Interventions among Pregnant Women in the Field of Music Therapy: A Systematic Review

Intervenções em gestantes na área da musicoterapia: Uma revisão sistemática

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Abstract

Objective To investigate in the literature the studies on the benefits of music therapy interventions among pregnant women in the prenatal, delivery and postpartum periods.

Data Sources The search for articles was carried out in the following electronic databases: VHL, LILACS, SciELO, Portal CAPES, PsycINFO, ERIC, PubMed/Medline, and journals specialized in this field: Revista Brasileira de Musicoterapia (“Brazilian Journal of Music Therapy”) and Voices.

Study Selection Descriptors in Portuguese (musicoterapia, gravidez, gestantes, revisão), English (music therapy, pregnancy, pregnant women, review) and Spanish (musicoterapia, embarazo, mujeres embarazadas, revisión) were used. The search was delimited between January 2009 and June 2019. The process of selection and evaluation of the articles was performed through peer review.

Data Collection The following data were extracted: article title, year of publication, journal, author(s), database, country and date of collection, purpose of the study, sample size, type of care, intervention, instruments used, results, and conclusion. The data were organized in chronological order based on the year of publication of the study.

Summary of the Data In total, 146 articles were identified, and only 23 studies were included in this systematic review. The articles found indicate among their results relaxation, decreased levels of anxiety, psychosocial stress and depression, decreased pain, increase in the maternal bond, improvement in the quality of sleep, control of the fetal heart rate and maternal blood pressure, and decreased intake of drugs in the postoperative period.

Conclusion Music therapy during the prenatal, delivery and postpartum periods can provide benefits to pregnant women and newborns, thus justifying its importance in this field.

Keywords
► pregnancy
► music therapy
► music
► women’s health


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Introduction

Pregnancy is a period characterized by physical, hormonal and emotional changes. The birth marks a new phase in the life of the woman, the puerperium, which ends when the woman’s body returns to the stage previous to pregnancy.

Pregnant women are especially affected by stress during pregnancy, childbirth and the postpartum period. Several art forms have been studied in order to evaluate their relaxing potential and their effects on the physiology of individuals. Music has been a constant target of research regarding its potential and their effects on the physiology of individuals. The existing forms have been studied in order to evaluate their relaxing effects regarding depression and anxiety during pregnancy and labor has been observed. However, there a significant improvement in the levels of anxiety during pregnancy and labor has been observed. A systematic review by Van Willenswaard et al. points out that no study on music therapy was found during their detailed search, diverging from other systematic reviews that examined interventions made by a music therapist. In view of the divergent results in the literature, the importance of the present study is evident. Therefore, the aim of the current study was to investigate in the literature about the benefits of music therapy interventions among pregnant women in the prenatal, delivery and postpartum periods.

Methods

Type of study

The present is a systematic literature review performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. The...
methodology of a systematic review has a high performance in identifying scientific evidence. According to the Oxford Center for Evidence-Based Medicine (OCEBM), the typology of the systematic review is classified as level 1 out of 5 possible levels in the representation of evidence, as it makes it possible to establish a panorama on the studied topic. We used the The State of the Art through Systematic Review (StArt) software, developed by the Software Engineering Research Laboratory (Laboratório de Pesquisa em Engenharia de Software, LAPES, in Portuguese) of Universidade...
Federal de São Carlos, Brazil, which supports the researcher in the systematic review.

**Search strategy**

The research question was formulated using the “PICO” framework, which means population (participants), intervention (or exposure, for observational studies), comparison, and “outcome”, with some researchers preferring to add and “S” (for study design), therefore naming it PICOS.12

The search was carried out in the following electronic databases: Biblioteca Virtual de Saúde (BVS), Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Scientific Eletronic Library Online (SciELO), Portal CAPES, PsycINFO, Education Resources Information Center (ERIC), PubMed/Medline, and in journals specialized in the field: Revista Brasileira de Musicoterapia (“Brazilian Journal of Music Therapy”) and Voices.

