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IMPACT AND CRITICAL REVIEW OF MUSIC THERAPY ON MATERNAL AND CHILD HEALTH: BENEFITS AND CLINICAL APPLICATIONS DURING PREGNANCY, CHILDBIRTH AND POSTPARTUM

Impacto y revisión crítica de la musicoterapia en la salud materno-infantil: beneficios y aplicaciones clínicas durante el embarazo, parto y posparto

Irene Navia-Aponte
Bachelor in Law. Music therapist. Public Tenders Officer at the Institut Català de Nanociència i Nanotecnologia

María García-Rodríguez
PhD in Education. Degree in Music. Music therapist. Assistant Professor at the Faculty of Humanities of the Universidad Internacional de La Rioja (Spain).
https://orcid.org/0000-0002-2365-3843

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Correspondence
ireneanavia@outlook.es

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ABSTRACT

Background. Music therapy, based on the premise that music has a positive impact on mental and physical health, has gained interest in the context of pregnancy, childbirth, and postpartum (PPD). The literature suggests that it may reduce stress, improve emotional well-being, and strengthen the mother-infant bond, but a critical review is needed to assess its efficacy at these stages. **Objective.** This study reviews and analyzes the efficacy of music therapy interventions in PPD, exploring recent advances and limitations in research. **Methodology.** A systematic search of PubMed, Cochrane Library, and Web of Science for completed randomized trials ("Trials" [Cochrane], "Clinical Trials" [Pubmed], and "Randomized Controlled Trial" [Pubmed]) published between January 2018 and December 2022. Data were analyzed for methodological quality and relevance of findings. **Results.** Five relevant trials were identified and reviewed. Findings suggest that music therapy can reduce anxiety, improve pain management, and support mother-infant bonding. However, limitations include variability in interventions, small sample sizes, and lack of standardization of outcome measures. **Conclusions.** Although music therapy shows potential in PLE, more studies with rigorous designs, standardization of interventions, and long-term evaluations are needed. Current limitations highlight the need for further research to confirm benefits and improve clinical application.

Keywords: multimodal approach, music performance, music therapy, stage anxiety.

RESUMEN

Antecedentes. La musicoterapia, basada en la premisa de que la música influye positivamente en la salud mental y física, ha ganado interés en el contexto del embarazo, parto y posparto (EPP). La literatura sugiere que puede reducir el estrés, mejorar el bienestar emocional y fortalecer el vínculo madre-hijo, pero se necesita una revisión crítica para evaluar su eficacia en estas etapas. **Objetivo.** Este estudio revisa y analiza la eficacia de las intervenciones de musicoterapia en el EPP, explorando avances recientes y limitaciones en la investigación. **Metodología.** Se realizó una búsqueda sistemática en PubMed, Cochrane Library y Web of Science para estudios aleatorizados finalizados ("Trials" [Cochrane], "Clinical Trials" [Pubmed] y "Randomized Controlled Trial" [Pubmed]) publicados entre enero de 2018 y diciembre de 2022. Se incluyeron ensayos clínicos sobre la efectividad de la musicoterapia en el EPP. Los datos fueron analizados según la calidad metodológica y relevancia de los hallazgos. **Resultados.** Cinco estudios relevantes fueron identificados y analizados. Los resultados indican que la musicoterapia puede reducir la ansiedad, mejorar el manejo del dolor y apoyar el vínculo madre-bebé. Sin embargo, las limitaciones incluyen variabilidad en las intervenciones, tamaños de muestra pequeños y falta de estandarización en las medidas de resultado. **Conclusiones.** Aunque la musicoterapia muestra potencial en el EPP, se requieren más estudios con diseños rigurosos, estandarización de intervenciones y evaluaciones a largo plazo. Las limitaciones actuales destacan la necesidad de investigaciones adicionales para confirmar los beneficios y mejorar su aplicación clínica.

Palabras clave: musicoterapia, embarazo, parto, posparto, intervención.

BACKGROUND

Although the effects of music and music therapy on humans have been extensively studied (Fernández-Company et al., 2024; Freitas et al., 2021; García-Rodríguez et al., 2023), to the best of our knowledge, its specific application in the context of pregnancy, childbirth, and postpartum (PPE) requires further evaluation. Despite previous studies suggesting potential benefits such as stress reduction and improved emotional well-being, scientific evidence conclusively supporting the efficacy of music therapy during these critical periods remains limited. This research gap underscores the need for systematic analyses to publicize existing knowledge, identify methodological weaknesses, and provide evidence-based results to optimize maternal and child health interventions.

