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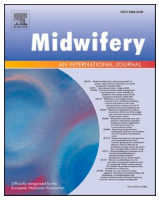

Healthcare practitioners' experiences and perspectives of music in perinatal care in Ireland: An exploratory survey

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ABSTRACT

Introduction: Evidence shows that music can promote the wellbeing of women and infants in the perinatal period. Ireland's National Maternity Strategy (2016–2026) suggests a holistic approach to woman's healthcare needs and music interventions are ideally placed as a non-pharmacological and cost-effective intervention to improve the quality of care offered to women and infants. This cross-sectional survey aimed to explore the healthcare practitioners' personal and professional experiences of using music therapeutically and its impact and barriers in practice. The survey also investigated practitioners' knowledge and attitudes towards the use of music as a therapeutic tool in perinatal care.

Methods: A novel online survey was developed and distributed through healthcare practitioners' electronic mailing lists, social media, Perinatal Mental Health staff App, and posters at the regional maternity hospital during 26th June and 26th October 2020. Survey items included demographics, personal and professional use of music, and perspectives on music intervention in perinatal care.

Results: Forty-six healthcare practitioners from across 11 professions were recruited and 42 were included in this study. 98 % of perinatal practitioners used music intentionally to support their wellbeing and 75 % referred to using music in their work. While 90 % found music beneficial in their practice, 15 % reported some negative effect. Around two-thirds of the respondents were familiar with the evidence on music and perinatal wellbeing and 95 % thought there was not enough guidance. 40 % considered music therapy an evidence-based practice and 81 % saw a role for music therapy in standard maternity service in Ireland. The qualitative feedback on how music was used personally and professionally, its' reported benefits, negative effects, and barriers are discussed.

Discussion: This study offers insights into how healthcare practitioners viewed and applied music in perinatal practice. The findings indicate high interest and positive experiences in using music as a therapeutic tool in perinatal care which highlights the need for more evidence and guidance.

Introduction

Perinatal care refers to the primary care provided to a pregnant woman prior to birth, and to both the woman and her infant up to one year after birth. Positive experiences during the perinatal period set an important foundation for healthy motherhood and infant development (World Health Organization, 2016). The World Health Organisation (2016) envisions that every pregnant woman and newborn should receive quality care throughout the perinatal period. Pregnancy and birth, as opposed to other healthcare domains, are normal physiological processes, and the majority of individuals accessing maternity care services are in good health.

In Ireland's first *National Maternity Strategy (2016–2026)*, a holistic approach is recommended for woman's healthcare needs (Department of Health, 2016). However, recent findings from a survey involving 736 women (Hannon et al., 2022) and an in-depth qualitative interview study with 23 women (Huschke, 2022) indicate that women perceived the Irish maternity systems as overly medicalised, paternalistic, and under-resourced. Pittrof et al. (2002) propose that quality perinatal care should adopt a sustainable biopsychosocial model, avoiding

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over-treating and over-medicalising pregnancy and childbirth while incorporating evidence-based and cost-effective preventive measures assessable to all.

Using music as a therapeutic tool in perinatal care aligns with these principles. Evidence suggests that music interventions can be a non-pharmacological and cost-effective health resource (Cheung et al., 2023; Daykin and Bunt, 2015). Women and perinatal practitioners can utilise this resource to enhance perinatal well-being, promote parent-infant bonding, manage physical and psychological challenges during pregnancy and childbirth, and optimise pregnancy and childbirth experiences (Fancourt and Finn, 2019; Mastnak, 2016; McCaffrey et al., 2020; Wulff et al., 2017).

The applications of music in perinatal settings can be categorised into four main types of music practices (MacDonald et al., 2012): music education, community music, music medicine, and music therapy. Examples of music education in the perinatal settings include lullaby programmes (Baker and Mackinlay, 2006; Carolan et al., 2012) which, despite often having health-related outcomes, focus on imparting skills and knowledge on music, songs and singing. A study found that pregnant women had better emotional states, lower level of salivary cortisol, and increased level of salivary oxytocin after participating in two group singing lessons where they learned and practiced children's songs and lullabies (Wulff et al., 2021).

Community music programmes stress active collaboration between individuals in music-making to achieve social and wellbeing goals (Bartleet and Higgins, 2018). For example, a community psychosocial music intervention (*CHIME*) for perinatal mental health in Gambia was designed for pregnant women to lift mood, build social connection and provide health messaging through participatory music-making (Sanfilippo et al., 2020). Another community-based singing programme *Melodies for Mums* in the UK was designed for women with symptoms of postnatal depression and was found to effectively reduce symptoms of depression and anxiety after six singing sessions (Estevao et al., 2023). Music medicine refers to the use of pre-recorded music offered or prescribed by medical personnel to manage symptoms and is the most studied type of music interventions in medical settings, including the field of nursing, midwifery and obstetrics (Wulff et al., 2017). Research shows that listening to relaxing or person-preferred music can effectively decrease anxiety of women waiting for amniocentesis (Ventura et al., 2012) and during transvaginal ultrasound (Shin and Kim, 2011). It also improves sleep quality for pregnant women (Shobeiri et al., 2016), alleviates low back pain, and improves overall quality of life during pregnancy (Akmeşe and Oran, 2014). Additionally, music has been found to relieve pain and anxiety during vaginal and caesarean deliveries (McCaffrey et al., 2020; Toker et al., 2021).

