Caring: Indonesian Journal of Nursing Science
Journal homepage: https://talenta.usu.ac.id/IJNS

An Integrated Holistic Approach Using Music Therapy and Hypnotherapy to Reduce Anxiety in Pregnant Women for Childbirth Preparation

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ARTICLE INFO

Article history:
Received 7 August 2025
Revised 29 October 2025
Accepted 3 December 2025
Available online
https://talenta.usu.ac.id/IJNS

E-ISSN: 2685-7162

How to cite: Octavia, YT., Sari, IP., Hasibuan, EK., Purwanti, S. (2025). An integrated holistic approach using music therapy and hypnotherapy to reduce anxiety in pregnant women for childbirth preparation. *Caring: Indonesian Journal of Nursing Science*, 7(2), 249-258.

https://doi.org/10.32734/ijns.v7i222851

ABSTRACT

The maternal mortality rate in North Sumatra in 2023 remained high at 78.82 per 100,000 live births. Anxiety during late pregnancy, with a prevalence of 18.2–24.6%, increases the risk of maternal and neonatal complications. Although non-pharmacological interventions such as music therapy and hypnotherapy are widely used, evidence regarding the effectiveness of their combined application remains limited. This study aimed to evaluate the effectiveness of integrating hypnotherapy and music therapy in reducing anxiety among pregnant women. A quasi-experimental design with intervention and control groups without randomization was conducted. The study involved 30 pregnant women in their second to third trimesters selected using purposive sampling (intervention group n=15; control group n=15). The intervention consisted of four sessions of guided hypnotherapy relaxation accompanied by slow-tempo classical instrumental music over a two-week period, with each session lasting 35–40 minutes. Anxiety levels were measured using the Hamilton Rating Scale for Anxiety (HRS-A) before and after the intervention, and data were analyzed using the paired t-test. The results showed a significant reduction in anxiety scores in the intervention group, decreasing from 27.07 to 15.20 ($p<0.001$), while the control group showed no significant change (30.33 to 30.00; $p=0.96$). The reduction in anxiety was attributable to the intervention. The integration of hypnotherapy and music therapy was effective in reducing anxiety prior to childbirth and demonstrated better outcomes than the control group. This approach can be recommended as a comprehensive non-pharmacological intervention in prenatal care programs.

Keyword: Music therapy, Hypnotherapy, Pregnancy, Anxiety, Childbirth.

1. Introduction

Anxiety during pregnancy, particularly as childbirth approaches, is a common condition experienced by expectant mothers, with emotional disturbances increasing in the third trimester due to concerns regarding fetal safety, labor pain, and psychological readiness for motherhood. This condition may be influenced by various

factors, including maternal age, previous pregnancy experience, socioeconomic status, family support, and insufficient knowledge of the childbirth process (Asmara et al., 2019; Puspitasari & Wahyundari, 2020). Untreated anxiety can generate physiological consequences, including elevated stress hormone levels, sleep disturbances, impaired uterine contractions, prolonged labor, and an increased risk of postpartum depression (Catsaros & Wendland, 2023; Handayani, 2017).

Data from the World Health Organization (WHO) indicate that among 118 first-time mothers, 75% experienced very high anxiety during their initial childbirth and expressed fear regarding both pregnancy and the delivery process. The maternal mortality rate in North Sumatra in 2023 remains high, with 202 cases out of a target of 278.756 live births, equivalent to 78.82 per 100.000 live births. In 2022, there were 131 maternal deaths, corresponding to a maternal mortality rate of 47.06 per 100.000 live births from a target of 278.350, while in 2021, the rate reached 89.18 per 100.000 live births with 248 maternal deaths from a target of 278.100 live births. Among pregnant women, the prevalence of anxiety symptoms increases across trimesters: 18.2% in the first trimester, 19.1% in the second trimester, and 24.6% in the third trimester. One contributing factor to this anxiety is facing vaginal delivery (10–25%), whereas for women undergoing cesarean section, it is approximately 15–25% (Octavia et al., 2024).

