



The perception of healthcare professionals, through their own personal experiences, of the use of music therapy in hospitalised children and adolescents

Román-Carlos Rodríguez-Rodríguez^{a,b}, Ana Noreña-Peña^{a,*}, Teresa Cháfer-Bixquert^c,
Javier González de Dios^{d,e}, Carmen Solano Ruiz^a

^a Nursing Department, Health Sciences Faculty, University of Alicante, Spain

^b Music and Music Therapy Department, N3 Music Centre, Altea, Alicante, Spain

^c Sculpture Department, Faculty of Fine Arts, Polytechnic University of Valencia, Valencia, Spain

^d Paediatrics Department, General University Hospital of Alicante, Alicante, Spain

^e Department of Paediatrics, Miguel Hernández University, Alicante, Spain

ARTICLE INFO

Article history:

Received 3 October 2023

Revised 21 February 2024

Accepted 24 February 2024

Keywords:

Music therapy

Hospitalised children and adolescents

Healthcare professionals

Perceptions

Qualitative research

ABSTRACT

Background: Music therapy is an emerging and useful methodology for improving patient environments within healthcare fields. However, although it has been shown that music therapy interventions with hospitalised children and adolescents have been used for decades with positive effects, there are currently very few studies that specifically describe the perspectives of healthcare professionals regarding the value of music therapy when applied in these patients.

Objectives: To describe the insights of healthcare professionals regarding music therapy, both on a personal level and in terms of its usefulness in the care of hospitalised children and adolescents.

Design: This was a qualitative descriptive-exploratory study with focus groups.

Participants: Eighteen healthcare professionals.

Methods: In January 2023, two focus groups, containing nine healthcare professionals each, were created to collect data regarding their experiences concerning the effect of music therapy on hospitalised children and adolescents. Before recording their opinions, all these professionals participated in an interactive music therapy session. The thematic analysis in this work was performed using MAXQDA® software.

Results: Two main categories emerged: (a) the effects of music therapy on healthcare professionals, and (b) the benefits of music therapy to patients (children and adolescents).

Conclusions: Music therapy was valued positively by healthcare professionals who described the benefits its use has for hospitalised children and adolescents. They also expressed positive viewpoints regarding the use of music therapy to improve their own self-knowledge and self-care.

Implications to practice: Healthcare professionals may utilise music therapists to improve patient outcomes and reduce the negative effects of hospitalisation.

© 2024 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Artistic interventions such as: hospital clowns, art therapy, and music therapy (MT), among others, within the hospital environment have a positive impact on the health and well-being of patients, families,

and healthcare personnel (Lopes-Júnior et al., 2020; Tucquet & Leung, 2014; Ullán & Belver, 2021). In this sense, some studies suggest that healthcare personnel perceive these artistic interventions as beneficial because they reduce stress, improve mood, reduce exhaustion, benefit relationships between patients and staff, and positively impact the work environment and the general well-being of most people (Ford et al., 2018; Kennedy et al., 2014; Zamanifar et al., 2020). In addition, they consider that these interventions can directly influence the communication between staff and patients, which helps to establish better relationships and strengthen interactions (Wilson et al., 2015). Studies on the use of MT with hospitalised children and adolescents

* Corresponding author.

E-mail addresses: info@n3musical.com (R.-C. Rodríguez-Rodríguez), ana.norena@ua.es (A. Noreña-Peña), tchafer@esc.upv.es (T. Cháfer-Bixquert), javier.gonzalezdedios@gmail.com (J.G. de Dios), carmen.solano@ua.es (C.S. Ruiz)

Social media:

have been carried out in different countries since the 1960s and have revealed its importance in the healthcare setting (Colwell et al., 2013; Yates et al., 2018). Research has also explored its application with adults in different hospital units including neurology (Siponkoski et al., 2020), oncology (Bradt, Dileo, Myers-Coffman, & Biondo, 2021), mental health (Wang & Agius, 2018), intensive care (Golino et al., 2019), geriatric (Lam et al., 2020), surgery (Liang et al., 2021), and palliative care (Gao et al., 2019) departments. Indeed, the results from these studies in relation to the different emotional, psychological, physical, and social benefits of the application of MT with these patients are very promising.