Lastly, music therapy involves a process developed between a credentialed music therapist and an individual, a dyad, or a group to achieve therapeutic goals through clinical and evidence-based, personally tailored music experiences (Bruscia, 1989; Parmar, 2021). Perinatal music therapy encompassesses various interventions documented in the literature. These include antenatal interventions for women with high-risk obstetric health issues (Horn et al., 2022), mental health conditions (Friedman et al., 2010), and psychosocial vulnerabilities (Lander, 2017). There were also programmes to support antenatal bonding (Carvalho et al., 2021). During childbirth, intrapartum intervention focus on reducing pain, anxiety and providing psychological supports (McCaffrey et al., 2020). In the postnatal period, music therapy is utilised in neonatal intensive care unit (NICU) to support the biopsychosocial development of the preterm infants and the wellbeing of the parents (Bieleninik et al., 2016; Haslbeck et al., 2017). Furthermore, there were specific interventions in perinatal palliative care to offer multidimensional support for expecting parents whose foetus had an incurable diagnosis (Schreck and Economos, 2018). The outcomes of perinatal music therapy cover both physical and psychological wellbeing of the mothers, the infants, and the relationship (mother-infant bonding) between them. These studies show that music therapy can be successfully integrated into inpatient care during antepartum, intrapartum, and postpartum hospitalisation as well as neonatal care to support the health and wellbeing of the mother, promote bonding and foster the development of the foetus and infant (Corey et al., 2019; Haslbeck and Bassler, 2018; Horn et al., 2022; Wesa et al., 2010).

Impact of music on healthcare professionals in the workplace have been investigated in few studies. Music was reported to have positive effects on staff interaction, enabling people feel calmer and more efficient (Moris and Linos, 2013). Studies also found that listening to surgeon-preferred music could improve speed and accuracy of task performance and resulted in less muscle fatigue and increased stamina (Miskovic et al., 2008; Siu et al., 2010). However, some findings suggested that music might impair communication among the staff when it was played at a high volume and distract some staff when performing difficult tasks (Faraj et al., 2014; Moris and Linos, 2013). The effects on the wellbeing and performance of healthcare professionals in medical settings were important considerations when implementing music as a therapeutic tool in healthcare and further investigation of this is warranted.

There is increasing interest in perinatal music-based interventions among clinicians and scholars in Ireland in recent years. Documented work in this area includes a lullaby programme (Carolan et al., 2012), a song-writing project with pregnant women (O'Reilly et al., 2023), creation of customised playlists for childbirth (Cheung and McCaffrey, 2022; McCaffrey et al., 2020), and facilitation of maternal singing at the NICU (Zalisauskaite et al., 2021). However, despite growing interest in the role of music in perinatal health, there is no sustainable music-based programme in maternity care in Ireland to date (Ahessy, 2022) and little is known about how perinatal healthcare practitioners in Ireland perceive such interventions. This study aimed to address this knowledge gap by exploring the experiences and perspectives of perinatal healthcare practitioners in Ireland regarding the role of music and music therapy in perinatal care. The objectives included: (1) understanding how perinatal healthcare practitioners in Ireland use music for wellbeing both personally and professionally, (2) identifying potential barriers for further application of music in the maternity care in Ireland, and (3) exploring their knowledge and attitudes towards music therapy in perinatal care.

Methods

Study design and participants

This study employed a mixed methods approach. Both quantitative and qualitative data were collected simultaneously through a cross-sectional survey containing both fixed-choice and open-ended questions. Quantitative data were predominantly analysed using descriptive statistics, while qualitative data were analysed using content analysis. The analyses were then integrated and jointly presented.

This study was part of a large national cross-sectional survey that aimed to investigate women's, partners', and healthcare practitioners' experiences and perspectives of using music in perinatal care in Ireland. This survey was carried out from June 26 to October 26, 2020 with a sample of 331 survey respondents including pregnant women or women who had given birth in the past year ($n = 254$), partners ($n = 11$) and healthcare practitioners ($n = 46$). Findings onwomen's and partners experiences and perspectives of using music are published separately (Cheung et al., 2023). This paper reports on survey findings related to the sub-sample of 46 perinatal healthcare practitioners. Ethical approval was obtained from the Research Ethics Committee at University of Limerick on 4th June 2020 (2020-05-04-AHSS).