Various non-pharmacological methods have been applied to help reduce anxiety during pregnancy, including prenatal yoga, breathing relaxation techniques, guided imagery, and antenatal counseling (Biana et al., 2021). Music therapy is employed as an intervention because it has been shown to decrease sympathetic stimulation by modulating brain wave activity, reducing stress hormones, and enhancing endorphin-mediated relaxation, thereby alleviating anxiety (Murtiyarini et al., 2023). Meanwhile, hypnotherapy provides positive suggestions that facilitate cognitive restructuring and enhance mental readiness for childbirth (Gilligan, 2018; Hakim et al., 2022). Recent international studies have demonstrated that integrating music-based relaxation with therapeutic suggestion synergistically enhances anxiety reduction through neuropsychological mechanisms (Catsaros & Wendland, 2023).

However, most previous studies implemented either music therapy or hypnotherapy independently, such that the synergistic effect of both modalities as a complementary intervention targeting physiological relaxation and cognitive restructuring has yet to be fully demonstrated (Asmara et al., 2019; Puji Septeria & Adlia Syakurah, 2024). This research gap underscores the necessity of investigating an integrated approach combining these two modalities within a single unified intervention and comparing it with a control group. Therefore, the present study aims to analyze the effectiveness of integrating music therapy and hypnotherapy in reducing anxiety among pregnant women approaching childbirth, as a complementary strategy with potential applicability in routine antenatal care services within healthcare facilities (Octavia et al., 2024; Sundariningsih et al., 2021).

Therefore, the researchers propose a fundamental study under the beginner lecturer research scheme, aimed at addressing issues outlined in the National Research Master Plan within the health focus area. The theme of this research is the modification of local wisdom in the health sector, with a specific focus on applying local health wisdom to address female reproductive health problems, while simultaneously supporting the "Asta Cita" initiative for strengthening women's development and empowerment.

The research question formulated in this study is as follows: *How effective is a holistic approach integrating music therapy and hypnotherapy in reducing anxiety among pregnant women preparing for childbirth?*.

2. Methods

This study employed a quasi-experimental design with an intervention group and a control group without randomization. The integrated music therapy and hypnotherapy intervention was administered to the intervention group, whereas the control group received standard antenatal care without any additional intervention. The study was conducted at Clinic Pratama Matahari, Tanjung Morawa, from June to July 2025, following the approval of the research ethics committee of the Faculty of Medicine, Universitas Muhammadiyah Sumatera Utara. The ethical approval was granted under certificate number 1528/KEPK/FKUMSU/2025, issued on June 11, 2025..

The population of this study comprised all pregnant women in the late second and third trimesters who attended antenatal care at the clinic. The sample size was determined based on previous quasi-experimental studies that applied similar interventions, which used a minimum of 15 respondents per group (Maciejewski, 2020; Mahanani et al., 2022). This number was considered adequate for mean-difference testing in small behavioral intervention trials. Purposive sampling was applied based on inclusion criteria (late second–third trimester pregnancy, absence of pregnancy complications, no comorbid conditions, the ability to communicate effectively, and willingness to sign informed consent) and exclusion criteria (acute conditions requiring medical treatment, a history of psychiatric disorders, and failure to attend at least two intervention sessions). A total of 30 respondents met the inclusion criteria and were enrolled. Allocation into the two groups was conducted based on attendance order and willingness to participate, resulting in 15 respondents assigned to the intervention group (receiving integrated music therapy and hypnotherapy) and 15 to the control group (receiving routine antenatal care only).

The intervention was implemented over a 2-week period with a total of four sessions, each lasting 30–40 minutes. The intervention protocol consisted of music therapy using slow-tempo classical instrumental music (60–80 bpm) without lyrics, selected to minimize cognitive stimulation. The music was played through a portable speaker at a volume of 45–55 dB in a private, quiet space with minimal disturbances. Subsequently, antenatal hypnotherapy was delivered following a standardized script derived from the Ericksonian approach, which included phases of relaxation induction (5–7 minutes), deepening (10 minutes), positive visualization of the childbirth process (10–12 minutes), affirmative suggestions (5–8 minutes), and relaxation termination (3–5 minutes). The intervention was administered by a certified hypnotherapist assisted by a music therapy facilitator who had completed a 16-hour training course.

Data collection utilized a quantitative instrument, the Hamilton Rating Scale for Anxiety (HRS-A). The pre-test assessment was performed 1–2 hours before the first session, and the post-test was conducted 24 hours after the fourth session. Interviews and focus group discussions (FGD) were not included in the final analysis, as this study focused exclusively on quantitative outcomes. FGDs were only used to clarify responses during the intervention as part of monitoring procedures. The first measurement was conducted before the intervention, and the second after the fourth session.