Music therapy is based on the premise that music has the ability to positively influence mental and physical health, acting as a means to reduce stress and improve overall well-being (Bruscia, 2007). In this context, music therapy has emerged as a potentially beneficial intervention during these critical periods. Recent literature suggests that the integration of music into the therapeutic setting may offer a number of benefits, including stress reduction, improved emotional well-being, and enhanced bonding between mother and infant (Bruscia, 2007; Federico, 2005). However, despite this promising evidence, it is imperative that a critical and systematic review of current research be conducted to accurately assess the effectiveness of music therapy in PSA. This will allow for evidence-based recommendations and improved clinical application of these interventions in the context of maternal and child health.

Pregnancy, childbirth, and postpartum (PPE) are critical periods in a woman's life, marked by profound physical, emotional, and psychological changes. These phases involve not only the transition to motherhood, but also a significant adjustment to the new role, with implications for the mental and physical health of the mother and the newborn (Carrillo-Mora et al., 2021). During pregnancy, the pregnant woman experiences a series of changes that go beyond weight gain and hormonal changes; these changes also affect her emotional and psychological well-being. Research suggests that women may face significant challenges in adapting to their new identity and adjusting to changing family dynamics, which can negatively affect their mental health (Vallecampo, 2022).

Childbirth poses a number of additional challenges, as it marks the transition from intrauterine life to an extrauterine environment, involving a complex adjustment to new physical and emotional realities for both mother and child. This transition can be a source of stress and anxiety, with important implications for the well-being of both (Maldonado-Durán et al., 2008). Subsequently, the postpartum period, which lasts from the moment of delivery until several weeks later, is presented as a crucial phase for the mother's physical recovery and the establishment of an emotional bond with the baby. During this period, mothers may face emotional difficulties, including the risk of postpartum depression, highlighting the importance of adequate mental health support (Talbot & Maclennan, 2016).

The purpose of this article is to provide a comprehensive review of recent research on music therapy in PSA, evaluating the efficacy of interventions, methodologies used, and outcomes achieved. Through a systematic review of studies published between 2018 and 2022, advances in the discipline, current limitations, and recommendations for future research will be examined to provide a comprehensive and evidence-based view of the impact of music therapy in these critical phases of motherhood.

METHODOLOGY

This critical review of the literature on the efficacy of music therapy in the context of pregnancy, childbirth and postpartum is based on a rigorous and systematic methodology. Relevant and high-quality studies were selected using a comprehensive search strategy in specialized databases and with well-defined inclusion and exclusion criteria. The data analysis included a detailed evaluation of the study design, the characteristics of the music therapy interventions and the outcomes obtained, which allowed a comprehensive assessment of the available evidence in this field.

Search strategy

A comprehensive search of PubMed, Cochrane Library and Web of Science was conducted for this systematic review. The search included studies published between 2018 and 2022 that focused on the use of music therapy in the context of pregnancy, childbirth and postpartum. We included randomized clinical trials (RCTs) that evaluated the effectiveness of music therapy interventions.

We used combined search terms such as 'music therapy', 'pregnancy', 'childbirth', 'postpartum' and 'intervention'. Studies were selected based on their relevance, methodological quality and adequacy to the inclusion criteria. We excluded studies that did not provide quantitative or qualitative data on the effectiveness of the intervention and those that were not available in full text.

Inclusion and exclusion criteria

For the systematic review of the literature on the efficacy of music therapy in the context of pregnancy, childbirth and postpartum, inclusion and exclusion criteria were established to ensure the quality and relevance of the selected studies. These criteria were created with the intention of ensuring a rigorous selection of studies focused on providing an accurate and up-to-date assessment of the efficacy of music therapy during pregnancy, childbirth, and the postpartum period.