It was delimited from January 2009 to June 2019, considering articles published in Portuguese, English and Spanish. We used descriptors in Health Sciences (DeCS), Medical Subject Headings (MeSH) and Thesaurus in Portuguese (musicoterapia, gravidez, gestantes, revisão), in English (music therapy, pregnancy, pregnant women, review) and in Spanish (musicoterapia, embarazo, mujeres embarazadas, revisión). Descriptors were combined using the Boolean operators “AND” and “OR”.

The articles were selected and evaluated by peer review and organized in phases: in the first phase, an initial analysis of the titles of the manuscripts was carried out; in the second phase, an examination of the abstracts was performed. In the third phase, all selected articles were obtained in full, and were subsequently examined according to the established inclusion and exclusion criteria.

**Inclusion and exclusion criteria**

The inclusion criteria were: original articles published in journals; and studies published from January 2009 until June 2019. The exclusion criteria were: theses, dissertations, monographs and studies that did not reach a minimum score of 18 points in the Downs and Black13 checklist. If differences occurred during the review of the articles, new discussions were held until both reviewers agreed with the review.

**Data extraction**

The following data were extracted from the included articles: title, year of publication, journal, author(s), database, country and date of collection, objective of the study, sample size, type of care, intervention, instruments used, results, and conclusion. The articles were organized in chronological order based on the year of publication.

**Results**

- Figure 1 presents a flowchart of the search and selection process. In the analysis of the titles, 104 studies were selected and had their abstracts read; 50 studies were considered relevant, and their full texts were read. Out of these studies, 22 were excluded because they did not meet the eligibility criteria, and 7 references were excluded because they were not found in full. During the search, we included two articles found in the references of other articles. The electronic search generated 23 studies, with 8 articles on childbirth and postpartum, and 15 studies related to prenatal care (Figure 1).

**Discussion**

Regarding the studies selected (Table 1), 6 were from Turkey, and they reported decreased anxiety, FCF, PA, and postoperative pain;5,14–18 3 were from Brazil, with results regarding the reduction of pain;1,19,20 3 were from Taiwan, and they reported decreased stress and anxiety, improved quality of sleep, and decreased pain in the initial phase of labor;21–23 3 were from Spain, with results describing decreased anxiety, PAS, PAD and HR and fetal reactivity;4,7,24 1 was from Ireland, and the researchers achieved relaxation and increased bonding;25 1 was from the United Kingdom, and it reported decreased anxiety and prenatal depression;26 1 was from China, and the researchers found decreased anxiety and physiological responses.27 1 was from the United States, reporting reduced suffering before delivery;28 1 was from India, and the researchers obtained fetal stimulation;29 1 was from South Korea, reporting decreased anxiety and FCF;30 1 was from Israel, reporting an increase in positive emotions and a decrease in negative emotions;31 and 1 was from Iran, reporting lower pain scores.32

The articles regarding the prenatal period, delivery, and the postpartum period report relaxation, decreased levels of anxiety, psychosocial stress, depression and pain, increased maternal bond with the baby, improved quality of sleep, control of fetal heart rate and maternal blood pressure, and decreased drug intake in the postoperative period. According to Carvalho,33 music stimulates action and emotional expression in individuals, and prompts them to control states of physical and psychological homeostasis, having effects on physiology, behavior, cognition, emotions, and social interaction.33

Regarding the prenatal period, 15 articles were analyzed, and 9 of them were relevant for the present review, for they dealt with anxiety in parturient women, and 4 out of these 9 studies were carried out during the nonstress test. According to Primo and Amorim,34 during pregnancy women may experience anguish and anxiety due to the need to adapt to situations regarding maternity.