Statistical analyses consisted of normality testing using the Shapiro–Wilk test because the sample size was <30. Subsequently, paired t-tests were performed to analyze within-group differences in anxiety levels before and after the intervention, in accordance with the primary objective of the study. Independent t-tests were then used to compare mean changes between the intervention and control groups.

All respondents received explanations regarding the study objectives, intervention procedures, potential benefits and risks, confidentiality of the data, and their right to withdraw at any time. Participation was initiated after respondents signed informed consent in accordance with ethical principles of medical research.

3. Results

3.1. General Overview of Practice at Pratama Matahari's Clinic

Clinic Pratama Matahari, Tanjung Morawa, was selected as the research site because it is a midwifery care facility that routinely provides antenatal education for pregnant women, including counseling and relaxation activities. The clinic receives a relatively high number of antenatal visits each month, facilitating the selection of respondents who meet the inclusion criteria. In addition, the clinic offers a conducive and comfortable environment that supports the implementation of relaxation-based interventions, such as music therapy and hypnotherapy, enabling standardized delivery of the intervention. The selection of this location was further justified by the availability of supportive healthcare personnel, which permits the application of complementary interventions as part of efforts to enhance the psychological well-being of pregnant women in preparation for childbirth.

3.1.1. Univariate Analysis

a. Characteristics of Respondent Based on Age, Trimester, Gravida, Education, and Occupation in the Intervention Group

Table 1 Characteristics of Intervention Group Respondents at Pratama Matahari's Clinic (n=15)

Characteristics of Respondent		Intervension Group (n=15)		Control Group (n=15)	
		f	%	f	%
Age	< 20 year old	2	13.3	0	0.0
	20-30 year old	8	53.3	11	73.3
	> 30 year old	5	33.3	4	26.7
Trismester	II	7	46.7	7	46.7
	III	8	53.3	8	53.3
Gradiva	Primi	7	46.7	6	40.0
	Multi	8	53.3	9	60.0
Education	Elementary School/ Middle School	1	6.7		0.0
	Senior High School	12	80.0	15	100.0
	Bachelor's Degree	2	13.3		0.0
Occupation	Unemployed	12	80.0	13	86.7
	Employe	3	20.0	2	13.3

Based on Table 1, the age characteristics of pregnant women in the intervention group at Clinic Pratama Matahari show that the majority (53.3%) were within the 20–30-year age range. Most participants were in the third trimester and multigravida (53.3%), with the majority having completed senior high school education and being unemployed/housewives (80.0%). Meanwhile, in the control group, most pregnant women were also within the 20–30-year age range (73.3%), were in the third trimester (53.3%), and were multigravida (60%). All participants in the control group (100%) had completed senior high school education, and the majority (86.7%) were unemployed/housewives.

b. Anxiety Levels of Pregnant Women Before the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari

Table 2 Frequency Distribution of Anxiety Levels Among Pregnant Women in the Intervention Group Before the Integration of Music Therapy and Hypnotherapy and in the Control Group at Clinic Pratama Matahari (n=30)

Descriptive Statistic	Intervension Group (n=15)	Control Group (n=15)
Minimum	16	12
Maximum	43	45
Mean	27.06	30.33
Std.Deviasi	7.61	9.99

Based on Table 2, it was observed that among the 30 respondents, the mean anxiety score of pregnant women in the intervention group (n = 15) before receiving the integrated music therapy and hypnotherapy intervention was 27.06, indicating a moderate level of anxiety overall, with a standard deviation of 7.61 and a score range extending from a minimum of 16 to a maximum of 43. Meanwhile, in the control group (n = 15), the mean anxiety score was 30.33, indicating a severe level of anxiety overall, with a standard deviation of 9.99 and a score range from a minimum of 12 to a maximum of 45. These findings reflect variability in scores, whereby some pregnant women experienced mild to severe anxiety before the intervention. The category classifications were based on the interpretation criteria of the Hamilton Rating Scale for Anxiety (HRS-A).

c. Anxiety Levels of Pregnant Women After the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari

