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The Effect of Classical Music Therapy on Anxiety of Pregnant Women in The Third Trimester

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Abstract:
Anxiety in primigravid women during the third trimester stems from multifactorial influences, including hormonal fluctuations, physical strain, and psychosocial pressures. Maternal anxiety remains a pressing public health issue, particularly in regions with high maternal mortality rates. Non-pharmacological approaches, such as classical music therapy, offer promising solutions for reducing anxiety in antenatal care. This study aims to determine the effect of classical music therapy on anxiety in pregnant women in the third trimester. This study used a quasi-experimental method with a one-group pretest-posttest design. Sampling was done using total sampling with a sample size of 35 pregnant women. The instrument used the PASS (Perinatal Anxiety Screening Scale) questionnaire. Data analysis used the Wilcoxon Sign test. The dependent variable was anxiety in pregnant women in the third trimester. The independent variable was music therapy. The univariate results of the average anxiety in pregnant women in the third trimester before intervention were 51.17, and after intervention, it was 31.89. The Wilcoxon Test results show a P value of 0.0001, meaning that there is an effect of anxiety on pregnant women before and after being given classical music therapy. There is an effect of classical music therapy on anxiety in pregnant women in the third trimester. It is hoped that pregnant women who experience anxiety can do classical music therapy to relieve their anxiety.

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INTRODUCTION

Pregnancy, defined as the process of carrying a developing embryo and fetus within the uterus over approximately nine months, involves complex physiological and psychological changes (Swanson & Liu, 2021). The third trimester, spanning weeks 28 to 40, marks a critical phase characterized by heightened physical discomfort and emotional vulnerability as women prepare for childbirth (Swales et al., 2023). This period often triggers significant anxiety due to uncertainties about labor, maternal responsibilities, and fetal well-being (Yılmaz et al., 2021). Addressing anxiety during this stage is crucial, as prolonged psychological stress can compromise maternal health and fetal development, necessitating effective non-pharmacological interventions (Domínguez-Solís et al., 2021; Nurhasanah et al., 2024).

Anxiety in primigravid women during the third trimester stems from multifactorial influences, including hormonal fluctuations, physical strain, and psychosocial pressures (Riddle et al., 2023). As first-time mothers, these women face unique challenges, such as fear of labor pain, concerns about neonatal health, and apprehension about transitioning into parenthood (Wilska et al., 2021). This emotional distress manifests as heightened vigilance, sleep disturbances, and somatic symptoms,

which may exacerbate stress-related complications (Saur et al., 2021). Without proper management, chronic anxiety can disrupt the delicate balance of maternal-fetal physiology, increasing risks for adverse outcomes (Tadanki et al., 2025).

Maternal anxiety remains a pressing public health issue, particularly in regions with high maternal mortality rates, such as Indonesia (Damayanti et al., 2023; Fikriyah et al., 2023). Elevated stress levels during pregnancy have been linked to impaired neurodevelopmental outcomes in offspring, affecting cognitive, emotional, and behavioral trajectories into childhood (Zhang et al., 2023). Furthermore, anxiety-induced physiological responses, such as increased cortisol secretion, may predispose mothers to preeclampsia, preterm labor, and cesarean delivery (Elgmal et al., 2023). These risks underscore the urgency of implementing accessible, culturally appropriate interventions to mitigate maternal stress in resource-limited settings (Khan et al., 2023).

The psychological burden of the third trimester directly impacts labor progression and neonatal health (Răchită et al., 2021). Anxious mothers often experience prolonged labor due to disrupted hormonal cascades, such as inhibited oxytocin release, and may require medical interventions like induction (Walter et al., 2021). Additionally, chronic stress compromises fetal oxygenation and nutrient supply, increasing the likelihood of intrauterine growth restriction, low birth weight (LBW), and preterm birth. These complications not only threaten neonatal survival but also impose long-term health and developmental challenges, perpetuating cycles of poor perinatal outcomes (Joo et al., 2020).

Non-pharmacological approaches, such as classical music therapy, offer promising solutions for reducing anxiety in antenatal care (Rahimi & Moenimehr, 2022). Rooted in the therapeutic effects of auditory stimulation, classical music—characterized by harmonious melodies and rhythmic patterns—has been shown to activate parasympathetic nervous system responses, promoting relaxation and emotional stability (Xiao et al., 2023). Studies suggest regular exposure to classical compositions, such as Mozart or Bach, lowers cortisol levels, heart rate, and blood pressure, alleviating stress without adverse side effects. This modality aligns with holistic healthcare models, emphasizing patient-centered, cost-effective strategies (Mikulis et al., 2021).

Classical music therapy supports maternal adaptation by fostering mindfulness and emotional resilience (Okyay & Uçar, 2023). Redirecting focus from stressors to soothing auditory stimuli facilitates mental relaxation and reduces intrusive thoughts about labor or parenting uncertainties (Pant et al., 2021). The rhythmic structure of classical music may also synchronize with fetal heart rate patterns, promoting intrauterine calmness and potentially enhancing neurosensory development. Such benefits highlight its dual role in safeguarding maternal and fetal well-being, particularly for primigravid women navigating the complexities of late-stage pregnancy (Pino et al., 2022).