Perinatal healthcare practitioners in Ireland were recruited using convenience and snowball sampling. An open online survey was created with *Qualtrics* (https://www.qualtrics.com/) with an institutional licence, and the link was disseminated via social media (Facebook, Twitter, and Instagram), a national Arts and Health website, a perinatal

mental health App for healthcare staff in Ireland, and emailing lists of national and regional perinatal healthcare practitioners. Posters containing the link and QR code to the survey were also displayed in the regional maternity hospital, which had 4155 births in 2019 (the year preceding the study). Interested healthcare practitioners were invited to follow a link to read the study information, provide consent and take the anonymous online survey. Participation was voluntary. Inclusion criteria were that healthcare practitioners worked directly with women during their perinatal period either in the private or public sector in Ireland. Practitioners were excluded if they did not work in Ireland or did not work with women and partners during the antenatal, intrapartum, or postnatal period.

Questionnaire

An original online survey, containing both fixed choice and open-ended questions, was developed by the research team building on previous studies on professional and patient attitudes about the relevance of music therapy as a treatment for chronic pain (Fitzpatrick et al., 2019) and in psychiatric hospitals (Choi, 1997). The online survey was piloted with two midwives, three music therapists, one art therapist, one psychologist, and one arts and health practitioner. Three of them were also mothers who had one or more children and had used the maternity services in Ireland. Their ages ranged from 20 s to 50 s, covered three ethnic backgrounds and came from 4 different regions in Ireland. Minor modifications were made after the pilot and the final survey for perinatal healthcare practitioners consisted of 4 main parts with 20 questions: demographics (5Q), personal music experiences (4Q), using music in perinatal care (5Q), perspectives of music therapy in perinatal care (5Q), and free comment (1Q). The full survey can be found in appendix A. Multiple submissions were disabled on the survey software to avoid multiple participations. Responses to the questions were not mandatory, but respondents were reminded if any question was not answered. Before submission, respondents could review and change their responses through the "Back" button.

Data analysis

The analysis for quantitative data was conducted using SPSS (version 28). Results were presented in frequencies and percentages for categorical variables and mean with standard deviation (SD) for continuous variables. Missing values were excluded from calculations of percentages and analysis. Chi square test was used to analyse the correlation between the variables on knowledge, applications, and attitudes towards music therapy in perinatal care.

For the qualitative data, all respondents in the analysed sample provided text comments in response to these questions. These included 158 responses to the six open-ended questions below:

1. Have you ever used music intentionally to support your wellbeing? If yes, how? (40 responses)
2. Have you personally ever talked about music or used music/singing in your direct work with pregnant women or/and their partners? If yes, in what circumstances? (30 responses)
3. Do you find any benefit in having or using music in the workplace? If yes, please comment. (34 responses)
4. Have you experienced any negative impact of using music in the workplace? If yes, please comment. (6 responses)
5. Can you think of any barrier to the use of music or music therapy at your workplace? (33 responses)
6. Please feel free to comment on any part of the survey. (15 responses)

Conventional content analysis (Hsieh and Shannon, 2005; Humble and Mozelius, 2022) was employed to analyse these responses using the qualitative data analysis programme *NVIVO*. The responses were read several times by the primary researcher (author 1) to obtain a sense of the whole, and then word-by-word again to identify codes until no new code can be generated. Categorises were created by organising codes into clusters based on relationships between the codes. The categories were then refined and cross-checked with other researchers (author 2 & 3) before being finalised. Frequency counts are reported alongside subcategory labels to illustrate the prevalence of each category. All categories mentioned by respondents were included in the analysis, regardless of the frequency of mentions. This approach ensured that even categories mentioned by only one respondent were considered, allowing for a comprehensive exploration of the experiences and perspectives of the respondents. This survey study was reported according to the CHERRIES checklist for internet surveys (see Appendix B) (Eysenbach, 2004).

Results

Sample and respondents' characteristics

Forty-six perinatal healthcare practitioners participated in the online study. Four surveys, which had less than 50 % completion and did not contain responses to the research questions, were excluded from subsequent analysis resulting in a final sample of 42 perinatal healthcare practitioners. Eleven disciplines and professions were named including midwives ($n = 22$), psychiatrists ($n = 5$), nurses ($n = 3$), lactation consultants ($n = 2$), physiotherapists ($n = 2$), music therapists ($n = 2$), childbirth educators ($n = 2$), an anaesthetist, an obstetrician-gynaecologist, an unspecified consultant, and a doula.

Characteristics of the respondents are listed in Table 1. Thirty-nine (93 %) respondents were women. The mean (SD) age was 38 (9.38), ranging from 22 to 56. 88 % ($n = 37$) of the respondents were White Irish, 7 % ($n = 3$) other white background, and 5 % ($n = 2$) Asian or Asian Irish. All regions of the country are represented with the majority working in Dublin (45 %, $n = 19$), followed by the Mid-West region (14 %, $n = 6$) and the South-West region (14 %, $n = 6$).

Quantitative and qualitative findings

A summary of quantitative findings is provided in Table 2, while Table 3 presents a summary of qualitative findings, including frequencies and example quotes. In the following section, the quantitative and qualitative findings are presented together, sorted by topic: Personal use of music for wellbeing, application of music in perinatal care, the reported positive and negative impacts of using music in perinatal care, the barriers to using music in practice, knowledge and perspectives of music therapy in the maternity service in Ireland.