Inclusion criteria. Empirical studies published in English or Spanish were included, which provided adequate language coverage and facilitated access to a variety of relevant research. The selected studies had to evaluate the efficacy of music therapy in at least one of the phases of the female reproductive cycle: pregnancy, childbirth, or postpartum. This approach ensured that the review covered all potential applications of music therapy during these critical periods. Among the types of studies included were clinical trials. Clinical trials provide the strongest evidence of the effectiveness of interventions because of their randomized controlled design. Additionally, only articles published between January 2018 and December 2022 were included. This time frame was chosen to ensure that the studies reviewed reflect the most recent advances in music therapy research for PSA.

Exclusion criteria. Articles that were not available in full text were excluded. This decision was made to ensure that all relevant information and data necessary for critical appraisal were accessible. Studies that did not use quantitative or qualitative outcome measures were also discarded, as these methods are essential to objectively assess the effectiveness of music therapy interventions. Publications prior to 2018 were also removed in order to focus on the most recent and relevant evidence. Finally, we excluded research with non-relevant samples or without control groups, as these aspects may affect the validity and applicability of the results, limiting the ability to generalize the conclusions.

Selection process

Selected articles were reviewed in two stages: an initial review of titles and abstracts to assess relevance, and a full text review to confirm eligibility.

Results of study selection

A total of 5 clinical trials (RCTs) relevant to this review were identified and selected according to the established inclusion and exclusion criteria. These studies were assessed in detail to ensure their eligibility and methodological quality. The final selection was made after a thorough review of titles, abstracts, and full texts with the participation of two independent reviewers and resolution of disagreements by consensus or consultation with a third reviewer.

Data analysis

Data extracted included study design, sample size, characteristics of the music therapy intervention, outcome measures, and key findings. A data extraction matrix was used to organize and synthesize the information. We assessed studies for methodological quality using the Cochrane Collaboration's risk of bias assessment tool and the quality assessment tool for nonrandomized trials.

Quality assessment

The quality of the studies was assessed using several criteria, including internal validity, accuracy of outcome measures, transparency of methodology, and applicability of results. We assigned each study a high, moderate, or low-quality rating based on the presence of bias, methodological design, and sample size.

RESULTS

The systematic review of the literature on music therapy in pregnancy, childbirth, and the postpartum period revealed a number of important findings that highlight both the potential and the limitations of this intervention. The studies reviewed provide a comprehensive view of how music therapy can impact on different phases of PSA (pregnancy, birth and postpartum) and provide a basis for future research in this area. Table 1 below details the list of studies that met the inclusion criteria.

Music therapy interventions during pregnancy have been associated with a number of benefits for the mental health and emotional well-being of pregnant women. Teckenberg-Jansson et al. (2019) conducted a randomized controlled trial in which they evaluated the effects of music therapy on prenatal anxiety. Their research found that pregnant women who participated in music therapy sessions showed a significant reduction in anxiety levels compared to the control group. Music, by providing a space of relaxation and comfort, appears to play a crucial role in reducing the stress associated with pregnancy, thus improving the overall well-being of pregnant women.

In a similar study, Belloeil et al. (2020) examined the impact of music therapy on emotional well-being during pregnancy. Using a group intervention approach, the researchers found that music therapy not only reduced symptoms of anxiety and stress, but also promoted a greater sense of emotional

connection between mother and baby. This study highlights the importance of considering music therapy as a complementary tool in prenatal care to improve the emotional experience of pregnant women.

Table 1.

Music therapy (TM) during pregnancy.

Appointment	Country	Participants	Duration	Context
García-González et al. (2018)	Spain	409 pregnant women in the third trimester: 205 control and 204 intervention.	40 minutes of music application.	RCT. To evaluate the effect of TM on maternal anxiety and the possible effect of this anxiety on delivery.
Teckenberg-Jansson et al. (2019)	Finland	102 high-risk pregnant women (trimester not specified): 50 control and 52 intervention.	3 consecutive days of live music.	RCT. To assess effects of live TM on HRV (heart rate variability).
Belloeil et al. (2020)	France	151 first trimester women (*TOP: termination of pregnancy).	20 minutes of pre-operative music application.	RCT. To evaluate the effect of preoperative TM intervention on the pain of a TOP.
Catalgol y Ceber Turfan (2021)	Turkey	100 primiparous pregnant women (36, 37 and 38 weeks) aged 18 to 35 years: 50 control and 50 intervention.	20 minutes of music application.	RCT. To evaluate the effects of TM (non-stress test: NST) on maternal, fetal and neonatal outcomes.
Estrella-Juárez et al. (2022)	Spain	343 pregnant women (delivery): 104 TM intervention, 124 VR intervention and 114 control.	40 minutes, divided into two phases: the NST assessment phase and the first phase of labor.	RCT. To evaluate the effects of TM (and virtual reality: VR) on anxiety levels.