Table 3 Frequency Distribution of Anxiety Levels Among Pregnant Women in the Intervention Group After the Integration of Music Therapy and Hypnotherapy and in the Control Group at Clinic Pratama Matahari (n = 30)

Deskriptif Statistic	Intervension Group (n=15)	Control Group (n=15)
Minimum	4	12
Maximum	20	45
Mean	15.20	30.00
Std.Deviasi	4.21	10.00

Based on Table 3 , it was observed that among the 30 respondents, the mean anxiety score of pregnant women in the intervention group (n = 15) after receiving the integrated music therapy and hypnotherapy intervention decreased to 15.20, indicating a mild level of anxiety overall, with a standard deviation of 4.21 and a score range from a minimum of 4 to a maximum of 20. Meanwhile, in the control group (n = 15), the mean anxiety score remained relatively unchanged at 30.00, indicating a severe level of anxiety overall, with a standard deviation of 10.00 and a score range from a minimum of 12 to a maximum of 45.

3.1.2. Normality Test Normality Test of Anxiety Levels in Pregnant Women Before and After the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari

Table 4 Normality Test of Anxiety Levels in Pregnant Women Before and After the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari (n = 30)

	Intervension Group (n=15)		Control Group (n=15)	
	Kolmogorov-Smirnov[a]	Shapiro-Wilk	Kolmogorov-Smirnov[a]	Shapiro-Wilk
Pra Hipnotherapy	0.200	0.544	0.200	0.720
Post Hipnotherapy	0.200	0.521	0.200*	0.786

The initial step in statistical analysis was to perform a normality test

a. Intervention Group
The normality test was conducted using the Shapiro–Wilk test, as the sample size was less than 30. The results of the normality test indicated that: the pre-test data had a probability value (p-value) of 0.544 ($p > 0.05$), indicating a normal distribution andt he post-test data had a probability value (p-value) of 0.521 ($p > 0.05$), indicating a normal distribution. Therefore, the anxiety data before and after the intervention in the intervention group were normally distributed..

b. Control Group
Normality testing in the control group was also conducted using the Shapiro–Wilk test, as the sample size was less than 30. The results indicated that: the pre-test data had a probability value (p-value) of 0.720 ($p > 0.05$), indicating a normal distribution and the post-test data had a probability value (p-value) of 0.786 ($p > 0.05$), indicating a normal distribution. Therefore, the anxiety data in the control group, both before and after the treatment, were normally distributed.

3.1.3. Analysis of Differences
a. Intervention Group
The difference test analysis was performed using the paired sample t-test to examine the hypothesis regarding the effectiveness of a holistic approach, integrating music therapy and hypnotherapy, in reducing anxiety among pregnant women preparing for childbirth.

Table 5 Paired Sample t-Test Results for the Intervention Group

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pra Hipnotherapy - Post Hipnotherapy	11.86667	6.58859	1.70117	8.21803	15.51531	6.976	14	.000

Based on the results of the paired t-test in the intervention group, the mean difference between pre- and post-hypnotherapy anxiety scores was 11.87 (SD = 6.59; SE = 1.70). The 95% confidence interval ranged from 8.21 to 15.52, not crossing zero, indicating a significant difference. This finding was further supported by a t-value of 6.976 and p = 0.000 (df = 14), demonstrating that hypnotherapy was effective in significantly reducing anxiety levels among pregnant women preparing for childbirth at Clinic Pratama Matahari.

b. Control Group

In the control group, the difference test analysis was also conducted using the paired sample t-test to evaluate changes in anxiety levels before and after the study period without any intervention.

Table 6 Paired Sample t-Test Results for the Control Group

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pra Hipnotherapy - Post Hipnotherapy	.33333	.72375	.18687	-.06746	.73413	1.784	14	.096

Based on the results of the paired t-test in the control group, the mean reduction in anxiety was 0.33 (SD = 0.72) without any intervention, indicating that the change was not statistically significant (t = 1.784; df = 14; p = 0.096). The 95% confidence interval ranged from -0.067 to 0.734, crossing zero, suggesting that pregnant women who did not receive the music therapy and hypnotherapy intervention did not experience a significant change in anxiety levels within the control group at Clinic Pratama Matahari..