As for childbirth, seven articles were analyzed: four of them were related to pain during labor, six dealt with anxiety, and two reported a significant reduction in blood pressure. In the study by Gayeski and Brüggemann,35 the perception of mothers regarding non-pharmacological methods for pain relief, the feeling of well-being, the enhancing emotional support were reported to facilitate the parturition process. The authors state that there is a need to expand information on these methods throughout pregnancy, and they point out that there are more investigative studies on the use of these non-pharmacological methods for pain relief in women in labor, which aim to improve humanized actions.
### Interventions among Pregnant Women in the Field of Music Therapy

**Table 1** Summary of the articles selected for the systematic review

<table>
<thead>
<tr>
<th>Title, author, year</th>
<th>Objective</th>
<th>Country, year of collection, and sample size</th>
<th>Type of care and intervention</th>
<th>Instruments used</th>
<th>Results</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prenatal Period</strong></td>
<td><strong>Music therapy to relieve anxiety in pregnant women on bedrest: a randomized, controlled trial</strong>; Yang et al. (2009)(^{27})</td>
<td>China; 2007; 120 pregnant women</td>
<td>Group care Duration: 3 consecutive days. Description: the pregnant women in the experimental group received music therapy for 30 minutes on 3 consecutive days. Pregnant women who received routine care had a 30-minute rest on 3 consecutive days. The variables included anxiety and physiological responses</td>
<td>State-Trait Anxiety Inventory</td>
<td>Anxiety levels decreased and physiological responses improved significantly in the intervention group, which received music therapy during bedrest</td>
<td>Music therapy to relieve anxiety successfully.</td>
</tr>
<tr>
<td><strong>Alleviating distress during antepartum hospitalization: a randomized controlled trial of music and recreation therapy</strong>; Bauer et al. (2010)(^{28})</td>
<td>To examine the effectiveness of a single music session or intervention with recreation therapy to reduce antepartum-related suffering among women with high-risk pregnancies who experienced prolonged antepartum hospitalizations</td>
<td>USA/2009 61 pregnant women</td>
<td>Individual care. Duration: before and after, within 48 to 72 hours after delivery. Description: randomized, single-blinded study; participants received 1 hour of music or recreational therapy, or were placed in an attention control group. Suffering related to antepartum was measured by the Emotional Impact Inventory of Antepartum Rest, which was administered before and after the intervention and in a follow-up period of between 48 and 72 hours</td>
<td>Antepartum Bedrest Emotional Impact Inventory</td>
<td>Significant associations were found between the provision of music and recreational therapy and the reduction of suffering related to the antepartum in women hospitalized with high-risk pregnancies. These statistically significant reductions in suffering persisted over a period of 48 to 72 hours</td>
<td>Music therapy during antepartum hospitalization can help reduce distress.</td>
</tr>
<tr>
<td><strong>Novel method of fetal monitoring using music therapy—a non-stress test</strong>; Kumar et al. (2011)(^{29})</td>
<td>To monitor fetal movements with and without music</td>
<td>India; 2010; 9 pregnant women</td>
<td>Individual care. Duration: not mentioned. Description: the music was set to be heard on a walkman and the headphones were placed around the pregnant woman’s abdomen. The volume of the music was kept at a moderate level of no more than 70 decibels. Fetal movements were measured by pressure sensors. The voltages obtained with and without music were amplified by the AD620 and fed to the NI 6015 for the purpose of monitoring and storage on the PC with a sampling time of 200 ms using the Labview environment</td>
<td>Not mentioned</td>
<td>With music, it increased from 146 bpm to 169 bpm. The test is reactive if there is a minimum 10-15 bpm increase in normal heart rate during fetal movements, otherwise the test is not reactive. This state was also verified by ultrasound. This test is reactive and good for the health of the fetus</td>
<td>Music can serve as a means of communication with the fetus through sounds and voices. Caressing the fetus through the belly, producing soft and melodic sounds, using lights and vibrations that are pleasant for the baby; these stimuli are in an organized and pleasant pattern.</td>
</tr>
<tr>
<td><strong>Effect of maternal anxiety and music on fetal movements and fetal heart rate patterns</strong>; Kafali et al. (2011)(^{30})</td>
<td>To investigate the effect of the non-stress test and music on maternal anxiety and music on fetal heart rate changes.</td>
<td>Turkey; 2009; 201 pregnant women Group with music—96; group without music—105</td>
<td>Group and individual care. Duration: not mentioned. Description: pregnant women who came for routine prenatal care were randomized to receive music (n = 96) or no music (n = 105) during the non-stress test. Before and after the test, these women were asked to complete the Spielberger State-Trait Anxiety Inventory in two interviews; the primary outcome was considered maternal state anxiety scores before and after the non-stress test. The secondary outcome was the baseline fetal heart rate, the number of fetal movements, major accelerations, dubious non-stress test, variable decelerations, and the minimum procedure time.</td>
<td>State-Trait Anxiety Inventory</td>
<td>Before the non-stress test, the average state-trait anxiety scores of the music and control groups were 38.1 ± 8.8 and 38.0 ± 8.2 respectively. On the other hand, after the non-stress test, the average state-trait anxiety scores of the music and control groups were 35.5 ± 8.2 and 40.2 ± 9.2 respectively. While in the control group the non-stress test resulted in a decrease in state-trait anxiety scores, listening to music during the non-stress test resulted in statistically significant increase in the state-trait anxiety scores, listening to music during the non-stress test resulted in a decrease in state-trait anxiety scores in the study group; however it was not statistically significant. The baseline fetal heart rate of the music group was significantly higher than that of the control group.</td>
<td>The non-stress test has anxiogenic effects on mothers and listening to music, a positive impact on maternal and fetal parameters, but it is an open question whether maternal anxiety during pregnancy can affect fetal accelerations to the point of influencing clinical judgment.</td>
</tr>
<tr>
<td><strong>The Limerick Lullaby project: an intervention to relieve prenatal stress</strong>; Carolan et al. (2012)(^{31})</td>
<td>To explore the impact of lullaby singing during pregnancy</td>
<td>Ireland; 2009; 6 pregnant women</td>
<td>Group care. Duration: 4 sessions. Description: the pregnant women were recruited in childbirth classes at a maternity hospital. Six pregnant women participated and learned to sing three lullabies in four group sessions with musicians. In-depth qualitative views were taken approximately three months later to capture the experiences of the women.</td>
<td>Questionnaire with open questions</td>
<td>They suggest that learning to sing lullabies during pregnancy has benefited women in terms of relaxation, feeling closer to the fetus, connecting with other pregnant women, and providing an additional tool for communication at the beginning of the newborn period. Some women described a deep feeling of love for the baby.</td>
<td>The main advantage of this intervention is that it is non-pharmacological and easy to implement. At the same time, it appears to be a pleasurable exercise for pregnant women, and it has an effect on reducing maternal stress and</td>
</tr>
</tbody>
</table>
Table 1 (Continued)

