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EFFECTIVENESS OF MUSIC THERAPY IN MANAGING STRESS AND ANXIETY DURING PREGNANCY: A SYSTEMATIC REVIEW

Efectividad de la musicoterapia en el manejo del estrés y la ansiedad en el embarazo: una revisión sistemática

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ABSTRACT

Background. Pregnancy is a critical period during which anxiety and stress may adversely affect both the mother and the foetus. Music therapy, a non-pharmacological intervention, provides a safe alternative to enhance emotional and physical well-being, circumventing the side effects associated with pharmacological treatments. This study critically examines the effectiveness of music therapy in reducing anxiety among pregnant women, aiming to guide its clinical application and inform future research. **Objectives.** The primary objective was to critically evaluate the evidence regarding the efficacy of music therapy in alleviating anxiety in pregnant women and to offer recommendations for clinical practice and further research. **Methods.** A systematic review was conducted, searching international databases including PubMed, Web of Science, and Scopus. Articles published between 2014 and 2024 that assessed the impact of music therapy on pregnant women, with a focus on anxiety reduction and related parameters, were selected for inclusion. **Results.** The majority of studies demonstrated a significant reduction in anxiety and stress levels among pregnant women following music therapy sessions, accompanied by improvements in physiological parameters such as blood pressure and heart rate, indicating both emotional and physiological benefits. **Conclusion.** Music therapy emerges as an effective intervention for mitigating anxiety during pregnancy. Nevertheless, further research with larger sample sizes and standardised methodologies is needed to confirm and generalise these findings, thereby strengthening its integration into clinical practice.

Keywords: Music therapy, Pregnancy, Anxiety, Stress, Well-being

RESUMEN

Introducción. El embarazo es una etapa vital en la que la ansiedad y el estrés pueden impactar negativamente a la madre y al feto. La musicoterapia, una intervención no farmacológica, ofrece una alternativa segura para mejorar el bienestar emocional y físico, evitando los efectos secundarios de los medicamentos. Este estudio examina la efectividad de la musicoterapia en la reducción de la ansiedad en mujeres embarazadas, buscando orientar su aplicación clínica y futuras investigaciones. **Objetivos.** Evaluar críticamente la evidencia sobre la eficacia de la musicoterapia para reducir la ansiedad en mujeres embarazadas y proporcionar recomendaciones para la práctica clínica y estudios futuros. **Método.** Se realizó una revisión sistemática en bases de datos como PubMed, Web of Science y Scopus, seleccionando artículos publicados entre 2014 y 2024 que evaluaran el impacto de la musicoterapia en mujeres embarazadas, con énfasis en la reducción de ansiedad y parámetros relacionados. **Resultados.** La mayoría de los estudios mostró una reducción significativa de la ansiedad y el estrés en mujeres embarazadas tras sesiones de musicoterapia, junto con mejoras en la presión arterial y la frecuencia cardíaca, evidenciando beneficios emocionales y fisiológicos. **Conclusión.** La musicoterapia se perfila como una intervención efectiva para aliviar la ansiedad durante el embarazo. Sin embargo, se requieren estudios con muestras más amplias y diseños estandarizados para confirmar y generalizar estos hallazgos, fortaleciendo su integración en la práctica clínica.

Palabras clave: Musicoterapia, Embarazo, Ansiedad, Estrés

INTRODUCTION

Pregnancy is a pivotal stage in a woman's life, characterised by a series of physical, emotional, and psychological transformations. During this period, the mother's well-being not only influences her own health but also the development of the foetus (Monar-Mañez, 2024). The World Health Organization (WHO) highlights the importance of a holistic prenatal approach (WHO, 2016).

Anxiety and Stress During Pregnancy

Anxiety and stress are common disorders during pregnancy, with a prevalence ranging between 4% and 64%, depending on the context and population studied (Fairbrother et al., 2016). These disorders can have serious consequences for both mother and foetus, including postnatal depression, hypertension, preterm birth, and low birth weight (Field, 2017; Van den Bergh et al., 2005). Furthermore, maternal stress has been observed to affect the neurological and emotional development of the foetus, with potential long-term effects on the child's mental and behavioural health (Van den Bergh et al., 2020).

