Approaches: An Interdisciplinary Journal of Music Therapy
16 (1) 2024
ISSN: 2459-3338
https://doi.org/10.56883/aijmt.2024.71

ARTICLE

Investigating the suitability of customised playlists for childbirth in Ireland and Hong Kong

Pui-Sze Cheung
Irish World Academy of Music and Dance and University of Limerick, Ireland

Tríona McCaffrey
Irish World Academy of Music and Dance and University of Limerick, Ireland

ABSTRACT

The aim of this study was to explore the experience of two couples using customised playlists to support childbirth at the public maternity hospitals in Ireland and in Hong Kong. Two couples participated in a pre-delivery meeting with a music therapist one month before their infant's due birth date. During this meeting, the couples were assisted in setting up customised playlists and received recommendations on strategies and relaxation techniques to use with the playlists. Data collection was performed through semi-structured interviews with the participants two weeks after the childbirth. The interviews were then examined through Thematic Content Analysis (Braun & Clark, 2006). Three final themes arose included: (1) feasibility of using customised playlists during childbirth; (2) preferred music selection; and (3) perceived benefits of the playlists. The feasibility of using playlists was affected by the adaptability of the playlists to the changeable birth situations and the uncertain feedback and restriction from hospital staff. The suitability of original music selection and the meaning of songs were highlighted. Participants reported that the birthing playlists promoted relaxation and better sleep; provided spiritual support; and diverted attention from discomfort and disturbances.

KEYWORDS

music therapy,
music,
playlists,
childbirth,
labour

Publication history:
Submitted 5 Aug 2021
Accepted 3 Mar 2022
First published 31 Mar 2022

AUTHOR BIOGRAPHIES

Pui-Sze Cheung is an accredited music therapist and a researcher. She is currently doing doctoral research on music and perinatal wellbeing at the University of Limerick and delivering the first music-based intervention at the University Maternity Hospital Limerick as part of the Specialist Perinatal Mental Health Service. [puisze.cheung@ul.ie] **Dr Tríona McCaffrey** is a Lecturer in Music Therapy at the University of Limerick who has a practice background in mental health. Her research primarily focusses on the uses of music therapy and the arts to promote mental well-being with a strong emphasis on the inclusion of service user perspectives. [triona.mccaffrey@ul.ie]

INTRODUCTION

Childbirth is a significant psychological experience for both women and their birth partners. Maximising the likelihood of a positive childbirth experience is considered important for the well-being of the childbearing family (Karlsdottir et al., 2018). Growing evidence suggests that music is a cost-effective, multi-functional, and adverse-free aid in enhancing the childbirth experience (Wulff et al.,

Publisher: Queen Margaret University Edinburgh | Centre for Person-centred Practice Research

2017). The use of music in childbirth ranges from music listening initiated by women (Stevens, 1992), pre-recorded music offered by medical personnel (Xavier & Viswanath, 2016), individualised playlists prepared by music therapists in accordance to the women' preferences to music (Browning, 2000), live music interventions by music therapists (Mohr, 2019), and Music Therapy-Assisted Childbirth (MTACB) program (Clark, 1986; Clark et al., 1981; Gonzalez, 1989). A MTACB program is facilitated by a qualified music therapist and consists of a series of consultations or sessions offered in the last trimester of pregnancy to provide guidance on selecting and using music for different needs during labour and offer training on using music with relaxation and breathing techniques (Allison, 1991; Browning, 2000, 2001; Clark et al., 1981; Gonzalez, 1989; Hanser et al., 1983). Sometimes, the music therapist attends the labour to manage the music programme and support the woman as a secondary coach (Allison, 1991; Browning, 2000, 2001; Clark et al., 1981; Hanser et al., 1983).

There is a growing body of research carried out by various clinicians including obstetricians, nurses, and midwives that highlight the positive effects of music listening in childbirth (McCaffrey et al., 2020; Wulff et al., 2017). In the last decade, many clinical trials have demonstrated that listening to music during childbirth can significantly reduce perceived pain (Hosseini et al., 2013; John & Angeline, 2017; Labrague et al., 2013; Liu et al., 2010; Simavli et al., 2014a; Xavier & Viswanath, 2016), relieve anxiety (John & Angeline, 2017; Liu et al., 2010; Simavliet al., 2014b; Xavier & Viswanath, 2016), promote satisfaction (Simavliet al., 2014b), reduce the need of medication (García González et al., 2018), and shorten the duration of the birth process (Ajori et al., 2013; García González et al., 2018; Hosseini et al., 2013; Palompon et al., 2011).

Various theories about the role and impact of music listening have been discussed in the literature. The 'entrainment mechanism' suggests that sedative music helps to create an inner state of greater relaxation and well-being by altering the heart rate, breathing pattern, and producing slower and more uniform brain waves which results in lower muscle tension and lower blood pressure (García González et al., 2018; Macdonald et al., 2003). In terms of pain relief, it is suggested that, under the gate control theory, the impulses triggered by music auditory stimulus assist in closing the 'gate' located in the dorsal horn of the spinal cord and override the pain signals carried by smaller nerve fibres (Phumdoung & Good, 2003; Wang & Tian, 2021). Also, when a listener finds music pleasant, the brain releases endorphins which can reduce the perception of pain (Tabarro et al., 2010).