4. Discussion

4.1. Characteristics of Pregnant Women in the Intervention and Control Groups Based on Age, Trimester, Gravidity, Education, and Occupation at Clinic Pratama Matahari

Based on Table 1, the characteristics of respondents in the intervention and control groups showed a relatively balanced distribution, allowing the study results to be interpreted without demographic bias. The majority of respondents were within the 20–30-year age range (53.3% in the intervention group and 73.3% in the control group), representing mature reproductive age with better psychological readiness. This equivalence in age range supports comparisons between the groups.

Regarding gestational age, the proportion of respondents in the second and third trimesters was similar in both groups (46.7% and 53.3%), indicating that anxiety in the late trimester is a natural psychological condition before childbirth. This finding aligns with literature stating that anxiety increases during the third trimester due to concerns about labor (Puspitasari & Wahyundari, 2020).

In terms of gravidity, the composition of primigravida and multigravida respondents was relatively balanced in both the intervention group (46.7% and 53.3%) and the control group (40.0% and 60.0%), suggesting that parity was not a major differentiating factor between groups.

Regarding education, most respondents had completed senior high school in the intervention group (80.0%) and all respondents in the control group (100%). This homogeneity in education ensures that respondents had a relatively similar capacity to understand health-related information.

Occupational status was also comparable, with the majority of respondents being unemployed in the intervention group (80%) and the control group (86.7%), indicating that differences in work-related stress did

not influence the intervention outcomes.

The relatively homogeneous characteristics of both groups indicate that the differences in pre- and post-intervention anxiety were not influenced by demographic variables, allowing the observed changes to be more directly attributed to the integrated music therapy and hypnotherapy intervention as the primary treatment in the study.

4.2. Anxiety Levels of Pregnant Women Before the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari

Based on Table 2, it can be observed that before the administration of the integrated music therapy and hypnotherapy intervention, the anxiety levels of pregnant women in both groups ranged from moderate to severe. In the intervention group, the mean anxiety score was 27.06, with a score range of 16 to 43, indicating that some respondents experienced mild anxiety, while the majority were categorized as having moderate anxiety. In contrast, the control group exhibited a higher mean anxiety score of 30.33, with a range of 12 to 45, reflecting conditions varying from mild to severe anxiety. The difference in standard deviation between the two groups (7.61 in the intervention group vs. 9.99 in the control group) suggests that anxiety levels in the control group were more heterogeneous than in the intervention group, reflecting variability in feelings of uncertainty approaching childbirth.

Psychologically, it was found that the high anxiety levels in both groups before the intervention represent a common physiological and emotional condition during the childbirth preparation phase. This finding is consistent with Puspitasari & Wahyundari (2020), who reported that anxiety peaks in the late trimester due to increased anticipation of the birthing process, concerns about fetal safety, and psychological readiness for motherhood. Moreover, the wide variation in anxiety scores also indicates the interaction of multidimensional individual factors, such as previous pregnancy experiences, pain perception, family support, and mental preparedness.

Although the mean anxiety was higher in the control group compared to the intervention group, the difference remained within the moderate category, indicating that both groups had a comparable psychological baseline at the initial stage. This homogeneity of initial anxiety levels is methodologically important, as it ensures that the observed effects of the intervention are not influenced by baseline differences in anxiety, thereby strengthening the internal validity of the quasi-experimental study design.

Overall, these findings underscore that prepartum anxiety is a common phenomenon among pregnant women, both primigravida and multigravida, and that this condition can be effectively managed through appropriate therapeutic interventions such as the integration of hypnotherapy and music therapy to modulate cognitive and physiological responses to stress in preparation for childbirth.

4.3. Anxiety Levels of Pregnant Women After the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari

Based on Table 3, it is evident that the anxiety levels of pregnant women changed after the integrated music therapy and hypnotherapy intervention in the intervention group, whereas no intervention was provided in the control group. In the intervention group, the mean anxiety level decreased from a moderate category before the intervention (Mean = 27.06) to a mild category after the intervention (Mean = 15.20). The post-intervention score range was 4–20, indicating that most respondents experienced a clinically meaningful reduction in anxiety. A standard deviation of 4.21 suggests that the response to the intervention was relatively homogeneous, with no extreme variations among individuals. Physiologically, this reduction can be associated with the mechanisms of instrumental music and hypnotherapy integration, which reduce sympathetic transmission, enhance parasympathetic relaxation, and modulate threat perception through prefrontal cortex activation and decreased amygdala activity, as described by Murtiyarini et al. (2023) and (Catsaros & Wendland (2023).