Effects of music therapy on parturient anxiety; Lima et al. (2014) 18

To evaluate the effectiveness of music therapy in reducing anxiety during the first clinical period of childbirth using the methodology of clinical, controlled and randomized teaching
Brazil; 29 pregnant women; study group = 15; control group = 14
Care was not mentioned. duration: not mentioned. description: not mentioned.
State-Trait Anxiety Inventory
and connection with the fetus while singing the lullabies
All pregnant women in the study group reported that undergoing music therapy was easy, and that they would use music therapy in the next labor. After the intervention, the researchers observed a decrease in the grade of anxiety from high to medium in 2 patients, and from high to low in 1 patient

The effects of music listening on psychosocial stress and maternal-fetal attachment during pregnancy Chang et al. (2015) 21

To examine the effects of listening to music on psychosocial stress and maternal-fetal attachment during pregnancy
Taiwan; 2009-2010; 296 pregnant women; study group = 145; control group = 151
Individual care. Duration: 30 minutes for 2 weeks. Description: the study group received routine prenatal care, while the control group received only routine prenatal care
Pregnancy Stress Rating Scale; Perceived Stress Scale; and Maternal Fetal Attachment Scale
The results of the posttest identified a significantly lower level of psychosocial stress in the study group compared to the controls, particularly regarding the stresses related to baby care, the change in family relationships, and the identification of the maternal role

The effects of music listening on psychosocial stress and maternal-fetal attachment during pregnancy Oh et al. (2016) 22