Previous studies on music listening during childbirth employed a wide range of music. An integrative review of music listening studies in childbirth noted that some studies exclusively employed instrumental music, others a combination of both instrumental and vocal music, with a majority of studies catering for women's music preferences (McCaffrey et al., 2020). Although use of soft, soothing or relaxing music has generally been recommended in neurological literature to promote relaxation (Krout, 2007; McCaffrey et al., 2020), other studies indicate that consideration of individual preferences are key when using music to aid relaxation. Indeed, it has been noted that painful stimuli can be tolerated significantly longer when listening to chosen rather than prescribed relaxing music (Mitchell & MacDonald, 2006). Listening to preferred music, including both relaxing and stimulative music, has also been shown to lower levels of tension and state-anxiety when compared to listening to unpreferred sedative music (Jiang et al., 2013). In addition to promoting relaxation during childbirth,

it has also been suggested that music listening may also impact the progression of labour. Studies illustrated that a faster pace could stimulate body movement and muscular activities (Metcalfe, 2016; Terry et al., 2019). Music with a more driving melody, percussions, strong rhythm, and increased volume has been suggested to encourage pushing and contribute to faster progress (Livingston, 1979; Palompon et al., 2011). One randomised clinical trial (RCT) showed that the pain and duration of labour of women during the active and second stage of labour was lower in the fast music group than the slow music and control group (Ajori et al., 2013). Another study compared slow and fast music during the second stage of labour and found that women in the slow music condition had a slower delivery than those who were in the fast music condition (Palompon et al., 2011).

This study was informed by previous research into music listening during childbirth both within and beyond the field of music therapy. It also embraced central principles of MTABC where the development of rapport with the therapist and the provision of guidance to women and their partners about use of music during childbirth was central. However, unlike MTABC, a music therapist was not present during childbirth. Therefore, this study employed a hybrid approach in supporting women and their partners who wished to use music listening during childbirth to prepare suitable playlists that were based on best available evidence. Specifically, this involved a qualitative exploration of how women and their partners experienced the use of customised playlists during childbirth. It aimed to 1) explore the experience of women and their birth partners in using customised playlists during childbirth at a public maternity hospital; and 2) to investigate the suitability of this type of approach.

MATERIALS AND METHODS

Methods

This qualitative study was conducted to explore the experiences of women and their partners who wished to use music listening to support childbirth. This research was completed by the first author who provided one pre-delivery meeting to the couples to inform the design and use of customised playlists for childbirth. Following childbirth, participants took part in a semi-structured interview that was analysed using Thematic Content Analysis (Braun & Clarke, 2006). This study was approved by the University Research Ethics Committee where the researcher carried out the study.

A social media recruitment campaign was done in collaboration with midwives in Ireland (as the researcher's country of residence) and Hong Kong (as the researcher's country of origin) who posted details about this study on their business Facebook Page. A notice about this study was also posted on other social media pages such as the 'Local Birth Gathering' (Hong Kong) and 'Positive Birth Ireland' (Ireland). Carrying out the recruitment campaign across two countries aimed to explore the experiences of using customised playlists during childbirth in two different cultural contexts and healthcare settings. Criteria for study inclusion were that: (a) the pregnant woman and her birth partner were over 18 years old; (b) the woman had an estimated due date (EDD) between January to February 2018 and (c) both the woman and her birth partner were willing to participate. Pregnant women were not excluded from the study based on their intention to have a natural or caesarean delivery.

The prospective participants communicated their interest via e-mail. Upon contact, potential participants were provided with a detailed study information sheet and an opportunity to ask questions about possible research involvement. Once the inclusion criteria were met, potential participants were asked to provide their informed consent to take part in the study. Two married couples including one from Hong Kong who were expecting their first child and a couple from Ireland who were expecting their third child were recruited to this study.

Each woman and her birth partner were asked to fill out a sheet with identification data and information about musical preferences before the pre-delivery meeting one month before their estimated date of childbirth. This sheet asked questions about the couples' likes and dislikes of music/sound/instruments; names of their preferred music/song; music that was meaningful to them; and music that they can connect to their infant. This information was used to inform the design of customised playlists that were set up on an ad-free *Spotify* account for participants to use without cost.

Playlist creation

The customised playlists were grouped into three main categories – 1) gentle instrumental; 2) vocal songs with positive lyrics; and 3) rhythmic music (see Table 1). These categories were designed to meet various needs in different stages of labour as employed in previous studies. The playlists designed for the study participants included all the chosen songs listed on their music preferences sheet, with careful selection of suitable song versions to avoid recordings with noisy environments including live concert versions, recordings with sudden changes of volume/tempo/mood, or recordings with elements that were stated unpleasant by the participants. The playlists also included the addition of gentle instrumental versions of the preferred songs. Categories 1 and 2 were designed for the first stage of labour where relaxation is paramount. Livingston (1979) suggested that the music for the first stage of labour needs to be harmonious and soothing, without sudden dynamic changes from soft to loud, and meet individual tastes to achieve relaxation and cue breathing. Participants were recommended to choose stronger and faster music in the categories as the labour progressed. Category 3, which contained only rhythmic music, was designed with the purpose to encourage movement and pushing. It is recommended that music for pushing should be rhythmic to help provide the women with energy to "push the baby out" (DiCamillo, 1999, 2021). To aid selecting their choice of music, various playlists such as 'movie soundtracks', 'pop songs', 'Christian songs', or 'classical music' were set up under each category.

Customised playlists were then presented to each couple during a 50-minute pre-delivery meeting designed with reference to Clark's (1986) practical guide. The purpose of this meeting was to ensure that the couples a) became familiar with the customised playlists, b) knew which types of music to be used for different stages of labour, and c) were provided with information on music use for relaxation. Participants were advised that when using the customised playlist during childbirth they should choose music that they preferred and considered to match their emotional or physical needs at that time. This principle was similar to the iso principle as described in a case study on flexibly using therapeutic playlists for mood management (Heiderscheit & Madson, 2015), which demonstrated that increased flexibility with the playlist resulted in more opportunities to use the playlist.

The participants were also advised to skip any music that appeared to be unsuitable or cause discomfort. A digital booklet[1] containing information on relaxation techniques, including progressive muscle relaxation and visualisation exercises, were provided to participants to be used in conjunction with customised playlists. Pregnant participants were recommended to practice relaxation with the music daily in order to become familiar with the customised playlist and to elicit a conditioned response that paired relaxation with the playlists. Upon conclusion of the pre-delivery meeting, participants were reminded that they were welcome to contact the researcher by email or text should they have any further query about their music selections or wish to update the researcher with decisions around the childbirth process.