Assessment of Anxiety During Pregnancy

Assessing anxiety in pregnant women is crucial for identifying and managing these disorders. Anxiety disorders can affect physical and mental health, although their definition varies and they can be confused with distress or stress (Kuaik & De la Iglesia, 2019). Biologically, anxiety is a normal response to risk, but it becomes pathological when it is disproportionate (Herlyn, 2015).

Various tools are used for its assessment, such as the Beck Anxiety Inventory (BAI), the State-Trait Anxiety Inventory (STAI), and the Hamilton Anxiety Rating Scale (HAM-A) (Beck et al., 1988; Spielberger et al., 1983; Hamilton, 1959). However, there is debate regarding the adequacy of these scales for the pregnant population, as the physical symptoms of pregnancy can be confused with those of anxiety (Sinesi et al., 2019).

Risks During Pregnancy

Pregnancy is not without risks, and factors such as hypertension, psychological disorders, and extreme age (under 20 or over 35 years) can increase the risk of complications (Barboza, 2022). Maternal anxiety is a significant risk factor, as it can generate a cycle in which anxiety increases the risk of complications, and these, in turn, heighten anxiety (Rico et al., 2010). Moreover, psychosocial stress during pregnancy has been observed to increase the risk of pre-eclampsia, a serious complication affecting both mother and foetus (Espinosa Herrera, 2022).

Music Therapy as a Therapeutic Intervention

Music therapy has proven to be an effective tool for reducing anxiety and stress in various populations, including pregnant women (Nosrati et al., 2022). This discipline uses music to promote emotional and physical well-being, without the side effects associated with pharmacological treatments (Federico, 2012). Studies have shown that music therapy can improve mood, reduce pain and anxiety, and strengthen the mother-child bond (Mastnak, 2016).

Implementation of Music Therapy in Prenatal Care

Music therapy has been implemented in prenatal care, showing significant benefits in reducing anxiety and improving overall well-being. Studies suggest that integrating music therapy into prenatal care programmes can offer a holistic approach focused on the mother's well-being (Nosrati et al., 2022; Barros Fleury et al., 2021; Juanias-Restrepo & Robledo-Castro, 2021).

Despite the growing interest in music therapy during pregnancy, systematic research on its efficacy is still developing. Therefore, this review seeks to critically evaluate the available evidence, determining the extent to which music therapy is effective in reducing anxiety levels in pregnant women, what factors may influence its effectiveness, its effects on physical and emotional health, providing recommendations for clinical practice, and suggesting areas for future research.

MATERIALS AND METHOD

Search Strategy

A search strategy was conducted using the following search terms: Music Therapy AND Pregnancy AND Pregnant Women AND Well-being AND Anxiety AND Stress AND Treatment in Spanish and English. Searches were carried out in the following international electronic databases between 15 and 25 March 2022: PubMed, Web of Science, Wiley Online Library, ERIC, Scopus, and Springer.