To examine the effects of listening to music on stress, anxiety and quality of sleep in pregnant women with sleeping disorders
South Korea; 2013-2014; 60 pregnant women; study group = 30; control group = 30
Individual care. Duration: 20 minutes; the number of days was not mentioned. Description: the prepared songs had a time of 60 to 80 beats, and were based on the pregnant woman’s heart count. The songs were divided into 5 genres, such as hymns or contemporary Christian music, classics, pop, and, with the help of music experts, a total of 25 CDs were made (5 songs of each genre). The isolated space was used to block out the noise. In the study group, after the non-stress test, the State-Trait Anxiety Inventory was applied, blood pressure, pulse and temperature were recorded, while the songs selected by the pregnant woman were played for 20 minutes. In the control group, the non-stress test was applied, but there was no music while collecting the data
Pittsburgh Sleep Quality Index, Perceived Stress Scale, and State-Trait Anxiety Inventory
No statistically significant differences were identified among the 60 pregnant women with sleeping disorders in their demographic and clinical characteristics or the scores on the scales prior to the administration of musical intervention. The analysis confirmed that the posttest scores on the scales reflected significant differences from their initial scores. With all of the women’s choices about other variables controlled, the women in the study group had statistically lower scores on the scales than the controls

Effect of music intervention on maternal anxiety and fetal heart rate pattern during non-stress test; Oh et al. (2016) 23

To examine the effects of musical intervention on maternal anxiety, fetal heart rate pattern, and test time during non-stress test for prenatal fetal assessment
South Korea; 2013-2014; 60 pregnant women; study group = 30; control group = 30
Individual care. Duration: 20 minutes; the number of days was not mentioned. Description: the prepared songs had a time of 60 to 80 beats, and were based on the pregnant woman’s heart count. The songs were divided into 5 genres, such as hymns or contemporary Christian music, classics, pop, and, with the help of music experts, a total of 25 CDs were made (5 songs of each genre). The isolated space was used to block out the noise. In the study group, after the non-stress test, the State-Trait Anxiety Inventory was applied, blood pressure, pulse and temperature were recorded, while the songs selected by the pregnant woman were played for 20 minutes. In the control group, the non-stress test was applied, but there was no music while collecting the data
State-Trait Anxiety Inventory
The study group had significantly lower scores on the anxiety scale than the controls. There were no significant differences in systolic blood pressure and pulse rate between the two groups. The baseline fetal heart rate was significantly lower in the study group than in the controls. Acceleration frequency in fetal heart rate was significantly increased in the study group compared to the controls. There were no significant differences in fetal movement and test time for reactive non-stress test between the groups

Effects of prenatal music stimulation on state/trait anxiety in full-term pregnancy and its influence on childbirth; a

To investigate the effect of music on maternal anxiety, before and after the non-stress test, and Spain; 2013-2014; 409 pregnant women; study group = 204; control group = 205
Individual care. Duration: 40 minutes per session; listening to music for 14 sessions, three times a week, at the same time of day. Description: the 409 pregnant women who went for prenatal music intervention can be a useful and effective tool to reduce anxiety in pregnant women at term during the non-stress test
State-Trait Anxiety Inventory
Before the non-stress test, term pregnant women who received musical intervention had a state-trait anxiety score similar to those of the control group. After the test, the average anxiety level was significantly lower in the intervention group than in the control group. All pregnant women in the study group reported that undergoing music therapy was easy, and that they would use music therapy in the next labor. After the intervention, the researchers observed a decrease in the grade of anxiety from high to medium in 2 patients, and from high to low in 1 patient