Categories	Content
1. Gentle instrumental music	• Slow tempo (bpm = 60-80); no percussion; no lyrics • Relaxing/ meditation music, Classical, light jazz, soundtrack or instrumental version of playlist 2 and nursery rhymes • e.g. Schubert's 'Traumerei' and the 'Feather theme' from Forrest Gump
2. Songs with positive lyrics	• Slow to medium tempo (bpm = 60-100); may include percussion • Songs with positive themes such as encouragement, brave, love, hope • e.g. 'The prayer'. 'You raise me up'
3. Rhythmic music	• Fast tempo (bpm = 100-120) • Instrumental or with relevant and positive lyrics • e.g. 'This is the day'. 'You make me brave', 'Nothing is impossible'. 'Waltz for Debby'

Table 1: The features of the three music categories

Interviews

Semi-structured interviews were carried out two weeks after childbirth to explore participant experiences of using the customised playlists during childbirth. The interview with the couple from Hong Kong was conducted through *Facetime*, and the interview with the couple from Ireland was conducted in-person at their home. The interviews lasted between 40 to 60 minutes and were audio-recorded.

Seven questions were set to guide the interview. According to the six types of interview questions in Patton's (2002) qualitative research method, the questions can be categorised into four main types: Experience and behaviour, opinions and values, feelings, and sensory.

Audio-recordings of two interviews were transcribed verbatim. The interview in Cantonese was translated into English by the first author who is a native Cantonese speaker. Both interviews were analysed using Braun and Clarke's (2006) Thematic Content Analysis which allowed an inductive approach to explore the research questions. The themes were derived from the data rather than the interview questions. Phrases in the transcripts were identified, labelled and coded. These codes were

[1] Please see here: https://www.hannibalregional.org/resources/3d1fea4d-9b84-4df0-93bd-d8774e90726c/Hannibal_Regional_Babybook_chapter4_LaborCoping.pdf

then combined into larger categories which were further defined, refined and renamed in consultation with the second author until three final major themes with smaller sub-themes were agreed upon.

Question types	Interview questions
Experience/behaviour	1. Can you describe the childbirth experience?
Sensory and feeling	2. How did you feel about the music in different processes?
Opinion/values	3. Which type of music did you find more appropriate and why?
Experience/behaviour	4. Did you encounter any difficulty in using the program? 5. Did you use any other pain-relief strategy or medication? 6. How often did you listen to the playlist and practice the strategies before the labour?
Opinion/values	7. Were there any positive or negative experiences between you and your birth partner in the preparation and practice of the program?

Table 2: Interview questions

FINDINGS

Demographics

Demographic information taken from the interviews revealed that both couples were all above 30 years old and employed. In both cases, their infants were born full term. The woman from Hong Kong had a normal vaginal delivery and gave birth to a female infant. The woman from Ireland gave birth to a male infant by an elective caesarean delivery upon the recommendation by her consultant obstetrician at the end stages of her pregnancy.

Participants	Content	Place of residence	Location of the childbirth	Mode of birth	Parity (Birth order)
Mandy	32	Hong Kong	A public maternity hospital in Hong Kong	Natural	Primipara (First child)
Samuel	33	Hong Kong			
Denise	37	Ireland	A national maternity hospital in Ireland	Caesarean	Third child (First time Caesarean)
Edwin	40	Ireland			

Table 3: Demographic characteristics of participants *pseudonyms were used to protect the anonymity of the interviewees

Themes

Following analysis of interviews with two couples, three major themes and several sub-themes were derived. These were labelled: "feasibility of using customised playlists during childbirth," "preferred music selection," and "perceived benefits of the customised playlists" (see Table 4).

Major themes	Sub-themes
1. Feasibility of using customised playlists during childbirth	• Adaptability to changeable birth situations • Uncertain feedback and restriction from hospital staff
2. Preferred music selection	• Suitability of original music selection • Meaning of the songs has an important role
3. Perceived benefits of the customised playlists	• Assist relaxation and better sleep • Provide spiritual support • Divert attention from discomfort and disturbances

Table 4: Major themes and sub-themes

Theme 1: Feasibility of using customised playlists during childbirth

This theme was derived from the participants' feelings about, or experiences of, using the customised playlists during childbirth. The sub-themes on the feasibility included the adaptability of the customised playlists to the changeable birth situations and the uncertain feedback and restriction from hospital staff.

Adaptability to changeable birth situations

Both couples experienced unforeseeable situations that resulted in the adjustment of the playlists or the listening mode. Both couples used suitable playlists designed to meet most of their needs after follow-up discussion and preparation. Mandy was told in a clinical appointment that she had to turn off her mobile phone or iPad while in the labour ward. To adhere to these hospital rules, the researcher transferred the customised playlists onto three CDs. As a result, Mandy listened to the customised playlists using a Discman and headphones instead of using the iPad speaker during her pregnancy. Due to this change of music listening mode, Mandy had to adapt to the new device and could not use the rhythmic music for delivery:

> After I arrived at the delivery room, I wanted to continue to listen (to the CD), but the doctor said I needed to take off the headphones or I could not hear their instructions. So, I was not allowed to listen to music, and I never got to play CD3.

Denise and Edwin also adjusted their plans in using the customised playlists. Denise was recommended to have an elective caesarean delivery instead of natural delivery ten days before the EDD. They chose to listen to the gentle instrumental category only during the caesarean delivery.

Uncertain feedback and restriction from hospital staff

Both couples reported that before childbirth, they both experienced some uncertainty about using the playlists. They explained that despite making several enquiries in the month before delivery, no clinical staff member could guarantee that use of music listening would be possible during childbirth. The uncertainty that arose as a result was evidenced by Edwin's comment:

> By the time we went in…we brought it back again that there is music that helps her to sleep, that calms her down, can we take it in. And she said that thing shouldn't be a problem anyway... but the initial idea was that maybe there is a chance that she can't listen to it.