Inclusion and Exclusion Criteria

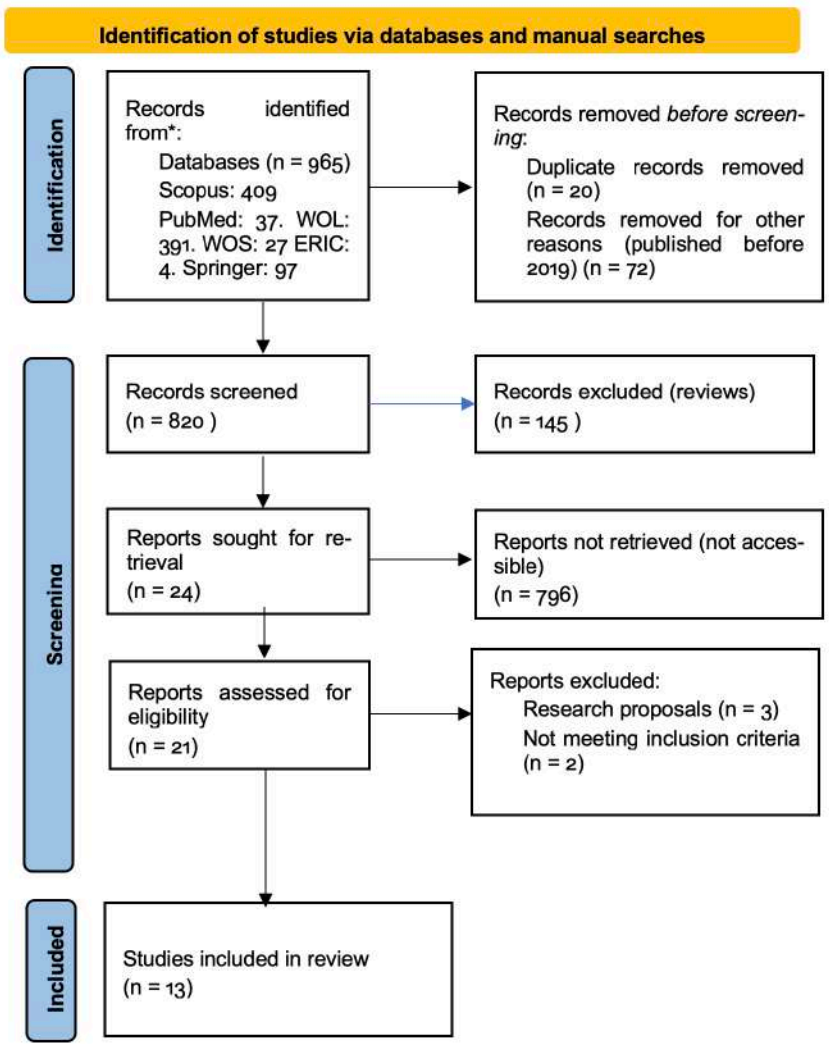
The inclusion criteria chosen were as follows: a.) articles published between 2014 and 2024, b.) articles published in medical or music therapy journals, c.) articles published in Spanish and/or English, d.) articles published in journals indexed in PubMed, ERIC Scientific, Scopus, WoS, Wiley, e.) articles with active and/or passive (receptive) music therapy processes, f.) peer-reviewed articles.

Selection Procedure

The selection procedure was carried out in three phases. A preliminary search was conducted in databases such as Wiley, PubMed, Web of Science, ERIC, Scopus, and Springer. Subsequently, an analysis was performed on both the keywords used and the relevant terms concerning pregnancy, well-being, anxiety, stress, and music therapy present in each article. Following this, a second exhaustive search was conducted using this selection of keywords and key terms from each investigation. Finally, in the third phase, studies that met the inclusion criteria were selected.

Figure 1

PRISMA Flow Diagram



Note: Adapted by the author from Haddaway et al. (2022).

Selected Studies

Table 1 presents key aspects of the selected studies investigating the effectiveness of music therapy (MT) in reducing anxiety in pregnant women. These studies were conducted by researchers from various countries (Taiwan, China, Turkey, Spain, Finland, Iran, and Colombia), demonstrating

Table 1

List of Studies Meeting Inclusion Criteria

Author/Country/Design	Objetive	Participants
Liu *et al.* (2015) / Taiwan / ECA	The effectiveness of listening to music at home to improve sleep quality, stress, and anxiety.	121 women: Control = 61; Intervention = 60. Weeks 18 – 34 of gestation.
Cao *et al.* (2016) / China / ECA	Effects of Music Therapy (MT) in the Treatment of Pregnancy-Induced Hypertension (PIH)	60 pre-eclamptic patients: Control = 30; Intervention = 30.
Aba *et al.* (2017) Turquía / ECA	Effects of Music Therapy on Anxiety Levels and Pregnancy Rates in In Vitro Fertilisation	186 women undergoing IVF-ET treatment.
Toker y Kömürcü (2017) / Turquía/ ECA	The Influence of Music Therapy on Anxiety Levels and Satisfaction with Nursing Care in Pregnant Women with Pre-eclampsia.	70 women: Control = 35; Intervention = 35.
García-González *et al.* (2018) / España / ECA	Effects of Music Therapy on Anxiety Levels in Third-Trimester Pregnant Women and on Neonatal Parameters	409 women: Control = 205; Intervention = 204.
Teckenberg-Jansson *et al.* (2019). / Finlandia / ECA	Effects of Live Music Therapy on Heart Rate Variability (HRV), Stress, and Anxiety in Women with High-Risk Pregnancies	102 women: Control = 50; Intervention = 52.
Yüksekol y Başer (2020) Turquía	Effects of Music on Blood Pressure and Anxiety Levels in Hospitalised Women with Mild Pre-eclampsia	60 women: Control = 30; Intervention = 30.
Barros Fleury *et al.* (2021) / Turquía EPA	Effects of Interactive Music Therapy on Stress Reduction in In Vitro Fertilisation	100 women: Control = 50; Intervention = 50.
Juanias-Restrepo y Robledo-Castro (2021) / Colombia / EQE	Effect of Obstetric Fetal Music Therapy (OFMT) on Reducing Anxiety and Blood Pressure in Pregnant Adolescents	9 mujeres embarazadas (13-19 años).
Çatalgöl y Ceber Turfan (2022) / Turquía / ECA	Influence of Music Therapy on Maternal Anxiety, Fetal Parameters during the Last Trimester, and Neonatal Parameters	100 women: Control = 50; Intervention = 50.
Nosrati *et al.* (2022) / Irán / ECA	Effects of Benson's Relaxation Technique (BRT) and Music Therapy (MT) on Anxiety in Primiparous Women Before Caesarean Section	105 women: Control = 35; Intervention BRT= 35. Intervention MT= 35.