The definition of MT is the professional use of music and its elements as an intervention in medical, educational, and everyday environments with individuals, groups, families, or communities with the aim of optimising their quality of life. Research into, implementation of, and education and clinical training about MT are all based on professional standards for this type of intervention (World Federation of Music Therapy, 2023). In this context, some scientific studies in the field of paediatrics have concluded that MT can be considered a safe and generally well-accepted intervention in paediatric care which can alleviate symptoms and improve patient quality of life (Giordano et al., 2020; Stegemann et al., 2019). This is explained in the review by Rodríguez-Rodríguez et al. (2022), which indicated that MT interventions are generally well received, not only by children and adolescents with cancer, but also by their families and healthcare professionals.

It is well known that hospitalised children and adolescents can experience emotional and behavioural difficulties resulting from the levels of anxiety and/or fear they experience (Lerwick, 2016; Wolfe et al., 2015). Furthermore, the feeling that they have little control over what happens to them while in hospital also affects their health and has repercussions both at a cognitive level and in terms of their social relationships with their families and health personnel (Livesley & Long, 2013; Sargin Yildirim et al., 2017). Some scientific studies with children and adolescents in the field of oncology have also confirmed that the application of MT benefits patient quality of life (Fedhila et al., 2023; González-Martín-Moreno et al., 2021). For example, publications examining its effect on clinical factors have shown that, among other benefits, it can increase patient relaxation (Facchini & Ruini, 2021; Sepúlveda-Vildósola et al., 2014) and reduce preoperative anxiety (Giordano et al., 2020) and pain, with MT even being useful as a means of support for painful tests such as lumbar puncture and biopsies. Other studies have revealed that MT can improve physiological outcomes in these same patients. For example, one study showed the positive effect of MT in reducing patient heart rates (Uggla et al., 2016) and also revealed a decrease in both the respiratory and heart rate in their cohort (Nguyen et al., 2010)—effects that have also been shown in premature babies (Loewy et al., 2013).

In neonatal contexts MT helps to stabilise vital signs and, for example, oxygen saturation (Kobus et al., 2021). Thus, in addition to making it possible to reduce pain scores in infants during these procedures, MT also helps to regulate episodes of cardiorespiratory changes or variability during the earliest stages of life. In turn, there is evidence that MT can improve the feeding capacity of babies while also influencing the achievement of development milestones in long-term hospitalised infants (Ormston, Howard, Gallagher, Mitra, & Jaschke, 2022). In addition, it has been suggested that MT improves the comfort of children and adolescents undergoing palliative care (de Campos, Araujo, da Pinto, Matos and Zani, 2022) and can help establish a non-verbal emotional interaction between babies and their parents, thereby favouring the well-being of them both (del Olmo et al., 2015) as well as helping to mitigate maternal anxiety (Bieleninik et al., 2016).

Specifically, MT interventions carried out by certified, professional music therapists provide patients with positive emotional experiences by leveraging different resources such as, for example, helping them to compose their own songs (Knott et al., 2022). In addition, as set out by Rodríguez-Rodríguez et al. (2023), the application of other MT techniques helps patients to create positive memories or to experience

emotions that help them reassign meaning to their own experiences. These experiences are highly beneficial in settings such as paediatric palliative care and for providing support during end-of-life treatment (Clark et al., 2014; Duda, 2013). Data have also been collected on the opinions of children, adolescents, and parents of the value of MT and the music therapists working with them in their hospital (Docherty et al., 2013; Haase et al., 2020; O'Callaghan et al., 2013; Uggla et al., 2019) and it appears that in all cases, MT provides happy and positive experiences (Patterson et al., 2015). However, although it has been shown that MT interventions with hospitalised children and adolescents have been used for decades with positive effects, there are currently very few studies that specifically describe the perspectives of healthcare professionals regarding the value of MT when applied in these patients (Klyve et al., 2023; Chadder, 2019).

Thus, the objective of this current study was to describe the insights of these professionals regarding the usefulness of MT in the care of hospitalised children and adolescents and how they themselves experienced it on a personal level. It is important to specify that in this work we used focus groups as the reference methodological framework to record the perspectives of our participants after the MT sessions. The focus group method was very applicable to the research we wanted to conduct because it involves a discussion between the participants who then jointly build opinions and attitudes through the interaction (Halkier, 2010; Krueger & Casey, 2015). More specifically, the exchange enriches the research, both through the knowledge of each participant and through the collective construction that occurs during the dialogue, with the latter allowing us to understand the viewpoints of healthcare professionals regarding the use of MT with hospitalised children and adolescents (Hamui-Sutton and Varela-Ruiz, 2013).

Methods

Design

We conducted a descriptive–exploratory qualitative study. The epistemological approach of this research meant that its character was sociocritical in nature. Therefore, the voice of healthcare professionals was privileged because it is loaded with their self-reflexive constructions about the possible benefits of MT in hospitalised children and adolescents (Arnal et al., 1992).