Given the global prevalence of perinatal anxiety and its ramifications, integrating classical music therapy into routine prenatal care warrants rigorous investigation (Shafqat et al., 2024). This study explores its efficacy in alleviating third-trimester anxiety among primigravid women, contributing evidence-based insights to maternal mental health practices. By validating non-invasive interventions, healthcare providers can empower expectant mothers to navigate the final stages of pregnancy with greater emotional equilibrium, ultimately improving maternal and neonatal outcomes worldwide.

METHOD

This study employed a quantitative quasi-experimental design with a one-group pretest-posttest approach to evaluate the impact of classical music therapy on anxiety levels among

primigravid women in their third trimester. The population comprised all primigravid women aged 28–40 weeks of gestation attending antenatal care at UPTD Puskesmas Jomin, Kotabaru Subdistrict, Karawang Regency, Indonesia, between December 2024 and January 2025. A total sampling technique was applied, selecting 35 participants who met predefined inclusion and exclusion criteria, such as singleton pregnancy, absence of psychiatric disorders, and no prior exposure to music therapy. The intervention was conducted at UPTD Puskesmas Jomin, located at Jl. Rajawali 56, Jomin Barat Village, ensuring accessibility and consistency in the study environment.

The primary instrument for data collection was the validated Perinatal Anxiety Screening Scale (PASS) questionnaire, which assesses multidimensional aspects of anxiety specific to the perinatal period. The dependent variable was maternal anxiety levels, while the independent variable was classical music therapy administered via headphones for 30 minutes daily over two weeks. Participants listened to structured classical music compositions (e.g., Mozart, Beethoven) selected for their calming rhythmic patterns. Data analysis utilized the Wilcoxon signed-rank test to compare pre- and post-intervention anxiety scores, with statistical significance set at $p \leq 0.05$. This non-parametric test was chosen to account for potential deviations from normality in small-sample distributions.

Ethical approval was obtained from the Bachelor of Midwifery Study Program at Universitas Nasional Jakarta, ensuring adherence to ethical standards for human research. Written informed consent was obtained from all participants, emphasizing voluntary participation, confidentiality, and the right to withdraw. The study aimed to provide evidence-based insights into non-pharmacological anxiety management strategies, addressing the critical need for accessible interventions in resource-limited maternal healthcare settings. By rigorously controlling variables and employing validated tools, the research sought to establish a clear causal relationship between classical music therapy and reduced anxiety in late-stage pregnancy.

RESULT

Table 1. Anxiety in pregnant women in the third trimester pre-test and post-test of classical music therapy

Anxiety	Mean	Mean Difference	SD	Min	Max
Pre Test	51.17	19.34	7.213	23	61
Post Test	31.89		5.630	19	41

Table 1 shows a significant difference in the scores before and after classical music therapy was given to pregnant women in the third trimester. The average anxiety score before the intervention was 51.17, with an SD (standard deviation) of 7.213. The average anxiety score after the intervention decreased to 31.89, with an SD of 5.630, resulting in an average difference of 19.34.

Table 2. Results of the Kolmogorov-Smirnov Normality Test

Anxiety	Statistic	df	p-value	Information
Pre Test	0.350	35	0.0001	Non-normal distribution
Post Test	0.095	35	0.200	Normal Distribution

Based on Table 2, the results of the normality test of the sig value of the pre-test of classical music therapy on the anxiety of pregnant women in the third trimester are 0.0001; if the p-value <0.05, then it can be said that the data distribution is not normal. While the sig value of the post-test on classical music therapy on pregnant women in the third trimester is 200, if the p-value> 0.05, then

it can be said that the data distribution is normal. Because the distribution of the data obtained was not normal before classical music therapy was carried out, the statistical test used was the Wilcoxon test. The Wilcoxon test is used to determine the effect of classical music therapy on the level of anxiety of pregnant women in the third trimester.

Table 3. The effect of classical music therapy on anxiety in pregnant women in the third trimester

Anxiety	N	Mean	Z	P value
Pre Test Post Test	35	51.17 31.89	-5.164	0.0001

Table 3 shows that the results of the Wilcoxon test have a p-value of 0.0001. Because the value of 0.0001 is smaller than <0.05, it can be concluded that the hypothesis is accepted, meaning that there is an effect of classical music therapy on anxiety in pregnant women in the third trimester at the UPTD Jomin Health Center, Karawang Regency in 2024.

DISCUSSION

Anxiety in Pregnant Women in the Third Trimester of Classical Music Therapy Pre-Test and Post-Test

Based on the results of univariate analysis, the average anxiety in pregnant women in the third trimester before being given classical music therapy was mostly moderate, and the average anxiety in pregnant women in the third trimester after being given classical music therapy decreased to mostly mild anxiety. The results of the study showed that before being given classical music therapy, most pregnant women were in the moderate anxiety category.