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<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Poster vs. Control Group</th>
<th>Effect on Anxiety</th>
<th>Effect on Depression</th>
<th>Effect on Vital Signs</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal music therapy</td>
<td>Preterm infants; García et al. (2018)</td>
<td>Randomized controlled trial; García et al. (2018)</td>
<td>Increased</td>
<td>Increased</td>
<td>Decreased</td>
<td>The intervention improved the delivery rate and reduced the rate of neonatal complications.</td>
</tr>
<tr>
<td>Turkish music</td>
<td>Preterm infants; Nwebube et al. (2018)</td>
<td>Randomized controlled trial; Nwebube et al. (2018)</td>
<td>Increased</td>
<td>Increased</td>
<td>Decreased</td>
<td>The intervention improved the delivery rate and reduced the rate of neonatal complications.</td>
</tr>
<tr>
<td>Prenatal singing</td>
<td>Preterm infants; Martins (2017)</td>
<td>Randomized controlled trial; Martins (2017)</td>
<td>Increased</td>
<td>Increased</td>
<td>Decreased</td>
<td>The intervention improved the delivery rate and reduced the rate of neonatal complications.</td>
</tr>
<tr>
<td>Prenatal listening to music</td>
<td>Preterm infants; Shimada et al. (2019)</td>
<td>Randomized controlled trial; Shimada et al. (2019)</td>
<td>Increased</td>
<td>Increased</td>
<td>Decreased</td>
<td>The intervention improved the delivery rate and reduced the rate of neonatal complications.</td>
</tr>
</tbody>
</table>

Table 1 (Continued)
Table 1 (Continued)

| DELIVERY |
|------------------|------------------|--------------------------------------------------|
| Effect of music on labor and postpartum pain relief, anxiety and maternal level and postpartum mood | Shimada et al. (2010)25 | To evaluate the effects of music on labor pain, anxiety, and maternal mood. Group care. Duration: from the latent phase of labor. Description: pregnant women who were randomly assigned to the intervention group received music therapy during labor. The music was started 10 minutes before the onset of labor and was continued for at least 30 minutes. The intervention was provided by a certified music therapist. Pain intensity and anxiety in the latent phase of labor were measured using a visual analog scale for pain and anxiety, respectively. Sensitivity: the intervention group had a lower level of pain compared to those in the control group. A significant difference was observed between the two groups in terms of pain intensity and anxiety (p = 0.009). The study group had a lower level of pain and anxiety compared to the controls at all stages of labor. A significant difference was found between the two groups (p = 0.009). |
| Comparison between massage and music therapies to relieve the severity of labor pain | Taghinejad et al. (2010)28 | To compare the effects of massage and music therapy on the severity of labor pain. The study group received massage therapy during labor, while the control group received music therapy. Pain intensity and anxiety were measured using visual analog scales. Sensitivity: the massage therapy group had a lower level of pain compared to the music therapy group. A significant difference was observed between the two groups in terms of pain intensity (p = 0.001) and anxiety (p = 0.001). |
| Effect of music therapy on labor pain and anxiety in Taiwanese first-time mothers | Liu et al. (2010)29 | To investigate the effects of music therapy on labor pain and anxiety in Taiwanese first-time mothers. Group care. Duration: from the latent phase of labor. Description: pregnant women who were randomly assigned to the intervention group received music therapy during labor. The music was started 10 minutes before the onset of labor and was continued for at least 30 minutes. The intervention was provided by a certified music therapist. Pain intensity and anxiety in the latent phase of labor were measured using a visual analog scale for pain and anxiety, respectively. Sensitivity: the intervention group had a lower level of pain compared to those in the control group. A significant difference was observed between the two groups in terms of pain intensity and anxiety (p = 0.001). The study group had a lower level of pain and anxiety compared to the controls at all stages of labor. A significant difference was found between the two groups (p = 0.009). |
| Effect of massage on labor pain and anxiety in Taiwanese first-time mothers | Liu et al. (2010)29 | To investigate the effects of massage therapy on labor pain and anxiety in Taiwanese first-time mothers. Group care. Duration: from the latent phase of labor. Description: pregnant women who were randomly assigned to the intervention group received massage therapy during labor. The massage was provided by a certified massage therapist. Pain intensity and anxiety in the latent phase of labor were measured using visual analog scales. Sensitivity: the massage therapy group had a lower level of pain compared to the control group. A significant difference was observed between the two groups in terms of pain intensity and anxiety (p = 0.001). The study group had a lower level of pain and anxiety compared to the controls at all stages of labor. A significant difference was found between the two groups (p = 0.009). |
| Effect of music therapy on labor pain and anxiety in Taiwanese first-time mothers | Liu et al. (2010)29 | To investigate the effects of music therapy on labor pain and anxiety in Taiwanese first-time mothers. Group care. Duration: from the latent phase of labor. Description: pregnant women who were randomly assigned to the intervention group received music therapy during labor. The music was started 10 minutes before the onset of labor and was continued for at least 30 minutes. The intervention was provided by a certified music therapist. Pain intensity and anxiety in the latent phase of labor were measured using visual analog scales. Sensitivity: the intervention group had a lower level of pain compared to those in the control group. A significant difference was observed between the two groups in terms of pain intensity and anxiety (p = 0.001). The study group had a lower level of pain and anxiety compared to the controls at all stages of labor. A significant difference was found between the two groups (p = 0.009). |