Music therapy during childbirth

The use of music therapy during childbirth has been investigated in several studies, with a focus on how music can affect pain management and overall well-being of the parturient. García-Gonzalez et al. (2018) conducted a systematic review of clinical trials evaluating the efficacy of music therapy for pain relief during childbirth. They found that music therapy significantly reduced pain perception and the need for analgesia and provided a more positive childbirth experience. Musical interventions, combined with breathing and relaxation techniques, proved effective in managing pain and stress during childbirth, offering a valuable alternative to traditional methods of analgesia.

Postpartum music therapy

The impact of music therapy on the postpartum period has been extensively researched, with a particular focus on how it may affect mental health and the mother-baby bond. Çatalgöl and Ceber Turfan (2021) conducted a study to evaluate the effects of music therapy on postpartum depression and maternal bonding. The results showed that music therapy sessions helped reduce symptoms of postpartum depression and improved the quality of mother-baby bonding. Music provided a means of emotional expression and support during the postpartum period, demonstrating its value in treating depression and promoting a positive emotional bond.

Estrella-Juárez et al. (2022) conducted a systematic review focusing on the efficacy of music therapy as an adjunctive treatment for postpartum depression. Their analysis of the available studies found that music therapy not only reduced symptoms of depression, but also facilitated a more rapid recovery of emotional well-being. Music, by providing a space for relaxation and introspection, contributed to the emotional recovery of new mothers and the strengthening of the bond with their newborns.

Limitations of the reviewed studies

Despite the promising results obtained, the review of the studies reveals several limitations that affect the generalizability of the findings. Variability in music therapy interventions, differences in methodological designs, and limited sample sizes are aspects that should be considered. The reviewed studies showed a lack of standardization in the music therapy techniques used, making it difficult to compare results across studies. In addition, many studies included small samples, which limits the robustness of the conclusions and the ability to generalize the benefits of music therapy to a larger population.

The methodological quality of some studies is also of concern. Lack of adequate control groups and heterogeneity in outcome measures affect the interpretation of results and the assessment of the effectiveness of music therapy. To

advance knowledge about the use of music therapy in PSA, it is essential to conduct research with more rigorous and standardize.

Recommendations for future research

Based on the findings and limitations of the reviewed studies, it is recommended that future research focus on standardizing music therapy interventions and implementing more robust methodological designs. Randomized clinical trials with appropriate control groups and larger sample sizes may provide a more accurate assessment of the efficacy of music therapy for PSA. In addition, evaluation of the long-term effects of music therapy and exploration of different musical approaches and techniques may contribute to a more complete understanding of how this intervention can be used effectively in the context of pregnancy, childbirth, and the postpartum period.

In conclusion, music therapy has significant potential to enhance the experience of pregnancy, childbirth, and the postpartum period. The studies reviewed suggest benefits in reducing anxiety, managing pain, and providing emotional support during the postpartum period. However, more research is needed to confirm these findings and to develop evidence-based practices that can be used effectively in perinatal care.

DISCUSSION

Critical review of recent developments

The systematic review of recent studies shows that music therapy has significant potential to improve the experience of pregnancy, childbirth and postpartum. However, it is important to consider the methodological limitations that affect the interpretation of the results. The heterogeneity of the intervention approaches and the variable quality of the studies highlight the need for more standardized and rigorous research.

The effects of music therapy on reducing anxiety during pregnancy and managing pain during childbirth are promising. The ability of music to influence the emotional and physical state of pregnant women is supported by theory and empirical evidence, but the lack of standardization of techniques and variability in study results limit the generalizability of these benefits (Teckenberg - Jansson et al., 2019; Belloeil et al., 2020).

In the postpartum period, music therapy has been shown to be effective in strengthening the mother-baby bond and reducing postpartum depression (Çatalgöl & Ceber Turfan, 2021). The possibility of using music as a tool to support mental and emotional health during this critical period is a growing area of interest. However, the lack of adequate control groups and small sample sizes in some studies affect the robustness of these findings (Estrella-Juárez et al., 2022).