Both couples reported some resistance and restrictions surrounding listening to their playlists at the labour ward and at the delivery room in the hospital. Although a CD player was provided in the labour ward at the Hong Kong public maternity hospital, Mandy was not allowed to play her CDs openly on the hospital CD player due to copyright issues. She could only listen to the prepared CDs through headphones. Mandy described such restrictions below:

> I asked if they could play my CDs, they said I could only listen to their CD because they have bought the copyrights of the music… They would not allow me to change their CD... I was glad that I prepared my own music...or I won't be able to listen to it.

Denise and Edwin also experienced resistance around listening to music during the birth process in Ireland. They reported that a member of the medical staff rejected the idea of playing Christian music on the grounds that they held a different religious belief. Edwin explained that this member of staff later agreed that music could be played on the premise that the Christian music was instrumental.

> He was a bit resistant about some of the songs we are going to play. He didn't know it was just going to be instrumental so when he got to know it was going to be instrumental, he was fine.

Theme 2: Preferred music selection

The concept of preferred music selection played a salient role in both interviews. Both couples considered the suitability of their original music choices that were featured in the final playlists. They also highlighted the importance of using music that held a special personal significance or meaning to them.

Suitability of original music selection

Denise explained that her original preferences accounted for the use of Christian music. Compared with the original song version of her choices, she found the gentle instrumental versions more suitable to her childbirth experience: "They [instrumental versions of Christian music] are all good…I really enjoyed all of them."

However, Mandy thought that a few of her chosen songs were irrelevant and not appropriate during the childbirth even though she did not report such concern during preparation for childbirth. She added that classical music and Christian music were more appropriate for use in her childbirth experience: "I remembered some of them were not suitable. E.g. the song from Faye Wong and some other pop songs. I found classical and Christian music was suitable and appropriate...when I was in pain, the Christian music was very touching."

Meaning of the songs has an important role

Both couples mentioned the meaning of the songs was very important during childbirth. Mandy and Samuel explained the importance of listening to music that featured meaningful lyrics. In this case, such music offered a sense of support and strength during the childbirth experience: "The lyrics made me feel that I was not alone and gave me encouragement… the lyrics gave me support, strengthened me." Denise and Edwin explained that they benefited from the meaning of the Christian music featured on their playlist even when instrumental versions were used. Denise said, "though I can't hear the lyrics, I just got attuned to it as it was playing." Edwin added, "we know the lyrics in the instrumental... she can just focus the words on her own mind. She can think of the words as it's playing, you got the comfort as well."

Theme 3: Perceived benefits of the playlists

Perceived benefits of using the music playlists were reported by the participants, including assisting relaxation and sleep during contraction and the waiting time at the labour ward, providing spiritual and psychological support, and diverting attention from discomfort and disturbance.

Assist relaxation and better sleep

Both women reported using the playlists to assist with sleep during their time on the ward. When Denise was alone on the ward, she was worried about the long waiting time and being hungry due to her fasting in advance of her caesarean delivery, and Edwin described that "she put on her headphone, listened to it and fell asleep." Mandy also described using the playlists to help her rest during contractions and in doing so, she had more energy stored for pushing her infant through the birth canal:

> What I think most useful is that some tunes really help me to sleep… when I was in the hospital, I could fall in sleep within 2-3 tunes… even when I had the labour pain, I could sleep with the music. I awoke when I had the contraction but could sleep again right after the pain… it's important that I could rest during the contraction. I could save energy for the delivery.

Mandy also noted that these periods of relaxation, as supported by the music, helped her progress her labour quicker: "It helps me relax. When I can relax, dilation is faster. That's the main reason for the progress."

Though the use of playlists with relaxation techniques before birth was intended to elicit a conditioned response by pairing the feeling of relaxation with the playlists rather than address other needs during pregnancy, both women reported the playlists helped them relax which in turn helped them fall asleep during pregnancy. Mandy explained how after a particularly poor night's sleep, she would listen to the playlists to help her relax and prepare for rest: "As I didn't always sleep well, I would listen to the music after breakfast, then I could sleep… for about two hours." Edwin also noted how the playlists helped with Denise's relaxation and sleep during pregnancy: "When she was very low and a bit uncomfortable sleeping or unable to go to sleep, she put it and off she is going."

Provide spiritual support

Both couples reported that the music playlists offered them spiritual support during childbirth. They specifically explained that their choice of Christian music helped foster a sense of connection with their faith. Edwin described how the musical connection to his spirituality put him at ease: "It kind of helps you… trying to off-load whatever frustration, whatever pain you are going through, that God will take charge… The words kind of calm you down and tell you there's nothing you need to worry about."

Mandy also explained that Christian music was supportive during childbirth, especially when she was alone at the ward and in discomfort:

> When I was in pain, the Christian music was very touching. When I listened to the music, I felt that God was with me. And it was my only support, as I no longer had the phone to connect with friends/family. The lyrics made me feel that I was not alone, and the lyrics encouraged me. I even became teary during some songs as it was so moving...The Christian songs touched my heart a lot.

Divert attention from discomfort and disturbances

Both women experienced stress, anxiety, and different forms of pain or discomfort during childbirth. Denise had been fasting for her caesarean delivery and was worried about the delayed procedure. She used the playlists to comfort her, and Edwin noted how music helped Denise during this time: "it distracted her from the stress… she had a tough time with the hunger… so it's kind of took her mind off the hunger as well."