Participants

Participants were selected for inclusion through convenience sampling (Elfil & Negida, 2017). A total of 18 healthcare professionals (nursing, medical intern residents, paediatricians, and auxiliary nursing care technicians) were invited to participate and they all agreed to take part in the study. Information was collected on the main characteristics of the participants (their specialties, years worked in the healthcare field, age, sex, marital status, place of residence, and knowledge of music, MT, or art therapy). All the healthcare professionals were explained the purpose of the study and the fact that they could withdraw from the research, with no negative consequences, if they no longer wanted to participate in it. Finally, all the participants signed their written informed consent.

Information collection

This research was carried out using the focus group technique which is especially useful for understanding health issues from a social perspective (Thofehrn et al., 2013). In addition, because of its high level of sensitivity, this technique is also useful for investigating the knowledge, norms, and values of certain groups, allowing access to a source of enormously rich information (Hamui-Sutton and Varela-Ruiz, 2013). In this study, we formed two focus groups comprising nine healthcare professionals in each one. Choosing this technique

allowed us to create an opinion space to capture the thoughts, feelings, and actions of the participants and stimulated self-explanation, thereby helping us to obtain qualitative data about the benefits of the use of MT with hospitalised children and adolescents (Hamui-Sutton and Varela-Ruiz, 2013).

Procedure

Data collection was scheduled in one session lasting approximately 150 min for each focus group. Each session was carried out in three phases, with each phase lasting approximately 50 min. This work was carried out in January 2023 in a classroom in the University of Alicante (Spain) Faculty of Health Sciences. The sessions were audio-recorded and moderated by the first author (R.C.R.), an accredited music therapist. The second author (A.N.P.), with extensive experience in qualitative research, acted as an observer but also occasionally intervened by providing explanations. In the first phase, an ad hoc script was used to understand the knowledge the healthcare professionals had of music, MT, or art therapy, and they were asked the following: Do any of you have musical training, play an instrument, or have training in music therapy or art therapy? and For you, what is the meaning of music therapy?

In the second phase, active (e.g., singing and playing musical instruments) and receptive (listening to music) MT techniques were implemented with the healthcare professionals so that they could experience the effects of MT for themselves. More details of this are shown in Table 1. First, the participants were invited to listen to a series of song that were either recorded or performed live by the first author (R.C.R.). Following this, they were offered percussion instruments so that they could carry out various improvisation exercises. The healthcare professionals then sang several songs previously proposed for the session and finally, a relaxation activity with live music was performed on the piano by the first author (R.C.R.), also with participation by the healthcare professionals, Table 1. Subsequently, the participants were asked the following questions: Did listening to these songs affect you? Did playing percussion instruments have an effect on you? Did singing affect you? Did relaxing with music have an effect on you? What was your perception of the effects of music therapy?

In the third phase, first, the participants were shown some videos of various MT interventions with hospitalised children and adolescents so they could better understand how MT interventions are performed with these patients. Subsequently, to uncover their perspectives of the value of MT in hospitalised children and adolescents, the healthcare professionals were asked the following questions: Do you think that music therapy can benefit patients (children and adolescents)? What type of

patient and why? What sort of benefit? To what extent do you believe that music therapy can transform the emotions of patients (children and adolescents)? During the different phases of the disease process (hospitalisation, procedures, and relapses, etc.), when do you think music therapy interventions can be performed? Finally, we generated a debate in which the participants of the focus groups answered all the questions about the potential benefits of MT in hospitalised children and adolescents. The focus-group interviews were audio recorded and transcribed verbatim and lasted 40 to 60 min.

Data analysis

A six-phase thematic analysis was carried out following the Braun and Clarke (2006) criteria: (1) familiarisation with the data, (2) generation of initial codes, (3) search for themes, (4) review of the themes, (5) definition and naming of the themes, and (6) production of the report. The data generated from the recordings of the focus groups debates, the transcribed interviews, and notes taken during the sessions were all used in this analysis. The data obtained in the audio recordings of the two focus groups were transcribed and, along with the collected notes, were read independently by two authors (R.C.R. and A.N.P.). These authors then separately coded the data they considered relevant to the study. Data saturation was reached when the grouped codes were repeated, thereby giving rise to the themes. Subsequently, all five authors (R.C.R., A.N.P., T.C.B., J.G.D., and C.S.R.) jointly reviewed the topics to ensure that the codes in each one were consistent and that the codes in different topics could be clearly distinguished. Finally, the themes were defined and named by two authors (R.C.R. and A.N.P.) and all the authors produced a narrative structure with attached descriptions. We used MAXQDA® software to support this analysis.