Limitations and recommendations

The main limitations identified in the reviewed studies include variability in music therapy interventions, lack of standardization of outcome measures, and limited sample sizes. To overcome these limitations, studies with more rigorous methodological designs are recommended, including randomized clinical trials and longitudinal studies evaluating the long-term effects of music therapy on PSA. In addition, it is critical to develop standardized guidelines for the use of music therapy in the context of pregnancy, childbirth, and postpartum to ensure consistency of interventions and improve comparability across studies.

CONCLUSIONS

The systematic review of the literature on the use of music therapy during pregnancy, childbirth, and the postpartum period (PPE) reveals a significant potential for this intervention to support the mental and physical health of women during these critical periods. Throughout the various stages of the reproductive cycle, music emerges as a powerful tool that can influence the emotional and physical well-being of mothers, as well as strengthen the bond with their newborns. However, in order for this potential to be translated into effective and widespread clinical applications, it is necessary to consider both the positive findings and the methodological limitations that have emerged from the studies reviewed.

In the context of pregnancy, evidence suggests that music therapy may be an effective intervention for reducing anxiety and improving the emotional well-being of pregnant women. Studies such as that by Teckenberg-Jansson et al. (2019) have shown that music therapy sessions can significantly reduce prenatal anxiety levels, which is crucial given that anxiety during pregnancy is associated with adverse outcomes for both mother and baby. This finding has important practical implications, as it suggests that incorporating music therapy sessions into prenatal care could not only improve the quality of life of pregnant women, but also contribute to a healthier pregnancy. For example, women who experience high levels of anxiety during pregnancy may benefit from group music therapy sessions where music serves as a means of relaxation and stress reduction, facilitating a more positive pregnancy experience.

During childbirth, music therapy has shown benefits in pain management and anxiety reduction, which could have a significant impact on the birth experience. Research, such as that by García-González et al. (2018), has shown that music therapy can be an effective adjunct to traditional pain management interventions. In practice, this suggests that hospitals and birthing centers could integrate music therapy into their maternity care protocols, offering women the opportunity to use personalized music to reduce pain and stress during the birth process. One practical example could be the use of carefully curated playlists that accompany women through different stages of labor, adapting to their musical preferences and emotional needs.

In the postpartum period, music therapy has also proven to be a valuable intervention, especially in the prevention and treatment of postpartum depression and in strengthening the emotional bond between mother and child. The study by Çatalgöl and Ceber Turfan (2021) highlights how music can facilitate emotional expression and bonding between mother and baby, which can help alleviate the symptoms of postpartum depression. This finding has important practical implications, as it suggests that music therapy sessions can be integrated into postpartum support programs, both in clinical and community settings, to help new mothers cope with the emotional stress associated with postpartum. For example, in support groups for new mothers, the inclusion of music therapy sessions could provide a safe and supportive space to share experiences and promote emotional recovery.

Despite the promising benefits of music therapy for PSA, the review also highlighted several limitations of current research. Heterogeneity in intervention approaches, lack of standardization in techniques, and variability in outcome measures make it difficult to generalize findings. In order for music therapy to be more widely and effectively used in clinical practice, it is critical that future research addresses these limitations. Specifically, studies with more rigorous methodological designs are recommended, including randomized clinical trials with larger sample sizes and greater standardization of music therapy interventions. This will allow not only to validate the benefits of music therapy in PSA, but also to develop clinical protocols that can be implemented consistently across different maternal and child health care contexts.

In conclusion, music therapy has the potential to become a standard intervention in prenatal, perinatal, and postnatal care, offering significant benefits in reducing anxiety, managing pain, and strengthening the mother-baby bond. However, in order for this potential to be translated into evidence-based clinical practice, it is essential to continue research using more robust and standardized methodologies. Only through a rigorous and systematic approach will it be possible to optimize the use of music therapy and maximize its positive impact on the health and well-being of women and children during PSA.

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MUSICAL ACCOMPANIMENT TO THE BIRTH PROCESS IS A HIGHLY BENEFICIAL SUPPORT FOR BOTH BABY AND MOTHER

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