Tabla 1 (cont.)

Listado de estudios que cumplen los criterios de inclusión

Author/Country/Design	Objetive	Participants
Estrella- Juarez *et al.* (2023) / España	Effects of Virtual Reality and Music Therapy on Physiological Parameters of Pregnant Women and Foetuses, and on Anxiety Levels during NST and Labour	343 women: Control = 115; Intervention MT= 104. Intervention RV= 115.
Coşar y Bekar (2024) / Turquía / ECA	Effect of Music on Reducing Labour-Related Anxiety and Improving Mental Well-being	100 women: Control = 50; Intervention = 50.

Note: RCTs: Randomised Controlled Trials; HRV: Heart Rate Variability; PIH: Pregnancy-Induced Hypertension; IVF-ET: In Vitro Fertilisation - Embryo Transfer; MT: Music Therapy; VR: Virtual Reality; NST: Non-Stress Test; BRT: Benson's Relaxation Technique; OFMT: Obstetric Fetal Music Therapy.

a global interest in using music therapy as an intervention to improve the mental health and well-being of pregnant women.

The objectives of the studies varied, ranging from evaluating the effectiveness of listening to music at home to improve sleep quality, stress, and anxiety, to investigating the effects of music therapy in women with pregnancy-induced hypertension (PIH) and the reduction of anxiety in women undergoing in vitro fertilisation (IVF-ET). The effects of live music therapy on heart rate variability (HRV), stress, and anxiety in women with high-risk pregnancies were also explored.

Most studies employed randomised controlled trials (RCTs). These methodologies help ensure internal validity and minimise bias in the results.

Sample sizes varied across the studies, with some studies featuring larger samples (e.g., 409 women in the study by García-González et al., 2018) and others featured smaller samples (e.g., 9 women in the study by Juanias-Restrepo and Robledo-Castro, 2021). Participants included pregnant women at various stages of gestation, from the first to the third trimester, as well as women with specific conditions such as pre-eclampsia or those undergoing in vitro fertilisation treatment.

Data Analysis

Relevant data were extracted and compiled using several standardised forms into a series of tables that succinctly reflect the most salient aspects analysed from the different studies. Table 1 includes the following fields: authorship, year, country, study objective, experimental methodology used, and details of the participant sample.

Table 2

Session Details

Author	Time/Frequency/ Duration	Music	Measure
Liu *et al.* (2015)	30' / daily / 2 weeks	Taiwan + Western classical.	PSQI + STAI + Listen record.
Cao *et al.* (2016) /	30' – 60' / daily / 4 weeks	Folk and Western classical.	Cardiac pressure + HAM-A + ESLISA
Aba *et al.* (2017)	30' / Pre - Post / Intervention	Western classical.	STAI
Toker & Kömürcü (2017)	30'/ daily / 1 week	Turkish modes: Nihavend and Buselik.	STAI + NNCS + NST
García-González *et al.* (2018)	40' / 3 times week/ 14 Sessions	The Musical Journey Through Pregnancy, by Federico.	STAI + NST
Teckenberg-Jansson *et al.* (2019)	30' /daily / 3 days	Live lyre music + voice.	Cardiac pressure l + STAI + VFC
Yüksekol & Başer (2020)	30' / daily / 1 day	Turkish modes: Busilik and Acemasiran.	STAI Presión arterial
Barros Fleury *et al.* (2021)	50 minutes / During procedure / 3 times	Assisted improvisation and composition.	DASS 21 + LSSI
Juanias-Restrepo & Robledo-Castro (2021)	60' / 2 at week	Singing, sound bath, vibrational massage, improvisation.	STAI Frecuency and Cardiac pressure + Music Therapy Record.
Çatalgöl & Ceber Turfan (2022)	20' / Pre Intervention /1 time	*Weightless* ofMacaroni Union	STAI
Nosrati *et al.* (2022)	20' / Pre Intervention / 1 time	Musical Journey Through Pregnancy by G.F. Federico	NST
Coşar & Bekar (2024)	20'/ weekly. During NST / 5 times	Turkish instrumental music.	OWLS + WEMWBS