Effects such as pain relief during contractions, help in reducing tension and fear, environmentalization of the parturient in the hospital, encouragement to prayer and spirituality have been reported.
Effects of music therapy during vaginal delivery on postpartum pain relief and mental health; Simavli et al. (2014)16

To evaluate the effects of music therapy on postpartum pain, anxiety level, satisfaction, and rate of early postpartum depression

Turkey; 2012; 161 pregnant women; study group = 80; control group = 81

Individual care. Duration: during labor. Description: The study group listened to self-selected songs during labor. Postpartum pain intensity, anxiety level and satisfaction rates were measured using the Visual Analog Scale, and the postpartum depression rate was assessed using the Edinburgh Postnatal Depression Scale in postpartum days one and eight

Visual Analog Scale

The study group had a lower level of postpartum pain and anxiety than the controls, and this was statistically significant at all time intervals. A significant difference was observed between the two groups in terms of satisfaction rate (p < 0.001) and the rate of postpartum depression on days 1 and 8

music therapy reduces the physiological and cognitive responses of anxiety in patients undergoing multiple c-section which can be used in the clinical practice

Effects of music during multiple cesarean section delivery; Handan et al. (2018)17

To evaluate the effects of nursing intervention using music therapy to relieve anxiety levels in pregnant women with multiple cesarean sections

Turkey; 2015-2016; 60 pregnant women; study group = 30; control group = 30

Individual care. Duration: during surgery. Description: A list of their favorite songs was selected to be played during the cesarean. They were reproduced at the desired volume of each patient throughout the surgery, using a stereo player. Physiological parameters and anxiety levels in the form of the questionnaire were recorded on the suture too. The data from the questionnaire were collected from women in the control group through interviews; their vital findings were recorded before and after anesthesia procedures, without intervention during the entire surgery

Structured questionnaire and Visual Analog Scale

The physiological indicators of anxiety and blood pressure were reduced regarding the initial values in the study group when compared to the control group

Music therapy reduces the physiological and cognitive responses of anxiety in patients undergoing multiple c-section which can be used in the clinical practice

Coping with preoperative anxiety in cesarean section: physiological, cognitive, and emotional effects of listening to favorite music; Kushnir et al. (2012)18

To assess the effects of listening to music while waiting for a cesarean section: emotional, cognitive and stress-related physiological reactions

Israel; 2005; 60 pregnant women; study group – 28; control group – 32

Individual care. Duration: 40 minutes before cesarean section. Description: A list of songs of their choice was selected. The study group listened to selected songs using a headset 40 minutes before the cesarean section

Mood State Scale; Perceived Threat of surgery scale; vital signs

The study group experienced a significant increase in positive emotions and a significant decline in negative emotions and perceived threat of the situation when compared to the controls, who exhibited a decline in positive emotions, an increase in perceived threat of the situation, and no change in negative emotions. The study group also exhibited a significant decrease in systolic blood pressure compared to a significant increase in diastolic blood pressure and RF in the controls

Listening to your favorite music just before a cesarean section can be an effective and emotionally-focused coping strategy