Rigour

To guarantee the quality of our study, we considered the four aspects of reliability (credibility, reliability, confirmability, and transferability) established by Guba and Lincoln (1994). To produce credible findings, two researchers were present during the focus group interviews, which improved the quality of the interviews because the observing researcher could supplement the facilitating researcher, making it easier for all the participants to be included in the discussions. The credibility of the data in this study was guaranteed by continuously comparing it throughout the coding and categorisation process and by including music therapists, paediatricians, and researchers with experience in qualitative studies in the research team performing the analyses (Nowell et al., 2017).

Table 1
Music therapy session, second phase.

Techniques	Materials used
Listening to recorded songs and live songs performed on the piano and saxophone by the first author.	<ol style="list-style-type: none"> 1. Andalucía – Román Rodríguez 2. The Best – Tina Turner 3. Imagine – John Lennon 4. Adagio in G Minor – Giscard Rasquin and Remo Giazotto 5. Gimme! Gimme! Gimme! – ABBA 6. Night on Bald Mountain – Modest Mussorgsky 7. Valió la Pena – Marc Anthony 8. Highway to Hell – AC/DC Digital piano Saxophone
Improvisation with percussion instruments (with question–answer and free improvisation exercises, coordinated by the first and second authors).	Tambourine, woodblock, maracas, güiro, cowbell, claves, rattles, drum, djembe, bongo, cabasa, and shaker.
Singing (improvisation exercises with the group singing of songs, coordinated by the first and second authors).	<ol style="list-style-type: none"> 1. No Duda – Antonio Flores 2. Noches de Bohemia – Navajita Plateá
Relaxation exercises with music (with prior adaptation using a breathing technique), subsequently followed by listening to live improvised music at a slow tempo in the keys of D– and F, performed by the first author on the piano.	Digital piano

The validity and reliability of the work was guaranteed by triangulation and by making sure we achieved data saturation. This was achieved by conducting focus group interviews to directly and verbally validate the data collected from health professionals by recording the most significant facts in a field diary, thereby obtaining a sufficiently dense description of the study phenomenon. Additionally, to improve reliability, the audio recording of the focus group interviews was cross-referenced against the transcript to ensure that the data was accurately captured (Guba & Lincoln, 1994; Noreña Alcaraz-Moreno and Rojas, 2012).

Confirmability was maintained through the data coding and interpretation by creating a record of all the data, allowing for a clear auditing process. In addition, the content of part of the focus group interviews and the extracted codes was given to several researchers familiar with the qualitative research analysis methods and who had not participated in the study in order to verify the accuracy of the analysis process (Guba & Lincoln, 1994). Transferability was guaranteed by providing a complete description of the theme, as well as the characteristics of the participants and examples of their statements and expressions (Ravenek and Rudman, 2013).

Ethical considerations

The protocol for this study was approved by the Ethics Committee at the University of Alicante, Spain (reference: UA-2019-06-12). At all times, the project was carried out following the ethical principles established in the 1975 Declaration of Helsinki and its 1983 amendments, including the request for informed consent from all participants. In accordance with Spanish data protection legislation (Organic Law 3/2018 on the Protection of Personal Data and Guarantee of Digital Rights), all records and the corresponding informed consents for participation were stored securely by the principal investigator and could only be identified by their assigned case number.

Results

This study involved 18 healthcare professionals, divided into two focus groups comprising nine people each. Their ages were between 25 and 63 years and 15 were women and were 3 men; their specialties were as follows: doctors 6, resident intern physicians (MIRs) 2, nurses 8, and auxiliary care nursing technicians (ACNTs) 2. More detailed information is provided in Table 2. Two categories and eight subcategories emerged from the analysis. The description of how the categories, subcategories, and codes were organised is shown in Table 3.

The effects of music therapy on healthcare professionals

The first category that emerged was related to the insights of the participants regarding the various MT techniques used in the session (listening to music, singing, playing instruments, and relaxation with music). Thus, the participants experienced and lived the effects of MT on an emotional level. This category included the following subcategories: (a) when listening to songs; (b) when playing percussion instruments; (c) when singing; (d) when performing relaxation exercises with music; and (e) general assessment of the music therapy session.