Note: STAI: Spielberger's State-Trait Anxiety Inventory; PSQI: Pittsburgh Sleep Quality Index; HAM-A: Hamilton Anxiety Rating Scale; ELISA: Enzyme-linked Immunosorbent Assay; NNCS: Newcastle Nursing Care Satisfaction Scale; NST: Non-Stress Test; HRV: Heart Rate Variability; DASS 21: Depression, Anxiety and Stress Scale; LSSI: Lipp's Adult Stress Symptoms Inventory; OWLS: Oxford Birth Anxiety Scale; WEMWBS: Warwick-Edinburgh Mental Well-Being Scale.

Table 2 provides detailed aspects of the session format (time, frequency, duration, type of music used), as well as the measures taken. Table 3 summarises the results obtained in the different studies according to their stated objectives. APA 7th Edition was used as the citation style.

Quality Assessment

The selected studies generally exhibit a robust methodological design. Many of the studies employed randomised controlled trials (RCTs), which are considered the gold standard in clinical research. For example, Liu et al. (2015), Cao et al. (2016), and García-González et al. (2018) all utilised RCTs.

Some studies also implemented single-blind controlled trial designs, such as Aba et al. (2017), which can help reduce researcher bias. Furthermore, most studies used widely validated and well-established instruments, such as the STAI or the Hamilton scales, to assess anxiety and stress. This provides consistency in outcome evaluation. Other studies measured physiological parameters such as blood pressure and heart rate, offering objective data on the effects of music therapy.

However, several of the studies had moderate sample sizes, which may limit the generalisability of the results. For instance, the studies by Liu et al. (2015) and Yüksekol and Başer (2020) included limited samples, which could affect the robustness of their findings.

Nevertheless, some studies, such as Cao et al. (2016), had larger sample sizes, enhancing external validity. The difficulty in establishing effective blinding—given the inherently perceptible nature of musical intervention—and some heterogeneity in protocols (differences exist between interventions with live or recorded music and in session duration) are also noted. These variations can influence reproducibility and direct comparison of results across studies.

RESULTS

Interventions

Most studies employed a passive music therapy modality, where participants listened to music without active involvement. Only a few studies used an active modality, in which participants directly interacted with the music through activities such as playing instruments or improvising. The duration of music therapy sessions varied among the studies. Sessions typically lasted between 20 and 60 minutes. For instance, sessions in the study by Barros Fleury et al. (2021) were 50 minutes long, whereas in Coşar and Bekar's (2024) study, sessions lasted 20 minutes. The frequency of sessions also varied significantly. Some interventions were conducted daily for a short period (7 days in Yüksekol and Başer's (2020) study), while others were spread over several weeks (5 times in 5 weeks in Coşar and Bekar's (2024) study).

The type of music varied from classical pieces by Bach and Mozart (Cao et al., 2016) to traditional Turkish modes