Mandy described experiencing a lot of pain during a long labour. This discomfort was only added to by the busy and tense nature of the clinical environment where staff need to quickly move in and out of the ward. All the while she used music to help her focus on her relaxation during the first stage of labour:

> What the music helped me most was help me to bear the long duration of the painful labour…the time felt easier to pass… the staff came in and out all the time… when I listened to music through the headphone, I was more focused on the music and would not pay attention to them. You know, sometimes the more you hear, the more you are worried. And you know the ward was very busy and tense. It was better with the music... it was good that it helped me to focus, and not paying attention to the surrounding. I can focus to breathe, to pray... I find this really helpful… I feel that to focus is quite important… when I can focus, the breathing is better... and less painful…

DISCUSSION

The findings from this study suggest that a) the feasibility of using customised playlists was impacted by the changeable birth situations, hospital policy, and hospital staff's reaction, b) the suitability of original music selection and the meaning of songs were important to participants and, c) the music promoted relaxation and better sleep while also providing spiritual support and diverting attention from discomfort and disturbances.

A key study outcome was that both couples could successfully use customised playlists to match their needs despite the changes to the birth situation. This suggests that customised playlists containing a wide range of music may be applied to both vaginal and caesarean deliveries. It also suggests that the practicalities of music listening during childbirth was by and large supported by clinical staff. However, there was some resistance by hospital staff based on grounds of copyright and religious beliefs featured in the music. Firstly, it was surprising to find that no medical staff at the public maternity hospital in both regions could guarantee the use of playlists before the childbirth. This finding raises the need for the involvement of a music therapist to have a respectful discussion around clinical staff's readiness to support birth preferences of the couples, particularly when sensitive religious issues are at play. Overall, these practical issues highlighted some important considerations for future practice and research especially for instances when music is self-prepared and not directly provided through the hospital. There has been little discussion around these issues in the literature, supposedly because many of the music listening studies to date have had direct input from clinical staff or MTACB programmes, where the music therapist has been present to negotiate these practical issues on behalf of the woman and the birth partner.

It is important to point out that the copyright and religious issues were only raised when the woman wished to play the music openly in a shared healthcare setting instead of listening through headphones. The use of such devices for music listening has received mixed views in the literature, with many studies having employed headphones for music listening during childbirth (Gokyildiz Surucu et al., 2018; Labrague et al., 2013; Liu et al., 2010; Palompon et al., 2011; Simavli, Kaygusuz, et al., 2014; Xavier & Viswanath, 2016). These studies claimed that the main function of headphones was to block environmental noises, which was a function also reported by one participant in this study. On the other hand, the same participant was prohibited to use headphones during delivery as it was thought to hinder her from following instructions from the attending clinicians. Palompon et al.'s (2011) study has cited similar concerns, specifically that the wearing of headphones might block clinicians' verbalisations to guide the childbirth process in the second stage of labour. It is noteworthy that none of the MTACB studies to date have mentioned the use of headphones. The potential benefits and limits of using headphones in the music therapy context require further research.

The findings on the perceived function of the customised playlists are consistent with previous literature on the topic of music listening during childbirth. Benefits of using the playlists, including enhanced relaxation and focus, in addition to diverting attention from discomfort, were reported by both women participants in this study, regardless of natural or caesarean delivery. These findings support those of earlier similar studies (Allison, 1991; Browning, 2000; Hanser et al., 1983; Tabarro et al., 2010; Wulff et al., 2017). The participant who had a natural delivery also reported benefits such as faster progress and reduction of pain and anxiety resulting from enhanced relaxation. Pain and anxiety

reduction have also been reported in other music listening studies (John & Angeline, 2017; Liu et al., 2010; Wulff et al., 2017; Xavier & Viswanath, 2016). Additionally, the use of music listening has also been implied to hasten the progress of childbirth as reported in two studies including one RCT (Gokyildiz Surucu et al., 2018; Hosseini et al., 2013). The findings from this study also indicate that daily listening of the playlist prior to childbirth may also have had positive effects on pregnancy-associated sleep problems. This is consistent with previous studies whereby music interventions brought about a significant improvement in women's sleep quality as measured by the Pittsburgh Sleep Quality Index (Liu et al., 2016; Shobeiri et al., 2016). This finding suggests that the practice of listening to customised playlists during pregnancy can have an impact both on experience of childbirth as well as on physical health benefits during pregnancy. It also suggests that introducing such playlists at an earlier stage of pregnancy may have additional benefits to pregnant women.

The findings on music preference brought new insights into music selection. Aspects such as musical elements, familiarity, musical associations, and cultural context should come into consideration when selecting music. Although previous studies concerning music use during childbirth suggest preferred and sedative music for the most therapeutic outcome during contractions and caesarean delivery (Laopaiboon et al., 2009; Livingston, 1979; McCaffrey et al., 2020; Wulff et al., 2017), findings in this study suggested otherwise. One participant reported she did not enjoy the sedative music played in the labour ward and found some of her favourite songs unhelpful because of the irrelevance of the lyrics. A second participant found instrumental versions of her selected songs to be more relaxing than her chosen original lyrical versions, adding that she could still benefit from the meaning of the songs even without the lyrics featured. This finding highlights the importance of familiarity with the music in advance of childbirth while also accounting for individual preferences. Furthermore, it raises the question of preferred music's relevance to the childbirth experience. Rossetti (2014) discussed the importance to understand the correlation of specific music elements and their combined effects on emotional and physiological response in choosing music for individual clinical goals. A strategy to help negate this scenario could be for the music therapist to recreate a soothing version of a song that may not otherwise be deemed relaxing in its original musical format. This is similar to the premise of using 'songs of kin' with premature babies, whereby parents' music is adapted into a suitable soothing version to be played in the NICU (Loewy, 2015).

