a popular instrument in the world. The lullaby recital consists of 1 song composed by Johannes Brahms, which will be played for a duration of 20 minutes. The lullabies preselected by the researcher are among the best-known ones. The lyrics of this lullaby typically revolve around themes of love and affection, which express mothers' love and tenderness for their fetus. To provide a homogeneous intervention and to avoid bias, the personal lullaby preferences of the pregnant women will be ignored. However, we will report the mothers' habit of listening to other music.

For three consecutive days, the IG will utilize a music device to listen to the Sape' Dayak for 20 minutes each day. The Sape' Dayak has a slow rhythm (the beat fluctuates from 80 to 85 beats per minute, measured by a metronome), which corresponds to the normal heart rate. Each participant will receive an earphone. Evidence has shown that listening to music for relaxation therapy can last practically from 10 to 60 minutes (19-23). In accordance with the findings of the study, a length of 20 minutes will be established. Respondents will be directed to compile a personal preference playlist for relaxation, which will be subsequently saved on the paid Spotify platform. Participants will be instructed to listen to the lullaby while reflecting on their babies and engaging in physical connection by touching their abdomen. The intervention will be conducted in the participants' homes, at times when they will be available and feel prepared. The door and windows of the room will be closed to ensure the participants' privacy. Participants will be instructed to have an empty bladder, turn off their cell phones, and refrain from receiving medical treatment during the intervention. Respondents in the CG will be directed to listen to Brahms' lullaby following the same procedure.

To ensure participants compliance, the Trackify music tracking app will be used, and research assistants will collect the time of playing from the app upon completion of the session.

2.5. Outcome Measurements

The assessment of participants' characteristics (i.e., age, gestational age, parity, abortus history, health insurance, income per month, pregnancy complication, hospital admission history, smoker presence, and listening to music) will be measured at baseline. The level of anxiety will be assessed by using the Perinatal Anxiety Screening Scale (PASS) adapted from Somerville, Dedman K Fau - Hagan (24). It will be created to identify a wide variety of anxiety symptoms

that are particularly significant to perinatal women and comprises four assessment subscales, including acute anxiety and adjustment; general concern and specific fears; perfectionism, control, and trauma; and social anxiety. Furthermore, thirty-one items will be applied to assess the subjective anxiety, rated with the Likert scale ranging from 0 to 3 (0 refers to not at all, 1 = little, 2 = moderately, and 3 = very much). The application of the PASS has been evident to be valid and reliable both in the English version (25) and the Bahasa version (26). The score system will be assessed based on the sum of the individual item scores, with 26 as the cut-off score, which indicates clinically significant anxiety (25). From the scores, they will be categorized into minimal anxiety (0-20), mild-moderate anxiety (21-26), and severe anxiety (>26). The PASS in this current study will be evaluated before and after intervention.

2.6. Data analysis

All statistical analyses will be conducted employing the IBM SPSS v.26 statistics software (SPSS Inc., Chicago, USA). The alpha level will be set up at $p < 0.05$ (two-tailed). A descriptive analysis of the major study variables will be conducted. For the quantitative numeric, the means, standard deviations, and confidence intervals will be computed. The Shapiro-Wilk test will be employed to assess data normality. The student's t-test will be employed to analyze differences between groups for anthropometric and confounding variables. The medians, maxima, and minima will be applied when the distribution is non-normal. In addition, the chi-square test or Fisher's exact test will be used for categorical variables. Multivariate analysis will be carried out with a linear mixed model for additional analysis.

2.7. Ethics approval

Our research was approved by the Research Committee of the Health Polytechnic of Palangka Raya (Polkesraya), number 470/II/KE.PE/2025. All participants will give signed informed consent prior to taking part in the study.

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Informed Consent Form for Participation in a Research Study

Study Title: A Heritage of Healing: Traditional Song and its Anxiety-Mitigating Effects During Pregnancy

Version Date: July 12, 2025

Introduction and Purpose of the Study

You are invited to participate in a research study aimed at understanding how traditional music can help reduce anxiety during pregnancy. Pregnancy is a special time, but it can also bring feelings of worry. This study explores whether listening to certain types of music, specifically traditional Dayak Sape' music or traditional lullabies, can help pregnant women feel less anxious.