Table 3

Results of Studies Based on Stated Objectives

Paper	Objetives	Results
Liu *et al.* (2015)	a. Improved sleep b. Stress and anxiety reduction	a. Significant improvement. b. Significant improvement
Cao *et al.* (2016) /	a. Reduced anxiety. b. Reduced blood pressure	a. Significant decrease b. Significant reduction
Aba *et al.* (2017)	a. Improves quality of life . b. Reduce anxiety	a. Significant improvement. b. Effectiveness of TM as a trend but not significant.
Toker y Kömürcü (2017)	a. Reduce anxiety. b. Improve satisfaction with nursing care c. Lower blood pressure	a. Non-significant differences in anxiety between groups. b. Higher satisfaction in the experimental group. c. Significant reduction
García- González *et al.* (2018)	a. Reduce anxiety b. Improved neonatal parameters	a. Significantly lower anxiety levels b. Better neonatal outcomes.
Teckenberg- Jansson *et al.* (2019)	a. Reduced anxiety and stress b. Stress reduction	a. Increased SD2 measure of HRV and decreased LF in HRV during therapy. b. No significant changes
Yüksekol y Başer (2020)	a. Reduced anxiety b. Blood pressure reduction	a. Significant reduction b. Less consistent reduction
Barros Fleury *et al.* (2021)	Stress reduction	Significant reduction.
Juanias- Restrepo y Robledo-Castro (2021)	Anxiety reduction Blood pressure reduction	Decrease in trait anxiety. Reduced blood pressure and pulse
Çatalgöl y Ceber Turfan (2022)	a. Anxiety reduction. b. Improves fetal parameters	a. Decreased anxiety. Status and improvement of values in NST. b.Improved NST values.
Nosrati *et al.* (2022)	a. Anxiety reduction. b. MT vs. BRT Comparison	a. Significant decrease in anxiety in the BRT and MT groups before cesarean section. b. Increased effectiveness of BRT.
Coşar y Bekar (2024)	a. Anxiety reduction in NST tests. b. Blood pressure reduction	a. Significant decreases in anxiety. b. Significant decreases in SBP, DBP, and MHR levels
Coşar y Bekar (2024)	a. Anxiety reduction . b. Improved well-being in pregnancy	a. Significant reduction in anxiety b. Increased mental well-being

Note: MT: Music Therapy; HRV: Heart Rate Variability; SD2: sympathetic/parasympathetic modulation; LF: Low Frequency; NST: Non-Stress Test; BRT: Benson's Relaxation Therapy; SBP: Systolic Blood Pressure; DBP: Diastolic Blood Pressure; MHR: Maximum Heart Rate.

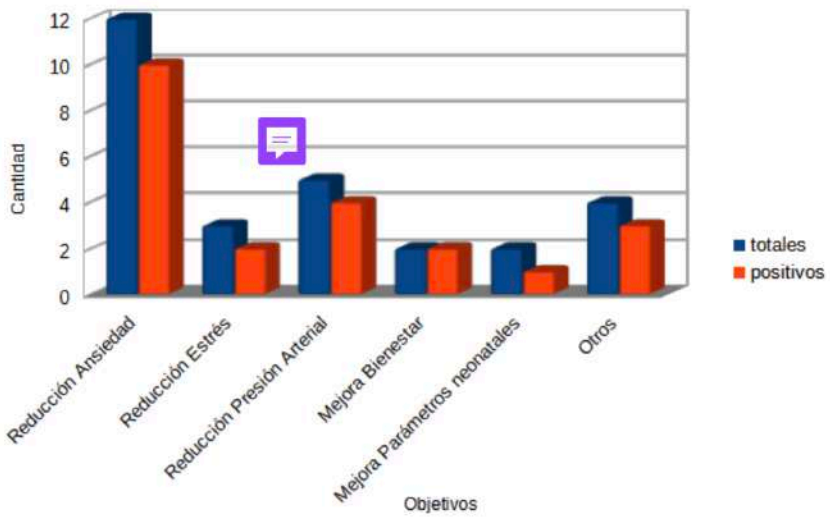
(Yüksekol and Başer, 2020) and personalised instrumental music. Passive music therapy studies generally used recordings of instrumental music, including classical, folk, and lullabies. In active music therapy studies, percussion instruments, guitars, and voice were utilised.

Overall, the music therapy interventions in the reviewed studies varied in terms of modality, duration, frequency, and instruments used, adapting to the specific needs of each study population. However, all studies sought to evaluate the effects of music therapy on reducing anxiety and improving well-being in pregnant women. Most studies used randomised controlled trials (RCTs), and common tools for assessing anxiety, such as the State-Trait Anxiety Inventory (STAI) and other validated questionnaires, were employed. Table 2 provides a detailed breakdown of the specific characteristics of the different sessions.

Table 3 summarises the results of the reviewed studies based on their stated objectives. The majority of studies reported a significant decrease in anxiety and stress in pregnant women who participated in music therapy sessions. For example, Liu et al. (2015) found significant improvements in reducing anxiety and stress after listening to music at home, while García-González et al. (2018) reported lower levels of maternal anxiety during the third trimester of pregnancy.

Several studies demonstrate improvements in physiological parameters, such as blood pressure and heart rate. Cao et al. (2016) observed a significant decrease in blood pressure and anxiety in women with pregnancy-induced hypertension, while Yüksekol and Başer (2020) found that music significantly reduced anxiety and blood pressure in women with mild pre-eclampsia.