All participants discussed the importance of their musical choices in connecting them with their faith and spirituality. Findings highlighted that music preference can be influenced by religion, spiritual needs can be exhibited during childbirth, and seeking spiritual support can be an important coping strategy in the childbirth experience. The feeling of uncertainty and having a low sense of control in childbirth were shared by all participants and might explain their need for spiritual support and protection. Few studies mention the importance of such religious music or spiritual support in childbirth (Olson, 1998; Tabarro et al., 2010) and other medical situations (Good et al., 2000). Tabarro et al. (2010) reported that a participant started praying and gained strength when Ave Maria was played during labour. Good et al. (2000) pointed out that spiritual music resulted in feelings of relaxation, safety, peace, and spirituality in some psychiatric patients, adding that music is important in many cultures for religious and therapeutic purposes. Olson (1998) described how music validated the importance of spiritual needs at difficult times in a patient's life, and that religious influences of music should be considered in bedside musical care assessment. It may be interesting for future

research to include larger samples with different religious backgrounds and investigate the possible correlation between music preferences, spirituality and childbirth experience.

Limitation

The main limitation of this study design was the low number of participants who partook in using the customised playlists. This raises the difficulty in any replication or generalisation of the findings. The comparison of two cases from different geographical locations might bring unnecessary stereotyping - a subjective perception or a single experience of the participants as the representation of a population. The researchers are aware that while insights of some cultural or regional difference might be gained, the findings might not be extrapolated. Another limitation is that the probability of bias in reporting the results of this study is high. It is possible that participant accounts of the programme were influenced by the multiple roles of the first author in this study. The first author designed the playlists, conducted the interviews and translated the Cantonese interviews into English. Future research may enlist an objective third party to carry out such interviews and the translation. Finally, only women and their birth partners' responses to the customised playlists were explored in this study. Therefore, it is recommended that future research considers the infant's needs and responses to music during labour and birth. For example, further instructions should be given on monitoring the infant's reaction to the music to avoid overstimulation or unpleasant reactions.

This study explored the experiences of participants who used customised playlists for childbirth at public maternity hospitals. In doing so, it revealed some practical issues surrounding such music use. Future research that aims to investigate the outcome of a MTACB programme would benefit from consultation with maternity hospital staff including obstetricians, midwives, nurses, and anaesthetists. Such input into the design of a protocol is warranted in an outcome study.

CONCLUSION

The aim of this study was to explore the experience of women and their birth partners in using customised playlists during childbirth. The findings revealed some issues around the feasibility of using customised playlists in a public hospital. These included the adaptability of the playlists to the changeable birth situations, and the hospital staff's understanding and perspectives of using music. The findings also highlighted some important considerations concerning music selection in terms of the suitability of original music selection and the importance of the meaning of songs. Lastly, the findings supported many of the benefits of using music listening during late-stage pregnancy and childbirth as reported in the literature. The results of this study can be used to inform clinicians about various aspects that warrant consideration when using music listening during late-stage pregnancy and childbirth. These specifically relate to music selection, the extension of music listening to the prenatal period, mode of music listening and consideration of hospital rules that might impose upon women's wishes to use self-prepared music in the hospital setting. Future research could also consider home births where a non-medical environment may potentially afford greater flexibility in the use of music during labour. This study highlights that music use leading up to and during childbirth

warrants further investigation in terms of women and their birth partner's music preferences, spirituality and overall childbirth experience.

ACKNOWLEDGEMENT

The authors would like to thank the contributions of Dr Josie Nugent in guiding the research project and the support of the midwives during participant recruitment. Finally, we thank the two couples who generously gave their time to participate in this project.

REFERENCES

Ajori, L., Nazari, L., Marefat, S., & Amiri, Z. (2013). Effect of music on pain and duration of labor. *SSU_Journals*, *20*(5), 555–561. http://jssu.ssu.ac.ir/article-1-2220-en.html

Allison, D. (1991). Music therapy at childbirth. In K. E. Bruscia (Ed.), *Case studies in music therapy* (pp. 529–546). Barcelona Publishers.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Browning, C. A. (2000). Using music during childbirth. *Birth: Issues in Perinatal Care*, *27*(4), 272–276. https://doi.org/10.1046/j.1523-536x.2000.00272.x

Browning, C. A. (2001). Music therapy in childbirth: Research in practice. *Music Therapy Perspectives*, *19*(2), 74–81. https://doi.org/10.1093/mtp/19.2.74

Clark, M. E. (1986). Music therapy-assisted childbirth: A practical guide. *Music Therapy Perspectives*, *3*(1), 34–41. https://doi.org/https://doi.org/10.1093/mtp/3.1.34

Clark, M. E., McCorkle, R. R., & Williams, S. B. (1981). Music Therapy-Assisted Labor and Delivery. *Journal of Music Therapy*, *18*(2), 88–100. https://doi.org/10.1093/jmt/18.2.88

DiCamillo, M. (1999). *A Bio-psycho-social model of music therapy assisted childbirth: An integrative approach to working with families*. [Doctoral Dissertation, Pepperdine University.]

DiCamillo, M. (2021). *Sound Birthing Music*. https://soundbirthingmusic.com/

García González, J., Ventura Miranda, M. I., Requena Mullor, M., Parron Carreño, T., Alarcón Rodriguez, R., Garc ıa Gonz alez, J., Parron Carre, T., & Alarc on Rodriguez, R. (2018). Effects of prenatal music stimulation on state/trait anxiety in full-term pregnancy and its influence on childbirth: a randomized controlled trial. *The Journal of Maternal-Fetal & Neonatal Medicine*, *31*(8), 1058–1065. https://doi.org/10.1080/14767058.2017.1306511

Gokyildiz Surucu, S., Ozturk, M., Avcibay Vurgec, B., Alan, S., & Akbas, M. (2018). The effect of music on pain and anxiety of women during labour on first time pregnancy: A study from Turkey. *Complementary Therapies in Clinical Practice*, *30*, 96–102. https://doi.org/10.1016/j.ctcp.2017.12.015

Gonzalez, C. E. (1989). The Music Therapy-Assisted Childbirth program: A study evaluation. *Pre- and Peri-Natal Psychology Journal*, *4*(2), 111–124. https://psycnet.apa.org/record/1990-29279-001