**Table 1 (Continued)**

<table>
<thead>
<tr>
<th>Requirement: a randomized controlled clinical trial; Simavli et al. (2014)16</th>
<th>Hemodynamics, fetal-neonatal parameters, and the need for analgesics in the postpartum period in pregnant women</th>
<th>Levels were measured using the Visual Analog Scale. The two groups were compared in terms of pain severity, anxiety level, maternal hemodynamics, fetal-neonatal parameters, and need for analgesics in the postpartum period</th>
<th>Difference was observed between the two groups in terms of maternal hemodynamics and fetal heart rate after the intervention. Postpartum analgesic requirement decreased significantly in the study group</th>
<th>Maternal-fetal parameters and the need for analgesics in the postpartum period were increased</th>
<th>Maternal-fetal parameters and the need for analgesics in the postpartum period were increased</th>
</tr>
</thead>
</table>

**POSTPARTUM PERIOD**

The efficiency and duration of the analgesic effects of musical therapy on postpartum pain; Sen et al. (2016)19

First, to discover the effect of music therapy on postpartum analgesia, and, secondly, to determine the duration of its effect.

Turkey; 2009; 70 pregnant women; group 1 with music = 35; group 2 without music = 35

Individual care. Duration: 1 hour after surgery. Description: pregnant women who underwent cesarean sections were included and randomly allocated to two groups as follows: in group 1, pregnant women listened to music through a headset for an hour after surgery, while in group 2, they did not listen to any music during the same period. In the postanesthetic care unit, pregnant women were connected to a patient-controlled analgesia device (tramadol 3 mg/ml), which was adjusted to deliver a 20 mg bolus, with a 15 min blocking interval and a maximum 4-hour dose of 150 mg. Postoperative pain was assessed using the visual analog scale and tramadol consumption was recorded at 4, 8, 12, 16, 20 and 24 hours

Visual Analog Scale

There was a significant decrease in group 1 in relation to the frequency of analgesic delivery in the 4th postpartum hour. Regarding the consumption of tramadol in the postpartum period, the values measured in the fourth hour were significantly lower in group 1. The total amount of tramadol consumption and additional analgesic use in the 24-hour postpartum period were again lower in group 1 when compared to group 2. All scores on the Visual Analog Scale were lower in group 1 when compared to those of group 2

Music therapy provides after surgery reduces postoperative pain in the first 24 hours and analgesic consumption in the first 4 hours
in assisting parturient women, reasserting the autonomy of women regarding labor and birth.35

As for the results found, we could not perform an in-depth analysis of the methodology, since some studies were inaccurate, omitted data, and/or presented vague information. In addition to the incomplete methodology, some of the studies selected do not inform if they were conducted by music therapists, and most of them were performed by other health professionals. As a result, these studies did not have a theoretical framework for music therapy and did not follow a validated protocol. Low methodological quality was a common finding among systematic reviews that examine music-based interventions, with variations between the number of interventions and the duration of each session, which can interfere with the results, limiting the benefits that the pregnant woman and her fetus could obtain; therefore, it is necessary to think about comprehensive interventions that cover the prenatal, delivery and postpartum periods.8

Carvalho33 states that, in the practice of music therapy, music is not therapeutic, and is not used as an end in itself, but becomes a mediator of therapeutic individual or group relationship guided by a qualified and certified music therapist. It is important to remember that music therapy is included among the services provided by the Brazilian Unified Health System. In addition to maintaining its autonomy, it develops a practice consistent with the principles, seeking the necessary transformations, and without restricting its vision. The conviction regarding the contribution of studies on music therapy for the medical field brings another level of scientific knowledge necessary for the development of music therapy, thus answering existing questions. The need for the area to discuss some concepts is understood, contributing to clinical practice in different contexts.36

Another aspect to be observed was that most of the studies found were conducted outside Brazil (only three Brazilian publications were found), which suggests that further studies in this area should be carried out. Based on the results of previous studies, Brandalise37 states that there are few music therapists who publish articles and books reporting their findings and professional experiences, suggesting that there should be an incentive and preparation for the professional to engage in research.

Conclusion

From the results obtained, we can conclude that the performance of music therapy during the prenatal, delivery and postpartum periods can provide several benefits to the pregnant woman and the fetus, thus justifying its importance in this field. There is a demand in the job market for more professional music therapists, as well as for more studies on this subject performed by these professionals.

Conflict of Interests

The authors have no conflict of interests to declare.

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