When listening to songs

After listening to songs such as: (1. Andalucía – Román Rodríguez, 2. The Best – Tina Turner, 3. Imagine – John Lennon, 4. Adagio in G Minor – Giscard Rasquin and Remo Giazotto, and 5. Gimme! Gimme! Gimme! – ABBA, among others), most of the healthcare professionals indicated that they had experienced remarkably similar feelings which had usually evoked certain types of emotions. In other words, the lyrics or the accompanying music allowed them to connect with their inner worlds, life circumstances, or a particular moment that made them

Table 2

The sociodemographic characteristics and prior knowledge of music, music therapy, art therapy, of the healthcare professionals included in this study.

18 healthcare professionals	
Specialties <i>n</i> (%)	
Doctors	6 (33.33%)
Resident intern physicians (MIRs)	2 (11.11%)
Nurses	8 (44.44%)
Auxiliary care nursing technicians (ACNTs)	2 (11.11%)
Years worked in the healthcare field	
≤10 years	2 (11.11%)
11–20 years	12 (66.66%)
21–30 years	2 (11.11%)
≥31 years	2 (11.11%)
Age	
26–35 years	4 (22.22%)
36–46 years	10 (55.55%)
47–57 years	2 (11.11%)
≥58 years	2 (11.11%)
Sex	Male 3 (16.66%) Female 15 (83.33%)
Marital status	Married <i>n</i> = 14 Divorced <i>n</i> = 2 (11.11%) Domestic partner <i>n</i> = 2 (11.11%) Alicante <i>n</i> = 18 (100%)
Place of residence	
Knowledge of music, music therapy, or art therapy	Master's degree in music therapy <i>n</i> = 1 (5.55%) Piano studies <i>n</i> = 3 (16.66%) Accordion studies <i>n</i> = 1 (5.55%) Percussion studies <i>n</i> = 1 (5.55%) Singing studies <i>n</i> = 1 (5.55%)

feel something, allowing them to identify precisely what these songs were evoking. Thus, they stated:

The first song made me nostalgic, the second [bought on a] feeling of joy, the desire to enjoy life, and the third, hope, thinking that everything will be fine (Participant 15).

The first song made me sad, and the second made me happy, thinking about the satisfaction of achieving a goal after an effort (Participant 12).

For me, the second song caused me joy and the fourth song caused me absolute sadness. [The song] can make people shed tears just by hearing the first note (Participant 5).

Likewise, when listening to songs, the healthcare professionals also stated that they felt personal and professional empowerment, indicating that the music gave them a greater capacity for expression. The participants felt more confident and self-assured that they could achieve their goals—that they were capable of achieving their goals. For example, they had the following reflections:

With the fifth song I felt empowered, the desire to use all my strength to achieve my goals (Participant 7).

I felt empowerment and strength when listening to the second and fifth songs (Participant 8).

When playing percussion instruments

One of the experiences most often felt by the healthcare professionals when playing percussion instruments was that of a group connection among the other participants. They felt that this exercise allowed them to be present for each other and that they could feel each other's needs. They listened as the others played their instruments,

Table 3
Categories and subcategories identified from the information collected.

Categories	Subcategories	Codes	
The effects of music therapy on healthcare professionals	When listening to songs	Happiness	
		Sadness	
		Nostalgia	
	When playing percussion instruments	Hope	
		Empowerment	
When singing	Group connection	Group connection	
		Calm	
	Fun	Fun	
		Disconnection	
	Wellbeing	Wellbeing	
		Strength	
	Companionship	Companionship	
		Evocation of memories	
	Meaningful and deep feelings of self	Meaningful and deep feelings of self	
		Disconnection	
When performing relaxation exercises with music	Relaxation	Relaxation	
		Complement	
	Gratitude		
General assessment of the music therapy session	Reflection	Reflection	
		Satisfaction	
	Introspection	Introspection	
		Sharing	
Worth	Worth		
	The benefits of music therapy in patients: children and adolescents	Health implications	Transformation of emotions
Quality of life			
Mood			
Psychological benefits			
Physical benefits			
Comprehensive benefits		Comprehensive benefits	
		Making interpersonal links	
		Coping with the disease	
		Accompaniment during illness	
		Accompaniment at the end of life	
Stimuli for the development of children and adolescents		Stimuli for the development of children and adolescents	
		Repercussions for the family	
		Moments during healthcare provision for music therapy	
		The secondary benefits of music therapy	Moments during healthcare provision for music therapy

in turn creating a climate in which everyone contributed, and they could all feel how the same melodic synchrony had formed. They also stated that this moment of playing the instruments led them to experience feelings of calm and inner peace: they expressed these ideas as follows:

Playing the percussion instruments allowed me to connect and listen in some way with the rest of the classmates present in this session (Participant 2).