In contrast, in the control group that did not receive the intervention, the mean anxiety score remained relatively unchanged (Mean = 30.00), with a wide score range of 12–45 and a standard deviation of 10.00, indicating heterogeneous psychological responses. This finding demonstrates that prepartum anxiety does not naturally decrease over time and requires a structured psychoneurophysiological therapeutic approach. These results are consistent with the findings of Sulistiyanti & Farida (2020) and Puji Septeria & Adlia Syakurah (2024), who reported that anxiety in pregnant women tends to persist or increase if relaxation-based mental interventions are not provided.

The reduction of anxiety in the intervention group can be explained by two main mechanisms. First, slow-

tempo instrumental music therapy (60–80 bpm) stimulates alpha wave activity in the cerebral cortex, which reduces physiological tension and enhances emotional comfort (Murtiyarini et al., 2023). Second, antenatal hypnotherapy provides cognitive restructuring through therapeutic suggestions targeting the limbic system, promoting a more adaptive physiological response to perceived threats (Catsaros & Wendland, 2023; Gilligan, 2018). The combination of these two approaches is synergistic, as music prepares the body for physiological relaxation, while hypnotherapy directs cognitive interpretation to provide adaptive responses to labor-related stressors.

From a psychophysiological perspective, the findings in Table 3.3 confirm that the music–hypnotherapy integration not only induces peripheral relaxation but also mediates autonomic nervous system regulation and enhances psychological readiness for childbirth. This validates neuropsychological theories suggesting that multi-modal interventions are more effective than single-modality approaches (Ainsworth et al., 2015). Therefore, the reduction in anxiety in the intervention group reflects a direct effect of the intervention, whereas the instability of scores in the control group reflects unmanaged anxiety mechanisms.

Overall, the interpretation of Table 3.3 indicates that the integrated music therapy and hypnotherapy intervention is both clinically and theoretically effective in reducing prepartum anxiety, whereas the absence of intervention results in persistent or increasing anxiety levels. These findings are consistent with international studies demonstrating the effectiveness of hypnotherapy in reducing anxiety among pregnant women before childbirth (Catsaros & Wendland, 2023; Octavia et al., 2024) as well as the effectiveness of classical music in decreasing sympathetic activation through neuropsychological modulation (Murtiyarini et al., 2023).

4.4. Normality Test of Anxiety Levels in Pregnant Women Before and After the Integration of Music Therapy and Hypnotherapy in the Intervention and Control Groups at Clinic Pratama Matahari

Based on the normality test results presented in Table 4, the distribution of anxiety scores in both groups—before and after the intervention—was classified as normally distributed. In the intervention group, the Shapiro–Wilk test yielded significance values of 0.544 for the pre-test and 0.521 for the post-test, whereas in the control group, the significance values were 0.720 for the pre-test and 0.786 for the post-test. All p-values were greater than 0.05, indicating no reason to reject the null hypothesis (H_0) regarding data normality. The use of the Shapiro–Wilk test for sample sizes below 50 is consistent with the recommendation of (Mohd Razali & Bee Wah, 2015), who noted that Shapiro–Wilk has higher sensitivity and statistical power compared to the Kolmogorov–Smirnov test in small samples.

These findings demonstrate that there were no statistical deviations from normality in anxiety scores either before or after the intervention in both the intervention and control groups. Methodologically, this is important as it ensures that parametric analyses using the paired t-test and independent t-test were conducted under appropriate distributional assumptions. As noted by Mohd Razali & Bee Wah, (2015), parametric tests can be appropriately applied when the normality assumption is met, as this results in more stable estimates of the mean and standard error, and more accurate inferential interpretation.

Conceptually, normal data distribution in psychological measures such as anxiety indicates that individual response variability remains within a physiologically reasonable range, without extreme values that could affect the robustness of statistical inference. This suggests that the reduction in anxiety scores in the intervention group after the integrated music–hypnotherapy intervention reflects a proportional phenomenon rather than being influenced by outliers or skewed distributions. In the control group, the persistence of normal distribution in both pre-test and post-test scores indicates that prepartum anxiety remains a consistent response in the absence of intervention, aligning with longitudinal reports on antenatal anxiety (Ahmed et al., 2019; Ayen et al., 2024).