Table 1
The characteristics of the respondents ($N = 42$).

		n	%
Age	20–29	8	19 %
	30–39	16	38 %
	40–49	11	26 %
	50 or above	6	14 %
Gender	Female	39	93 %
	Male	3	7 %
Ethnicity	White Irish	37	88 %
	Other white background	3	7 %
	Asian or Asian Irish	2	5 %
	Black or Black Irish	0	0 %
	Other, including mixed background	0	0 %
Region	Dublin	19	45 %
	Mid-West (Clare, Limerick, Tipperary)	6	14 %
	Mid-East (Kildare, Louth, Meath, Wicklow)	3	7 %
	South-West (Cork, Kerry)	6	14 %
	Midland (Laois, Longford, Offaly, Westmeath)	1	2 %
	West (Galway, Mayo, Roscommon)	3	7 %
	South-East (Carlow, Kilkenny, Waterford, Wexford)	2	5 %
	Border (Cavan, Donegal, Leitrim, Monaghan, Sligo)	2	5 %

Table 2
Summary of quantitative results.

		n	%
Personal Use of Music for Wellbeing	How important is music to you?		
	Not at all important	0	0
	Slightly important	0	0
	Moderately important	11	26
	Very important	15	36
	Extremely important	16	38
	How often are you involved in music?		
	I don't actively engage with music	1	2
	I might hear a few songs here and there on the radio, at work, or in my environment	3	7
	Several times a week	17	40
	Between 30 min and 1 h a day	4	10
	Between 1 and 4 h a day	16	38
	More than 4 h a day	1	2
	Have you ever used music intentionally to support your wellbeing?		
	Yes	41	98
	No	1	2
	In which way are you involved in music?		
	Listening to music	42	100
	Singing	18	43
	Playing a musical instrument	11	26
	Making music with other people	4	10
	Attending a music/creative arts therapy session	3	7
The Application of Music in Perinatal Care	Do you ever see the use of music in your workplace?		
	Yes	29	71
	No	12	29
	Have you personally ever talked about music or used music/singing in your direct work with pregnant women or/and their partners?		
	Yes	30	75
	No	10	25
The Positive and Negative Impacts of Using Music in Perinatal Care	Do you find any benefit in having or using music in the workplace?		
	Yes	36	90
	No	0	0
	Unsure	4	10
	Have you ever experienced any negative impact of using music in the workplace?		
	Yes	6	15
	No	33	80
	Unsure	2	5
Knowledge and Perspectives of Music Therapy in the Maternity Service in Ireland	How well do you know about the positive effects music may have in perinatal wellbeing?		
	Not well at all	6	14
	Slightly well	7	17
	Moderately well	13	31
	Very well	9	21
	Extremely well	6	14
	Do you consider music therapy as		
	An evidence-based practice	16	40
	A complementary or alternative practice	22	55
	Neither. I consider music therapy as:	2	5
	Do you see a role for music therapy in standard maternity care in Ireland?		
	Yes	33	80
	No	1	2
	Unsure	7	17
	Which of the following ways of using music are you interested to see in the perinatal care for women and their partners?		
	I am not interested at all.	0	0
	Music-facilitated relaxation	36	88
	Having live music at the hospital/waiting area	21	51
	Individual mental health support with music therapy	27	66
	Group singing/music-making	20	49
	Music therapy-assisted childbirth	29	71
	Pregnancy and childbirth music playlists consultation	28	68
	Creating or choosing lullabies for the baby	31	76
	Music-supported bonding	27	66
	Parent and baby music groups	35	85
	Other	1	2
	Do you think there is enough guidance available for healthcare workers to advise music use in maternity care?		
	Not enough	33	83
	Somewhat not enough	5	13
	Somewhat enough	2	5
	Enough	0	0

Personal use of music for wellbeing

All perinatal healthcare practitioner respondents considered music moderately to extremely important. The majority (41 %, $n = 17$) engaged in music several times a week and half of them ($n = 21$) engaged in music daily, and the most selected type of music engagement was listening to music (100 % $n = 42$), followed by singing (43 %, $n = 18$), and playing a musical instrument (26 %, $n = 11$). 98 % ($n = 41$) of perinatal healthcare practitioners intentionally used music to support their wellbeing. In response to the follow-up open-ended question, the majority (76 %, $n = 32$) reported using music primarily for relaxation and stress relief. Other reported uses of music for wellbeing included enjoyment, mood elevation, incorporation into meditation, motivation enhancement, support during pregnancy and labour, aid in sleep, emotional expression facilitation, coping with physical discomfort, concentration assistance, and distraction.

The application of music in perinatal care

Seventy-one percent ($n = 29$) of perinatal healthcare practitioners witnessed the use of music in their workplace and 75 % ($n = 30$) referred to using music in their work with pregnant women and partners. The reported uses of music in perinatal care related to its use during induction of labour and supporting women in childbirth; in antenatal and postnatal programmes (e.g., birth preparation classes, exercise classes, social support group, or mother and infant groups); as background music during a procedure (e.g., scanning), in the office, or in waiting areas of clinical environments to enhance relaxation; to facilitate relaxation for women and newborns/infants during a consultation; or as self-care or infant-care advice..