Music therapy works by diverting attention from sources of stress to more pleasant stimuli. For pregnant women in the third trimester, anxiety before childbirth can be reduced by listening to soothing classical music so that their focus shifts from anxiety to the experience of listening to pleasant music (Mao, 2021). Anxiety in pregnant women in the third trimester can be influenced by various factors, one of which is the mother's level of knowledge about pregnancy and childbirth. Inadequate knowledge can cause mothers to feel anxious due to uncertainty and ignorance about the labor process, physical changes, and the care needed (Ding et al., 2021; Deviantony et al., 2024).

Sufficient knowledge can help reduce anxiety in primigravida pregnant women in the third trimester. Lack of knowledge can make pregnant women feel unprepared and worried about unknown things related to pregnancy and childbirth. On the contrary, adequate knowledge can increase the mother's confidence and readiness to face childbirth, thus reducing the level of anxiety. Mild anxiety levels are characterized by physiological responses such as mild muscle tension. Cognitive responses are widening of the field of vision, motivation to learn, and passive awareness of the environment; behavioral responses from mild anxiety are a weakened voice, relaxed facial muscles, ability to perform game abilities or skills automatically, there is a feeling of safety and comfort (Çankaya & Şimşek, 2021).

First pregnancy, known as primigravida, is often associated with increased levels of anxiety in pregnant women. This is due to various factors, including lack of experience, uncertainty about the labor process, and physical and emotional changes experienced during pregnancy. Primigravida pregnant women tend to experience higher levels of anxiety compared to multigravida pregnant women (Putri et al., 2025; Atunisa et al., 2024).

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Classical music therapy plays a role in reducing anxiety through several physiological and psychological mechanisms. First, classical music with a slow tempo (60-80 beats per minute) can activate the parasympathetic nervous system, calming the body. This causes a decrease in heart rate and blood pressure and slows the breathing rate so that the body is more relaxed (Le et al., 2025). According to the researcher, based on the study results from 35 respondents, a significant decrease in anxiety levels was found. The level of anxiety of pregnant women before the intervention was given; most of them experienced moderate anxiety, and after the intervention, the level of anxiety decreased to mild anxiety.

The calming effect of classical music can explain this decrease in anxiety. Classical music generally has a slow tempo, soft harmony, and regular melody, which can stimulate a relaxation response in the body. The rhythm of classical music helps lower heart rate and blood pressure, resulting in feelings of calm and comfort.

The Effect of Classical Music Therapy on Anxiety in Pregnant Women in the Third Trimester

Based on the results of the bivariate analysis, there is an effect of classical music therapy on anxiety in pregnant women in the third trimester at the Jomin Health Center UPTD, Karawang Regency, in 2024. Classical music therapy has been identified as an effective method to reduce anxiety levels in pregnant women in the third trimester. Classical music, mainly works such as Mozart's, has a rhythmic and melodic structure that can affect brain wave activity, producing a calming and relaxing effect. This effect helps reduce stress hormones such as cortisol, thereby reducing feelings of anxiety in pregnant women.

Classical music can be calming, increase intelligence, build memory skills, and make pregnant women feel relaxed, which contributes to reduced anxiety. Classical music therapy reduces anxiety levels in primigravida pregnant women in the third trimester. The mechanism behind this effect involves changes in the activity of the autonomic nervous system that regulates the body's response to stress. Exposure to classical music can increase heart rate variability, indicate a more balanced autonomic nervous system, and a lower stress response. This supports the theory that classical music can be used as a non-pharmacological intervention to reduce anxiety in pregnant women (Konsam et al., 2023).

Based on the researcher's assumption, there is an influence of classical music therapy on anxiety in pregnant women in the third trimester because listening to classical music can stimulate the release of endorphins and dopamine hormones in the brain. Endorphins are known as natural stress relievers that help improve mood and reduce anxiety. Meanwhile, dopamine creates feelings of pleasure and satisfaction, which effectively help reduce anxiety and emotional tension (Reybrouck & Dyck, 2024). In addition, it can be seen from the decrease in anxiety in pregnant women in the third trimester after being given classical music therapy, from moderate anxiety to mild anxiety.

CONCLUSION

The level of anxiety in pregnant women in the third trimester before being given classical music therapy was mainly moderate, with an average of 51.17. The level of anxiety in pregnant women in the third trimester after being given classical music therapy was mostly experienced as mild or minimal anxiety levels, with an average of 31.89. There is an effect of classical music therapy on reducing anxiety in pregnant women in the third trimester, with a p-value of 0.0001. It is hoped that pregnant women who experience anxiety can do classical music therapy to relieve their anxiety

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CONFLICT OF INTEREST

The author declares that he has no conflict of interest related to the preparation of this manuscript.

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