Your participation is entirely voluntary. Before you decide, please read this form carefully. It explains why we are doing this study, what will happen if you take part, what the possible benefits and risks are, and your rights as a participant. Please ask the study team any questions you have.

What will happen if I participate?

If you agree to participate, you will be part of a study involving 32 pregnant women. We will first assess your anxiety levels using a questionnaire called the Perinatal Anxiety Screening Scale (PASS). This scale has 31 questions asking about your feelings and worries.

You will then be assigned to one of two study groups:

1. Group 1: Traditional Sape' Dayak Music Listening

- You will listen to one traditional Dayak Sape' song through earphones for 20 minutes each day.
- This will happen for three consecutive days.
- While listening, you will be asked to gently massage your abdomen and imagine your baby.
- The music has a slow, calming rhythm (80-85 beats per minute).

2. Group 2: Brahms' Lullaby Music Therapy

- You will listen to one preselected Brahms' Lullaby song through earphones for 20 minutes each day.
- This will also happen for three consecutive days.
- While listening, you will be asked to gently touch your tummy and reflect on your unborn child.

All music sessions will take place in your home, in a private and comfortable setting, between 8:00 AM and 11:00 AM after breakfast. We will ask you to turn off your cell phone and ensure no medical treatments or other distractions occur during the session.

After the three-day music intervention, we will again assess your anxiety levels using the same PASS questionnaire. This post-intervention assessment will be conducted approximately 20 minutes after your last music session.

How long will I be in the study?

Your active participation in the study, including the pre-assessment, three days of music listening, and the post-assessment, will last approximately **three days**, with about 20 minutes of active participation per day.

Risks and Discomforts

We do not anticipate any significant risks or major discomforts from participating in this study.

- **Mild Discomfort:** You might experience mild boredom or discomfort from listening to the music if it's not to your personal preference, or from sitting for 20 minutes.
- **Emotional Responses:** Music can sometimes evoke emotions. While the selected music is intended to be calming, it is possible, though unlikely, that it might trigger unexpected emotional responses in some individuals. If you feel any distress, you are free to stop at any time.
- **Confidentiality Risk:** As with any research, there is a minimal risk of a breach of confidentiality, although we will take extensive measures to protect your privacy.

Benefits of Participation

You may not directly benefit from participating in this study. However, information gained from this study may help us better understand how traditional music and lullabies can help pregnant women manage anxiety. This understanding could lead to better non-pharmacological interventions for future pregnant women and contribute to the preservation of cultural health practices.

Confidentiality

Your privacy and the confidentiality of your data will be strictly protected.

- All information collected during this study will be kept confidential and will be identified only by a unique study code, not by your name.
- Any personal identifying information will be removed from your data as soon as possible.
- Study data will be stored securely on password-protected computers and in locked cabinets.
- The anonymized individual participant data (IPD) from this study may be shared with other qualified researchers in the future to further scientific discovery. This sharing will occur after the study's main results are published, and only under strict data use agreements that ensure your privacy is protected through de-identification and anonymization methods, as outlined in our study's data sharing plan. No information that could identify you will ever be shared.

Voluntary Participation and Right to Withdraw

Your decision to participate in this study is entirely voluntary. You are free to refuse to participate or to withdraw your consent and discontinue participation at any time, for any reason, without penalty or loss of benefits to which you are otherwise entitled. If you choose to withdraw, your decision will not affect your standard antenatal care.

Costs

There are no costs to you for participating in this study.

Who to Contact for Questions or Problems

If you have any questions about this research study, please feel free to contact the lead researcher:

Erina Eka Hatini
Midwifery Department, Health Polytechnic of Palangkaraya
Phone: +62812-5456-4640

If you have any questions about your rights as a research participant, or if you have concerns or complaints about the study, you may contact:

Research Committee of the Health Polytechnic of Palangka Raya (Polkesraya)
Yeni Lucin (Ethics Committee Coordinator)
+62 812-5087-359; Email: lucinyeni@polkesraya.ac.id
as per approval number 470/II/KE.PE/2025

Statement of Consent

I have read and understood the information provided in this consent form. I have had the opportunity to ask questions, and my questions have been answered to my satisfaction. I understand that my participation is voluntary and that I may withdraw at any time without penalty.

By signing below, I freely and voluntarily agree to participate in this research study.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Person Obtaining Consent Name: _____

Person Obtaining Consent Signature: _____

Date: _____