The reported positive and negative impacts of using music in perinatal care

Ninety percent ($n = 36$) of perinatal healthcare practitioners reported benefits of having music in the workplace. Music was reported to transform the clinical environment, have a calming effect on people, and can positively impact the mood of both patients and staff. Having appropriate music in the clinical environments was reported to "set the right ambience" (#15, psychiatrist), help "team bonding" (#20, consultant), and "lift spirits" (#40, anaesthetist). A midwife (#16) said

Table 3
Summary of qualitative analysis.

Topic	Category	n	*Example Quote*
Perinatal practitioners' personal use of music for their wellbeing	To relax and relief from stress	32	*Put on relaxing music when I'm cooking or reading to chill out. #26, perinatal psychiatrist*
	To enjoy and lift mood	12	*Relaxation, to uplift my mood. #34, midwife*
	Use with meditation/ mindfulness	7	*Meditation, relieve anxiety. #33, practice midwife*
	For motivation	7	*Stress relief, motivation and release of emotions. #27, obstetrician-gynaecologist*
	To support themselves during pregnancy and labour	4	*To relax, to reflect my mood, to ease distress, to soothe me and I used it during my own labour. #18, independent midwife,*
	To help with sleep	4	*To help with insomnia. #40, perinatal mental health midwife*
	For emotional expression	4	*If mood is down putting on happy or sad songs depending. #42, midwife*
	To cope with physical discomfort or illness	2	*Listening to relaxing music to cope with stress while recovering from cancer treatment. #6, Mental health midwife*
	To concentrate	2	*Aid concentration and for relaxation. #25, midwife*
	As a distraction	2	*To help me relax, to motivate me, to distract me. #11, perinatal mental health midwife*
The application of music in perinatal care	Using music as a tool during induction and labour to support women	17	*As a relaxation/ motivational tool in labour, to help relax and sooth new mums and babies. #8, perinatal mental health midwife*
	In antenatal or postnatal group programmes	6	*For our exercise classes (note: pregnancy fitness) and relaxation component. #26, physiotherapist*
	Playing music in the background during procedure, in the office and the waiting room to enhance relaxation	4	*For scanning to reduce anxiety for women and partners. #9, community midwife*
	Facilitating relaxation for women and newborns/infants during consultation	8	*if women are feeling overwhelmed antenatally or postnatally and if babies are unsettled singing to babies. #28, midwife*
	As self-care or infant-care advice during pregnancy	6	*I have recommended it as part of relaxation techniques and self-care. #10, perinatal psychiatrist*
Positive impacts reported	Relieve stress and anxiety for patients and staff	15	*lifts mood and relieves stress. #7, perinatal mental health midwife*
	Transform clinical environment	14	*It helps set the mood and lifts spirits in a variety of clinical settings. #40, anaesthetist*
	Lift the mood of patients and staff	6	*Always nice to have music in the background of a long shift, helps the day go nicely and sets a nice mood. #32, midwife*
	Support women in labour	3	*Absolutely can help a woman with contraction getting through labour. #36, midwife*
	Team bonding	1	*can be useful in labour, team bonding. #20, consultant*
	Facilitate self-expression	1	*It can enhance the environment, as well as facilitate self-expression. #42 Nurse*
Negative impacts reported	Some music can be distracting for medical staff	3	*Music that are non-instrumental tends to be distracting. #23, obstetrician-gynaecologist*
	Playing music from the radio in a shared space might not suit everyone's preference	2	*With increasing shared workspace, it can be intrusive too. #42, nurse*
	Judgement from management	1	*Negative comments from management. #21, midwife*
Barriers to using music in perinatal care	Misconception	10	*It isn't taken seriously – seen as being a bit "hippy"… Not valued. #8, perinatal mental health midwife*
	Resistance from management or other staff members	7	*There may be resistance amongst health professionals who wish to protect their 'patch' or are new to the area but I think people are more open than previously. If it doesn't impact healthcare providers time it may be welcomed. #12, public health nurse*
	Space constraint	7	*Depends where it is being played, where I work there is very little space in antenatal and postnatal wards, if music was played in an open ward not all women might enjoy it. Also, it might not be appropriate where the has been a fetal loss, miscarriage etc. #19, perinatal mental health midwife*
	Lack of training and resources (facility and time)	6	*Poor education if midwives were aware of the benefits, they would promote it more. Lack of money spent or perhaps funding available for proper music devices there's only a radio with a CD player available in some of the delivery suites so outdated! #36, midwife*
	Funding	4	*Budgetwise and logistically (as in room and offices), since there is very little money dedicated to Perinatal Mental Health unfortunately. #10, perinatal psychiatrist*
	Inappropriate use of music	3	*Music encompasses all genres of music. I have*

(*continued on next page*)

Table 3 (*continued*)