Playing the percussion instruments gave me a feeling of mental calm, [to] stop thinking, concentrate on the rhythm, let myself go, and flow with the rhythm of my classmates (Participant 10).

They also described how playing the percussion instruments had been fun, they had felt comfortable and relaxed, and that it had allowed them to feel disconnected from all the circumstances of their lives, i.e., the stress of daily routines and everyday life:

Playing the percussion instruments — I really liked doing it together, I had fun (Participant 7).

With the percussion instruments I was able to disconnect from the problems of everyday life.... (Participant 9).

When singing

The healthcare professionals described singing as having given them a general sense of wellbeing. More specifically, on an emotional level, they experienced feelings that, together as a collective, allowed them to feel better about themselves. In this sense, all the participants considered that the experience they had had while singing was pleasant. They felt that they were no longer immersed in their day-to-day lives but rather, were in a space of vital connection with themselves. For this reason, they considered it a positive experience for their state of mind:

Singing gave me [a sense of] well-being, a very pleasant feeling (Participant 1).

For me, singing is an outlet, flowing in the maximum sense from my interior, it improves my mood, I'm happy, and I get out of the web of my routine. It's the maximum expression of my feelings (Participant 2).

They also described the value of this experience as a means to express strength and camaraderie among colleagues or other healthcare professionals, which helped them to feel that there was fellowship and concern for a common goal. Sharing this session allowed them to see that there was something of interest in reflecting on upon humanism and quality of care. They also felt that they had benefited from this experience, identifying that other colleagues were feeling similar levels of interest and concern for improving the welfare of patients:

When singing the different songs in this session I perceived a feeling of health, strength... and also camaraderie (Participant 6).

Some of the professionals described the sense that singing had produced significant feelings in them, allowing them to improve their knowledge of their own emotions. Some of these emotions were channelled through singing and while other participants simply gave free rein to what they were feeling and were moved to tears; some mentioned that singing evoked positive memories from their past and brought special moments in their lives back to them. This is how they stated these ideas:

I found it moving, it made me emotional, my voice cracked and a tear came to my eye (Participant 10).

...especially when I sang the first song since it reminded me of my childhood. I think that singing songs that you like evokes beautiful memories and helps you feel good: [like] when you fell asleep while your mother sang to you or you were in the car with your siblings... (Participant 8).

When performing relaxation exercises with music

Most of the healthcare professionals experienced and described positive effects when a guided relaxation exercise was carried out in the classroom. Specifically, this consisted of a preparatory step involving a preliminary moment of relaxation using a breathing technique, followed by listening to live music. Participants especially highlighted how the relaxation and disconnection had made them feel; in particular, they emphasised the relaxation and disconnection that this exercise made them feel. Despite being in this state of calm they connected with the space, described how the created environment was influencing them, and showed satisfaction with this experience, stressing how the music had caused them to embrace this state of wellbeing:

The relaxation technique with your music on the piano was a great moment to relax... the detail of turning off the light was perfect (Participant 16).

I was able to relax and disconnect when listening to the piano after the previous [guided] breath[work] (Participant 4).

In this sense, they highlighted the importance of this type of technique as a complement to conventional treatments in hospital environments. For many of them, human beings are central to healthcare and so they considered that the ability to help patients feel that they are cared for in dimensions beyond that of biology should be valued. The participants found that MT had wide-ranging benefits and had an impact not only on the physiological level, but also on the psychological, social, and spiritual levels:

I think that in a music therapy context it's a very suitable and appropriate complement[ary activity]. Thinking about the therapeutic value it can have on patients (at any age)—it's unquestionable. Well, [it affects] 'healthy' people... and even more so for people with physical, psychological, and social problems associated with the loss of health (Participant 11).

General assessment of the music therapy session

Finally, the healthcare professionals described their general assessment, that is, what they had experienced in the MT session. They made analogies to explain what they had felt on an emotional level and were grateful for the experience they had had. For some it was an experience of deep connection with themselves, their emotions, and feelings, and they were able to reassign meaning to situations they were going through. They qualified it as follows:

Thank you for stirring up things in me that were 'asleep' and to which I have to pay more attention... Thank you for [passing on] that baton and for the concert of life to begin [again] after [I have been experiencing] a [period of] some depression (Participant 3).