Good, M., Picot, B. L., Salem, S. G., Chin, C.-C., Picot, S. F., & Lane, D. (2000). Cultural differences in music chosen for pain relief. *Journal of Holistic Nursing*, *18*(3), 245–260. https://doi.org/10.1177/089801010001800306

Hanser, S. B., Larson, S. C., & O'Connell, A. S. (1983). The effect of music on relaxation of expectant mothers during labor. *Journal of Music Therapy*, *20*(2), 50–58. https://doi.org/https://doi.org/10.1093/jmt/20.2.50

Heiderscheit, A., & Madson, A. (2015). Use of the iso principle as a central method in mood management: A music psychotherapy clinical case study. *Music Therapy Perspectives*, *33*(1), 45–52. https://doi.org/10.1093/mtp/miu042

Hosseini, S. E., Bagheri, M., & Honarparvaran, N. (2013). Investigating the effect of music on labor pain and progress in the active stage of first labor. *European Review for Medical and Pharmacological Sciences*, *17*(11), 1479–1487. https://www.europeanreview.org/wp/wp-content/uploads/1479-1487.pdf

Jiang, J., Zhou, L., Rickson, D., & Jiang, C. (2013). The effects of sedative and stimulative music on stress reduction depend on music preference. *The Arts in Psychotherapy*, *40*(2), 201–205. https://doi.org/10.1016/j.aip.2013.02.002

John, N., & Angeline, A. (2017). Effectiveness of music therapy on anxiety and pain among mothers during first stage of labour in selected hospitals at Kollam. *International Journal of Nursing Education*, *9*(2), 24–29. https://doi.org/10.5958/0974-9357.2017.00030.7

Karlsdottir, S. I., Sveinsdottir, H., Kristjansdottir, H., Aspelund, T., & Olafsdottir, O. A. (2018). Predictors of women's positive childbirth pain experience: Findings from an Icelandic national study. *Women and Birth*, *31*(3), e178–e184. https://doi.org/10.1016/j.wombi.2017.09.007

Krout, R. E. (2007). Music listening to facilitate relaxation and promote wellness: Integrated aspects of our neurophysiological responses to music. *The Arts in Psychotherapy*, *34*(2), 134–141. https://doi.org/10.1016/j.aip.2006.11.001

Labrague, L. J., Rosales, R. A., Rosales, G. L., & Fiel, G. B. (2013). Effects of soothing music on labor pain among Filipino mothers. *Clinical Nursing Studies*, *1*(1), 35. https://doi.org/10.5430/cns.v1n1p35

Laopaiboon, M., Lumbiganon, P., Martis, R., Vatanasapt, P., & Somjaivong, B. (2009). Music during caesarean section under regional anaesthesia for improving maternal and infant outcomes. *Cochrane Database of Systematic Reviews*, *2*, 1–24. https://doi.org/10.1002/14651858.CD006914.pub2

Liu, Y.-H., Chang, M.-Y., & Chen, C.-H. (2010). Effects of music therapy on labour pain and anxiety in Taiwanese first-time mothers. *Journal of Clinical Nursing*, *19*(7–8), 1065–1072. https://doi.org/10.1111/j.1365-2702.2009.03028.x