Table 3 (*continued*)

Topic	Category	n	*Example Quote*
			facilitated births for women who chose to listen to hard core dance music and others who chose Gregorian chants. It might not be to everyone's taste. Not every midwife might feel comfortable to practise with those styles of music but there might be work arounds like headphones that can be considered. #13, midwifery lecturer
	Lack of motivation or interest	3	*Personal opinions, some think it is not important. #30, midwife*
	Health and safety concerns during COVID-19 pandemic	2	*Covid – can't have people in a room singing at the moment. #22, perinatal psychiatrist*
Knowledge and Perspectives of Music Therapy in the Maternity Service in Ireland	Desire for integration to enhance maternity care	7	I would love to see music become an integral part of maternity and neonatal health care. The atmosphere in a room can be influenced by music in such a positive way. #6, mental health midwife
	Recognition of potential value for perinatal mental health	4	I definitely think music is so special to people's lives I can see the benefit for mother's, father's and babies. I would love to see the HSE adopt innovative approaches and having free sessions especially for vulnerable and at risk groups e.g., Lone parents, first time mother's, those women who have antenatal or postnatal depression. #15, public health nurse

music helped the birthing couples to "make the space more theirs". Music was also reported to be used as a form of "relaxation and distraction" during labour and help "anxiety management and focus".

The majority (81 %, $n = 36$) of perinatal healthcare practitioners never experienced a negative impact of using music while a small number (15 %, $n = 6$)) reported some negative impacts and 5 % ($n = 2$) were unsure. The negative impacts were most often related to perceived unsuitability of music within a shared space. It was reported that some women did not like the music played from the radio and some staff found certain music intrusive in a shared workspace. It was also reported that certain music could be distracting for the healthcare practitioners when performing procedures that require concentration.

Barriers to using music in practice

Various barriers to using music in practice reported by healthcare practitioners were reported in the opened questions and were categorised. These included lack of understanding of the evidence-base to support use of music (n = 10), resistance from management (n = 7), space constraints (n = 7), lack of training and resources (e.g., facility and time) (n = 6), funding (n = 4), inappropriate use of music (n = 3), lack of motivation or interest (n = 3), and health and safety concerns during the COVID-19 pandemic (n = 2). Respondents reported that there was "not enough belief in the benefits of music", it was "not well known" and was "seen as being a bit hippy." A midwife (#24) commented that "Irish health services are often slow to embrace what they view as non-medical approaches to wellness. "

Knowledge and perspectives of music therapy in the maternity service in Ireland

Over half (55 %, $n = 22$) of the perinatal healthcare practitioners considered music therapy as a complementary or alternative practice and 40 % ($n = 16$) considered it as an evidence-based practice (EBP). The majority were familiar with the evidence on music on perinatal wellbeing (15 % of respondents knew the evidence extremely well, 22 % very well, and 32 % moderately well) while around one third were not (17 % knew it slightly well and 16 % were not aware that such evidence existed). A statistically significant correlation was observed between the knowledge of the evidence and using music as a therapeutic tool in perinatal care [$\chi 2$ (1, $N = 40$) = 5.714, $p = 0.017$]. Practitioners who had more knowledge of the supporting evidence-base were more likely to apply music in their work (Fig. 1). There was no statistically significant correlation between the knowledge of the evidence and the attitudes towards music therapy [$\chi 2$ (1, $N = 40$) = 2.298, $p = 0.13$] and its role in perinatal care [$\chi 2$ (1, $N = 41$) = 1.536, $p = 0.215$].

Ninety-five percent ($n = 38$) of perinatal healthcare practitioner respondents reported that there was not enough guidance for healthcare workers to advise on using music in perinatal care. When asked about their views on implementing music and music therapy in perinatal care, 81 % ($n = 33$) foresaw a role for music therapy in standard maternity services in Ireland and the most preferred ways of using music in perinatal care were music-facilitated relaxation (88%, n = 36), music programmes for parents and infants (85%, n = 35), and creating or choosing lullabies for foetus/infants (76%, n = 31). See Fig. 2 for the overall respondents' preferences on perinatal music interventions. Regarding attitudes toward music in perinatal care, a mental health midwife (#3) envisioned "music become an integral part of maternity and neonatal health care." A public health nurse (#12) described

> *I can see the benefit for mothers, fathers, and babies. I would love to see the HSE* [the health authority in Ireland] *adopt innovative approaches and having free sessions especially for vulnerable and at-risk groups.* e.g., *Lone parents, first time mothers, those women who have antenatal or postnatal depression. Music can help us attune to our bodies and babies and can yield positive impact …. a pill cannot cure all, music can help us connect to others I believe.*

Discussion

This study was the first to explore how healthcare practitioners viewed and used music in perinatal care in Ireland. The findings of this study indicate a high level of interest and positive attitude towards use of music among perinatal healthcare practitioners. Respondents perceived music to be an effective and valuable therapeutic tool in both daily life and clinical settings, particularly in reducing stress and anxiety, to elicit a relaxation response, offer support in labour, transform clinical environments, bonding amongst the staff, lift mood, and facilitate emotional expression. Most of these benefits align with beneficial uses of music for patients as reported by healthcare professionals in other clinical settings (Esplen et al., 2020; Khan et al., 2016; Moris and Linos, 2013).