With the normality assumption satisfied, the application of the paired t-test to analyze within-group changes and the independent t-test to compare between groups is appropriate in this context. This also strengthens the internal validity of the study, as the observed intervention effects can be represented by mean differences without structural bias from data distribution.

4.5. Effect of a Holistic Approach Before and After the Integration of Music Therapy and Hypnotherapy on Reducing Anxiety in Pregnant Women Preparing for Childbirth in the Intervention Group at Clinic Pratama Matahari

Based on Table 5, the results of the paired t-test in the intervention group demonstrated a significant reduction in anxiety scores following the integrated music therapy and hypnotherapy intervention (mean

difference = 11.87, SD = 6.59; 95% CI = 8.22–15.52; t(14) = 6.98, p < 0.001).

The significant reduction in anxiety scores, averaging 11.87 points (≈43.9% of the pre-intervention score) in the intervention group, indicates that the integration of hypnotherapy and music therapy produced both clinically and statistically substantial changes in psychological readiness for childbirth. The underlying mechanisms may include induction of a relaxation state (alpha wave activation, reduced sympathetic response) by instrumental music and cognitive restructuring through therapeutic suggestions during hypnotherapy, which together modulate amygdala and prefrontal cortex activity, thereby reducing threat perception and physiological tension (Catsaros & Wendland, 2023; Gilligan, 2018; Murtiyarini et al., 2023).

Although the quasi-experimental design and small sample size limit generalizability, the large effect size supports the clinical relevance of this intervention and recommends replication through randomized controlled trials with larger samples to verify the stability and durability of its effects.

4.6. Effect of a Holistic Approach Before and After the Integration of Music Therapy and Hypnotherapy on Reducing Anxiety in Pregnant Women Preparing for Childbirth in the Control Group at Clinic Pratama Matahari

Based on Table 6, the results of the paired sample t-test in the control group, which did not receive the integrated music therapy and hypnotherapy intervention, indicate that the mean difference in anxiety scores between pre- and post-measurements was only 0.33333, representing a very small change that is not clinically significant. The standard deviation of the difference was 0.72375, indicating low and homogeneous variability in score changes among participants. The calculated t-value was 1.784 with 14 degrees of freedom (df = 14), yielding a significance level of p = 0.096, which exceeds the 0.05 threshold. Thus, the null hypothesis (H_0) is not rejected, and it can be concluded that there was no statistically significant change in anxiety levels in the control group.

This finding indicates that, in the absence of a psychophysiological intervention, antenatal anxiety in pregnant women tends to persist or even increase, consistent with the findings of Ahmed et al, (2019) and Johann et al., (2023), who reported that anxiety in the late trimester remains stable or decreases minimally due to the anticipatory stress associated with labor. The 95% confidence interval (CI 95%) ranging from –0.06746 to 0.73413, which crosses zero, suggests that the small observed mean change falls within the measurement error margin and may occur by chance. This further reinforces the conclusion that the mean change lacks both clinical and statistical significance.

The absence of a significant change in the control group also demonstrates that time alone is insufficient to reduce antenatal anxiety. The natural psychological state of pregnant women experiencing prepartum anxiety requires an intervention to modulate autonomic nervous system responses, threat perception, and emotional reactivity (Catsaros & Wendland, 2023). This contrasts with the intervention group, which exhibited a substantial and statistically significant reduction in mean anxiety scores. Therefore, the presence of a control group provides a valid comparison, confirming that the observed anxiety reduction in the intervention group is not a natural adaptation process but a therapeutic effect of the integrated music and hypnotherapy intervention.

From a methodological perspective, these results support the internal validity of the study, as significant changes occurred only in the treated group and not in the untreated group. This aligns with the principles of quasi-experimental design, as emphasized by (Co, 2022), where the control group serves to verify that treatment effects are not attributable to temporal bias or regression toward the mean. Consequently, the findings in Table 3.6 reinforce the conclusion that integrated music and hypnotherapy intervention produces a genuine reduction in antenatal anxiety, rather than an effect of time or habituation.

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