Figure 1
Results Based on Objectives



Note: Figure 1 graphically illustrates the variability of study objectives and the results obtained.

The effectiveness of music therapy varies across studies. Toker and Kömürcü (2017) found no significant differences in anxiety levels between the experimental and control groups, but reported greater satisfaction with nursing care in the experimental group. Conversely, studies such as Aba et al. (2017) only identified trends towards effectiveness without reaching statistical significance.

The studies employed different types of musical interventions, ranging from recorded music to live music therapy. Nosrati et al. (2022) compared music with relaxation techniques and found that both interventions significantly reduced anxiety before Caesarean section, although the relaxation technique proved more effective than music therapy.

DISCUSSION

Critical Review of Recent Advances

This systematic review has revealed that music therapy can play a significant role in improving the emotional and physical well-being of pregnant women. Most of the included studies demonstrated that both active and passive music therapy can reduce anxiety and stress in this population, albeit with variations in reported effectiveness levels.

Integrating music therapy into existing prenatal care programmes can be an effective strategy to enhance the quality of life for pregnant women, potentially reducing the need for pharmacological interventions and their associated side effects (Grocke & Wigram, 2007; Zarate, 2016).

Limitations in the Reviewed Studies

The review has identified several limitations in the analysed studies. Firstly, the small sample sizes limit the generalisability of the findings (Liu et al., 2015; Yüksekol & Başer, 2020). Furthermore, the heterogeneity in study designs, intervention durations, and assessment methods makes it difficult to compare results. For instance, Nosrati et al. (2022) conducted a single brief session, whereas García-González et al. (2018) implemented a more extensive protocol, allowing for a more comprehensive evaluation.

Another relevant limitation is the absence of long-term follow-up, which prevents the assessment of benefit sustainability. Additionally, the lack of detailed procedural descriptions compromises replicability. The selection of music and session durations are also not standardised, affecting the interpretation of results. Çatalgöl and Ceber Turfan (2022) used Turkish classical music to measure foetal parameters, while other studies employed Western music and evaluated maternal parameters.

The studies were conducted in diverse populations, such as women with pre-eclampsia (Yüksekol & Başer, 2020), patients undergoing in vitro fertilisation (Barros Fleury et al., 2021), and pregnant adolescents (Juanias-Restrepo & Robledo-Castro, 2021), which highlights the adaptability of music therapy but complicates comparison across studies. Finally, some findings were mixed or null, which could be attributed to variability in protocols and musical selection, underscoring the need for research with more robust designs and standardised methodologies (Bunt & Stige, 2014).

Recommendations for Future Research

To advance research on the effects of music therapy in pregnant women, it is recommended to use larger and more diverse samples to improve external validity (Polit & Beck, 2010), in addition to standardising study designs, intervention durations, music types, and assessment methods. Variability in participant characteristics, such as gestational age, prior emotional state, and musical experiences, should also be considered.

Furthermore, it is essential to incorporate long-term follow-up to evaluate the durability of benefits (Kazdin, 2017), explore the differences between active and passive music therapy, and integrate standardised physiological and psychological measures (e.g., combining the STAI with HRV). Finally, larger-scale, population-diverse randomised controlled trials are suggested to consolidate the evidence and promote the integration of music therapy into prenatal care.

CONCLUSIONS

Music therapy proves to be a valuable tool in reducing anxiety and stress during pregnancy. The reviewed studies demonstrate a significant improvement in anxiety levels and well-being in pregnant women participating in music therapy sessions, whether passive or active. Moreover, the results indicate a decrease in blood pressure and improvements in physiological parameters such as heart rate, underscoring music therapy's potential as an effective non-pharmacological intervention.

However, variations in study designs, intervention durations, and methodologies present challenges for direct comparison of results. Additionally, most studies lack long-term follow-up, which precludes assessing the sustainability of music therapy benefits.

In summary, while preliminary evidence is promising and suggests benefits in reducing anxiety and stress, further research with larger samples and standardised protocols is necessary to confirm and generalise these findings.

The integration of music therapy into prenatal care programmes could enhance the quality of life for pregnant women, offering a holistic, side-effect-free alternative to pharmacological interventions.

Generative AI Statement

The authors declare that no Generative AI was used in the creation of this manuscript.

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