The reported applications of music in perinatal care were mainly around its role to relax the mind and body, uplift mood, and express emotions. To the surprise of the authors, no respondent mentioned the use of music or singing to support and promote parent-foetal or parent-infant bonding. In a study with women with high-risk pregnancy, women in the intervention group were advised to listen to lullabies

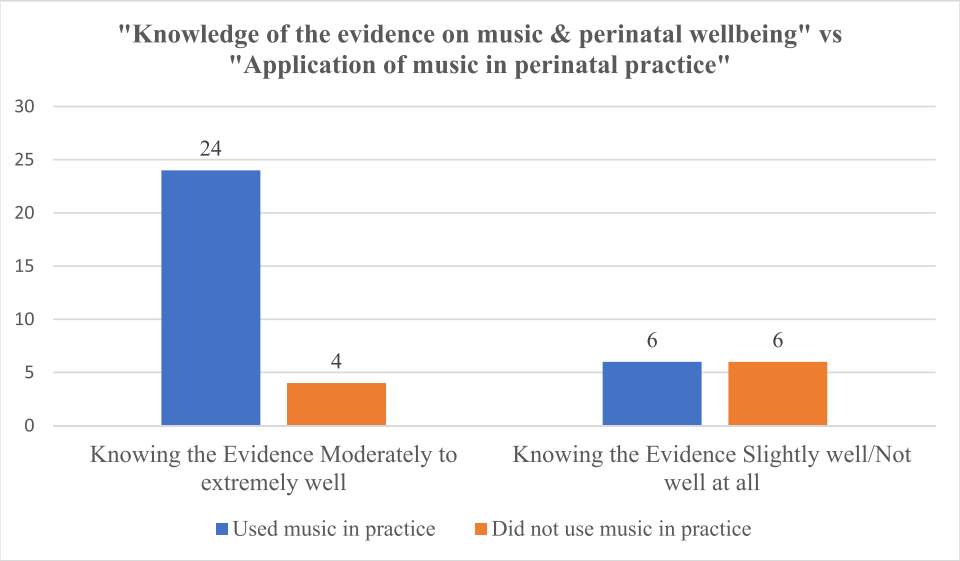

Fig. 1. The positive correlation between the knowledge of the evidence and the application of music in perinatal care.

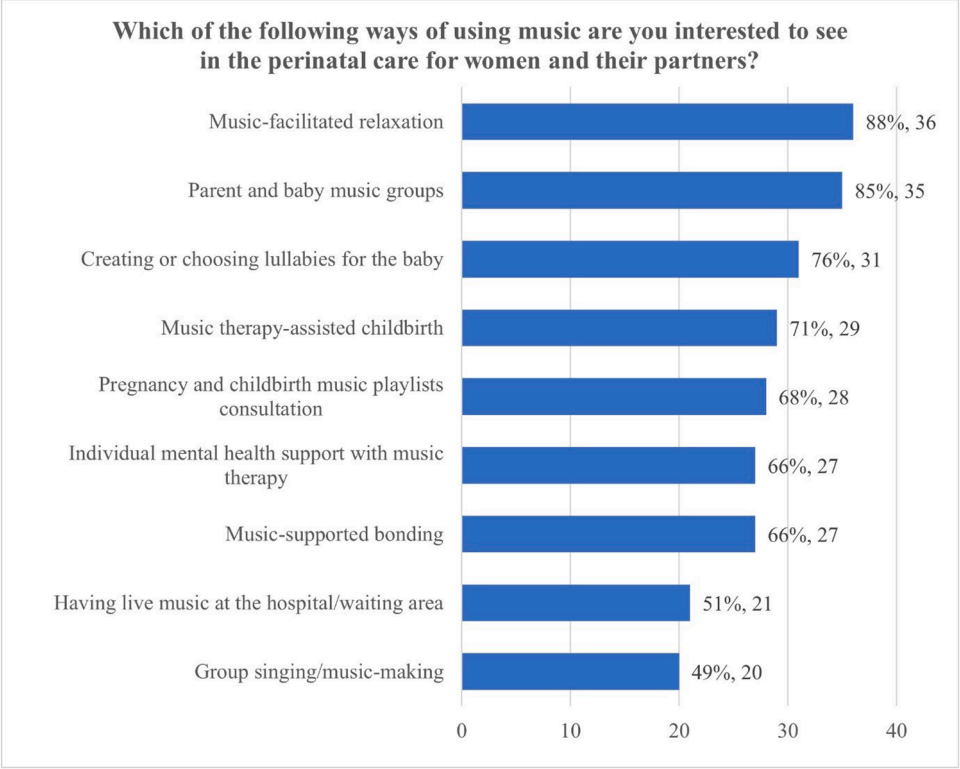

Fig. 2. Respondents' Preferences on Music Interventions in Perinatal Care.