Music therapy gave me [escape], joy, it made me look inside myself to ask myself how I am and what I need (Participant 13).

They also described other perspectives on how the session had led them to reflect upon their own life experiences:

This music therapy session prompted me to [self-]reflect (Participant 2).

The healthcare professionals also expressed satisfaction about what MT can offer in clinical practice and highlighted its important therapeutic value in terms of improving the quality of life and care of patients. By experimenting with its benefits, they were able to understand how it can be useful in improving the moods of patients and in the activation of more positive behaviours in people with labile psychological states—precisely those feelings related to the health situations their patients were going through. They also stressed the importance of tailoring MT sessions to the needs of patients. In this regard, they indicated, the following, for example:

Satisfaction at knowing something more about music therapy in practice and its modalities of passive and active application. And what that means is adapting the therapeutic value that music can have to the patient or person (Participant 11).

It has generated more interest than I [previously] had. Here, I believe that, in addition to the music, there is psychology, sensitivity, and

hopeful anticipation (Participant 4).

Finally, the healthcare professionals highlighted the importance of the MT session, saying that it had allowed them to share a good moment of relaxation with other people and colleagues. This is very necessary among those working in health fields, giving them space to feel that their emotions can be managed and that, as healthcare workers, they must also deal with their emotions:

[A] very interesting session... being able to share a pleasant [moment] with people you don't know (Participant 18).

The session allowed me to connect with colleagues through music (Participant 10)

The benefits of music therapy in patients: children and adolescents

The second category was related to the descriptions of healthcare professionals regarding their viewpoints on the value of MT in terms of its benefits in hospitalised children and adolescents. This category included the following subcategories: (a) health implications; (b) music therapy as therapeutic support; and (c) the secondary benefits of music therapy.

Health implications

Most of the healthcare professionals indicated the benefits they believed MT could have in terms of transforming emotions. In other words, how MT could improve or change emotions at certain times, especially in the difficult situations that children and adolescents go through in hospital because of a health process. Thus, the participants believed that MT could impact the general wellbeing of children and adolescents and make their hospital stay more bearable:

Bearing in mind that both childhood and adolescence are difficult stages for the communication of emotions and feelings, a tool like this, that achieves an approach based on fun, participation, and play is wonderful... I think that a great transformation can be achieved [as well as] connection with new moods (Participant 17).

To a large degree. Music transforms the emotions of everyone. Therefore, greater capacity for transformation will be possible in patients, people who are more vulnerable to their disease (Participant 11).

The participants also described the value of MT and how it affects the quality of life of hospitalised children and adolescents in terms of the improvement or reduction of some physical symptoms associated with disease or that are exacerbated by their psychological state. This was stated as follows:

I'm sure that if music therapy were introduced, the hospital stay would be reduced, many symptoms (headaches, complications, etc.) would improve and, above all, [so would] the quality of life and wellbeing of [the] children and adolescents, and also of the adults (Participant 8).

Likewise, they stated that the extensive benefits of MT also included repercussions at the psychological level within the health–disease process, telling us that its effects would eventually be reflected in an integral way, that is, in various dimensions related to the state of health of the patient. They stated that, provided that a certified music therapist conducts the session, they believed the sick person would be able to connect with their inner self through music and would then feel special or valuable, evoking different emotional states and contributing to their own life force. For children, music is integral to their development, it is

an expressive exercise and allows them to feel valued and recognised. The participants expressed these ideas as follows:

With music therapy you can achieve many psychological benefits, since music is one of the few things that can bring out the best in a person... (Participant 14).

Yes, to be able to forget the sorrows, not reside in the pain, to be able to demonstrate to relatives an attitude of happiness and not sadness, in an integral way. It would make [the] environment more bearable for everyone (Participant 3).

With music therapy, benefits can be achieved at an integral (biopsychosocial) level (Participant 12).

Music therapy has many benefits in patients (at least in paediatric patients, which are the ones I know)... With music, children feel heard, they feel like the protagonists, they feel capable of expressing emotions and feelings that would otherwise be more difficult for them (Participant 13).

Music therapy as therapeutic support

The participants explained how MT could help strengthen relationships in the hospital and healthcare setting. They also described how communication with children and adolescents during the hospital stay could benefit from and become more intimate through MT precisely because, as a therapeutic tool, it can help patients to open up on an emotional level with people they are less close to (such as health professionals), to express their feelings:

I believe that music therapy can help to strengthen patient–family relationships because they can interact with each other, something that they would not be able to share without music (Participant 1).