Liu, Y.-H., Lee, C. S., Yu, C.-H., & Chen, C.-H. (2016). Effects of music listening on stress, anxiety, and sleep quality for sleep-disturbed pregnant women. *Women & Health*, *56*(3), 296–311. https://doi.org/10.1080/03630242.2015.1088116
Livingston, J. C. (1979). Music for the childbearing family. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *8*(6), 363–367. https://doi.org/10.1111/j.1552-6909.1979.tb00978.x
Loewy, J. (2015). NICU music therapy: song of kin as critical lullaby in research and practice. *Annals of the New York Academy of Sciences*, *1337*(1), 178–185. https://doi.org/10.1111/nyas.12648
Macdonald, R. A. R., Mitchell, L. A., Dillon, T., Serpell, M. G., Davies, J. B., & Ashley, E. A. (2003). An empirical investigation of the anxiolytic and pain reducing effects of music. *Psychology of Music*, *31*(2), 187–203. https://doi.org/10.1177/0305735603031002294
McCaffrey, T., Cheung, P. S., Barry, M., Punch, P., & Dore, L. (2020). The role and outcomes of music listening for women in childbirth: An integrative review. *Midwifery*, *83*, 102627. https://doi.org/10.1016/j.midw.2020.102627
Metcalfe, T. (2016). The contribution of different musical variables to the effect of background music on motor behavior. *Psychomusicology: Music, Mind, and Brain*, *26*(2), 132–138. https://doi.org/10.1037/pmu0000137
Mitchell, L. A., & MacDonald, R. A. R. (2006). An experimental investigation of the effects of preferred and relaxing music listening on pain perception. *Journal of Music Therapy*, *43*(4), 295–316. https://doi.org/https://doi.org/10.1093/jmt/43.4.295
Mohr, S. (2019). *Music therapy assisted childbirth in the United States: A critical literature review*. [Master's thesis, Lesley University.] DigitalCommons@Lesley. https://digitalcommons.lesley.edu/expressive_theses/131/
Olson, S. L. (1998). Bedside musical care: applications in pregnancy, childbirth, and neonatal care. *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, *27*(5), 569–575. https://doi.org/10.1111/j.1552-6909.1998.tb02624.x
Palompon, D. R., Ysmael, F., Elizon, L., Bejoc, J., Gonzaga, J., & Cañeda, H. (2011). Music on the second stage of labor among women in their first pregnancy. *Asian Journal of Health*, *1*(1), 217–229. https://doi.org/10.7828/ajoh.v1i1.165
Patton, M. Quinn. (2002). *Qualitative research and evaluation methods* (3rd ed.). Sage Publications.
Phumdoung, S., & Good, M. (2003). Music reduces sensation and distress of labor pain. *Pain Management Nursing*, *4*(2), 54–61. https://doi.org/10.1016/S1524-9042(02)54202-8
Rossetti, A. (2014). Towards prescribed music in clinical contexts: More than words. *Music and Medicine*, *6*(2), 70–77. https://doi.org/10.47513/mmd.v6i2.182
Shobeiri, F., Khaledi, S., Masoumi, S. Z., & Roshanaei, G. (2016). The effect of music therapy counseling on sleep quality in pregnant women. *International Journal of Medical Research & Health Sciences*, *5*(9), 408–416. https://www.ijmrhs.com/medical-research/the-effect-of-music-therapy-counseling-on-sleep-quality-in-pregnant-women.pdf
Simavli, S., Gumus, I., Kaygusuz, I., Yildirim, M., Usluogullari, B., & Kafali, H. (2014). Effect of music on labor pain relief, anxiety level and postpartum analgesic requirement: A randomized controlled clinical trial. *Gynecologic & Obstetric Investigation*, *78*(4), 244–250. https://doi.org/10.1159/000365085
Simavli, S., Kaygusuz, I., Gumus, I., Usluogulları, B., Yildirim, M., Kafali, H., Usluogullari, B., Yildirim, M., & Kafali, H. (2014). Effect of music therapy during vaginal delivery on postpartum pain relief and mental health. *Journal of Affective Disorders*, *156*, 194–199. https://doi.org/10.1016/j.jad.2013.12.027
Stevens, K. M. (1992). My room--not theirs! A case study of music during childbirth. *Australian College of Midwives Incorporated Journal*, *5*(3), 27–30. https://doi.org/10.1016/S1031-170X(10)80062-5
Tabarro, C. S., Campos, L. B. de, Galli, N. O., Novo, N. F., & Pereira, V. M. (2010). Effect of the music in labor and newborn. *Revista Da Escola de Enfermagem Da USP*, *44*(2), 445–452. https://doi.org/10.1590/S0080-62342010000200029
Terry, P. C., Karageorghis, C. I., Curran, M. L., Martin, O. V, & Parsons-Smith, R. L. (2019). Effects of music in exercise and sport: A meta-analytic review. *Psychological Bulletin*, *146*(2), 91–117. https://doi.org/10.1037/bul0000216
Wang, C., & Tian, F. (2021). Music intervention to orthopedic patients: A possible alternative solution to control pain. *Computational and Mathematical Methods in Medicine*, *2021*, 1–4. https://doi.org/10.1155/2021/1234686
Wulff, V., Hepp, P., Fehm, T., & Schaal, N. (2017). Music in obstetrics: An intervention option to reduce tension, pain and stress. *Geburtshilfe Und Frauenheilkunde*, *77*(09), 967–975. https://doi.org/10.1055/s-0043-118414
Xavier, T., & Viswanath, L. (2016). Effect of music therapy on labor pain among women in active labor admitted in tertiary care hospital Kochi. *International Journal of Integrative Medical Sciences, 3*(11), 444–448. https://doi.org/10.16965/ijims.2016.145

Ελληνική περίληψη | Greek abstract

Διερευνώντας την καταλληλόλητα των προσαρμοσμένων λιστών αναπαραγωγής για τον τοκετό στην Ιρλανδία και στο Χονγκ Κονγκ

Pui-Sze Cheung | Tríona McCaffrey

ΠΕΡΙΛΗΨΗ

Στόχος της παρούσας μελέτης ήταν η διερεύνηση της εμπειρίας δύο ζευγαριών που χρησιμοποίησαν προσαρμοσμένες λίστες αναπαραγωγής [playlists] για την υποστήριξη του τοκετού σε δημόσια μαιευτήρια στην Ιρλανδία και στο Χονγκ Κονγκ. Τα δύο ζευγάρια συμμετείχαν σε μία συνάντηση με τη μουσικοθεραπεύτρια ένα μήνα πριν από την ημερομηνία γέννησης του βρέφους τους. Κατά τη διάρκεια αυτής

της συνάντησης, τα ζευγάρια βοηθήθηκαν στη δημιουργία εξατομικευμένων λιστών τραγουδιών και τους προτάθηκαν στρατηγικές και τεχνικές χαλάρωσης τις οποίες μπορούσαν να χρησιμοποιούν με αυτές τις λίστες. Η συλλογή δεδομένων έγινε μέσω ημι-δομημένων συνεντεύξεων με τους συμμετέχοντες, δύο εβδομάδες μετά τον τοκετό. Στη συνέχεια οι συνεντεύξεις αναλύθηκαν βάσει της Θεματικής Ανάλυσης Περιεχομένου (Braun & Clarke, 2006). Οι τρεις τελικές κατηγορίες που προέκυψαν περιλαμβάνουν (1) την εφικτότητα χρήσης προσαρμοσμένων λιστών αναπαραγωγής κατά τον τοκετό, (2) την προτιμώμενη επιλογή μουσικής, και (3) τα αντιλαμβανόμενα οφέλη από τη χρήση των λιστών. Η εφικτότητα της χρήσης των λιστών αναπαραγωγής επηρεάστηκε από την προσαρμοστικότητα των λιστών στις μεταβαλλόμενες συνθήκες της γέννας και στην αβέβαιη ανατροφοδότηση και τον περιορισμό από το προσωπικό του νοσοκομείου. Επισημάνθηκε η καταλληλότητα των αρχικών μουσικών επιλογών και το νόημα των τραγουδιών. Οι συμμετέχοντες ανέφεραν ότι οι λίστες αναπαραγωγής για τον τοκετό ενίσχυσαν αισθήματα χαλάρωσης και καλύτερο ύπνο, παρείχαν πνευματική στήριξη και αποσπάσαν την προσοχή από τη δυσφορία και τις ενοχλήσεις.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

μουσικοθεραπεία, μουσική, λίστες αναπαραγωγής, γέννα, τοκετός