while touching their abdomen and think about their foetus for 20 min once a day for two days. The prenatal attachment of the women in the intervention group was significantly higher than the control group (Baltacı and Başer, 2021). Maternal singing, as compared to talking or playing with the infants, is also shown to be associated with significant increases in perceived mother-infant closeness (Fancourt and Perkins, 2018). The absence of identifying the use of music to support bonding in the survey responses might be attributed to the practitioners' lack of awareness of how music can promote parent-foetal/infant bonding or the low priority of supporting bonding in their practice. This ties in with the findings of a recent survey of more than 1000 women from across the UK which indicates that relationships and bonding were often overlooked and no advice or information on attachment with the infants was provided during antenatal care (Foundation, 2023).

Music being intrusive and distracting for some healthcare professionals was the main negative effect reported. Previous studies suggested that music might impair communication among the staff when it was played in high volume and distract staff when performing difficult tasks (Faraj et al., 2014; Moris and Linos, 2013). Despite low reporting of music being intrusive or distracting in the present and previous studies, attention should be given to consider when, what, and how music should be played in medical settings. Evidence suggests that music preferences

of both birthing families and healthcare professionals play a key role in determining the beneficial effects of music (Jiang et al., 2016; Moris and Linos, 2013). This means that task performance of medical procedures can be influenced by the healthcare practitioners' music preference rather than as a direct correlation of the impact of the music itself (Moris and Linos, 2013). This requires careful consideration of the impact of music choices on the healthcare professionals and environment with a view to maximising the benefits of music for the women/birthing couple and minimising any undesirable outcomes from distraction or disruption to the medical procedure.

Perceived barriers to the use of music as a therapeutic tool such as budget constraints, lack of knowledge, lack of resources or tools, lack of expert personnel, lack of time or space, lack of interest were almost identical to the findings of a similar study among oncology healthcare professionals (Esplen et al., 2020). The similarities might reflect the overall fiscal dynamics in healthcare. The maternity services in Ireland have been critiqued as having a predominantly biomedical focus and overmedicalisation of childbirth (Huschke, 2022), this may explain the reported reluctance from management or healthcare professionals towards non-medical approaches and the low priority in allocating resources for music therapy. The overwhelmingly high percentage of respondents who found guidance on using music in perinatal care insufficient indicates a high demand for developing evidence-based guidance on use of music in perinatal care. Developing resources (guidance and protocols) for healthcare practitioners to use music in their practice and embedding training in their education may be considered a cost effective endeavour that has potential to reduce the costs of medication or medical interventions used in perinatal care. The correlation between the knowledge of the music therapy evidence-based and the application of music in practice suggests that healthcare practitioners might be more open and confident to introduce music in their practice with sufficient education and guidance. Another barrier was misconceptions of music therapy with less than half of the respondents aware that music therapy is an evidence-based practice. This is possibly attributed to the lack of statutory recognition and registration for music therapists and music therapy in Ireland (Ahessy, 2022). While music therapists are registered as Health and Care Professions in the UK, they are currently not state registered or officially recognised within the Irish health system.

Limitations

This study has a number of limitations. Firstly, the sample size was small. Although a wide range of professions were represented, half of this sample were midwives which potentially limits the generalisability of the findings to all healthcare practitioners. Factors such as healthcare practitioners' busy schedules likely contributed to lack of responses and incomplete surveys. In addition, this study was part of a larger music and perinatal wellbeing survey which also recruited women in the perinatal period and their partners in the recruitment advertisements. Such recruitment of multiple groups might have reduced the study's direct relevance to healthcare practitioners. Secondly, it is possible that self-selection bias was present among some study respondents whose motivation to take part was driven by an undeclared interest in and enthusiasm for music which was likely to have influenced their survey responses. Future studies might benefit from including greater numbers of representatives from all roles in the maternity service to map the prevalence of using music in perinatal care in a way that can inform the development of guidance and protocol on clinical use of music.

Conclusion

Among healthcare practitioners in Ireland there is an appetite for more music programmes and research in perinatal care. This study offers insights into how perinatal healthcare practitioners viewed and applied music in their practice. While there are generally high interest and positive attitudes towards using music as a therapeutic tool in perinatal care, training and resources for such interventions were low and limited further uses. The study has implications for evidence, education, guidance, and protocols needed to further support uptake and to use music effectively, and ultimately improving the quality of care provided to pregnant women and newborns.

CRediT authorship contribution statement

Pui Sze Cheung: Conceptualization, Data curation, Formal analysis, Investigation, Writing – original draft, Writing – review & editing, Software, Validation, Visualization, Methodology, Project administration, Resources. **Tríona McCaffrey:** Conceptualization, Writing – review & editing, Resources, Supervision, Validation. **Sylvia Murphy Tighe:** Supervision, Validation, Writing – review & editing, Conceptualization, Resources. **Mas Mahady Mohamad:** Conceptualization, Writing – review & editing, Resources, Validation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2024.103987.

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