Music therapy can help communication between patients and healthcare personnel... favouring the clinical process (Participant 15).

In this sense, the participants indicated that MT also allowed non-verbal communication channels to be opened in hospitalised children and adolescents. This can be seen as a way of observing what these patients are feeling and to recognise their gestures, expressions, and everything shown through their facial expressions. For example, where they are looking, their posture, the position of their shoulders, the inclination of their body, etc. They described this idea as follows:

I think that music therapy can help them express their anger, annoyance, and show healthcare professionals how they feel without having to speak (Participant 7).

The participants also pointed out that MT has important value in terms of the therapeutic support it can provide to paediatric and adolescent patients during their disease process. For example:

Without a doubt, 'life without music would be a mistake,' said Nietzsche. And surely the therapy of a patient without music would be a mistake. Music accompanies us at every moment of our lives, and it should not stop doing so in the most difficult moments, which is when health fails (Participant 11).

In this sense, some of the healthcare professionals described the idea that MT could accompany patients in difficult moments such as at the end of life, which further highlighted its therapeutic value. Some also indicated that it could help with coping with different situations that children and adolescents with a terminal diagnosis must go through, described as follows:

In paediatric cancer patients it can also help them to leave with total peace and tranquillity in that last breath (Participant 7).

I believe that music therapy can change the patient's way of dealing with the disease and with their environment, coping with the situation (Participant 2).

In the same way, they also pointed out the value of MT as a fundamental stimulus for the psychological, social, and behavioural development of hospitalised children and adolescents. In turn, they described the idea that MT interventions could be used at all times during the disease process and in the different phases of the recovery process (hospitalisation, procedures, and relapses, etc.):

Music therapy must be essential as a means of treatment and [for the] development of children and adolescents since it's part of their evolutionary process (Participant 14).

I think that music therapy could be used in all phases, since you have the patient's [health] situation as a premise [for the music therapy intervention] (Participant 4).

To name a few: before a surgical intervention, after a painful procedure, after a process of communicating bad news, after a surgical intervention, for prenatal neonates, in children's mental health units... (Participant 2).

The secondary benefits of music therapy

Finally, in addition to all the above, the participants also considered the secondary benefits that MT may have on families given that the child–family binomial cannot be broken in children. Parents or caregivers also benefit from MT because it allows them a moment of disconnection from their day-to-day realities, helping them to find strength and improve their psychological state. This is especially useful when they are caring for their children given that MT also benefits the relationship between them and impacts the environment in which they find themselves. It should be noted that for healthcare professionals, accompaniment by parents during hospitalisation and throughout a child's health process is especially important. This is how they stated these ideas:

In addition, music therapy can benefit their family members by helping them feel better both physically and mentally... and by giving family members the opportunity to be closer to the disease problems when interacting with patients (Participant 1).

Music therapy allows long and hard treatments to be carried out with a better state of mind, and by being more animated, [patients] focus on the state of mind of their family (Participant 12).

Discussion

The objective of this current study was to describe the perceptions of healthcare professionals regarding the usefulness of MT in the care of hospitalised children and adolescents, as well as how they themselves experienced MT on a personal level. Thus, to best discuss the results, we will divide this section into two sub-sections.

The effects of music therapy on healthcare professionals

We were unable to find any studies in the scientific literature that used interactive MT sessions with healthcare professionals to record

their perspectives on the importance of MT in the care of hospitalised children and adolescents. In our study, healthcare professionals were able to have a personal experience of MT, thereby allowing them to later describe the possible benefits MT might have in patients. Carrying out this type of intervention strongly supports the results of the study by Chadder (2019) which concluded that it would be interesting to offer MT seminars to healthcare professionals so that they can experience, understand, and learn about the value of MT in hospital settings. For this reason, in our work we decided to first plan and implement an interactive MT workshop for the participating healthcare professionals.

It has been shown that at the brain level, music activates structures that are directly and crucially involved with emotions (Barrett & Janata, 2016; Koelsch, 2014, 2020). Therefore, when we listen to a song, brain circuits can be modulated, stimulated, or inhibited. Likewise, musical stimuli provide information to the brain, which are given by a sequence of sounds that can, for example, become pleasant (Mas-Herrero et al., 2018). In our study, we hoped that healthcare professionals would be able to identify various emotions and feelings caused by music in order to be able to better assess its effects in healthcare contexts. Thus, during the MT session they participated in, the professionals were able to recognise emotions: joy, sadness, and feelings such as nostalgia and hope. More specifically, different methods can be used during MT interventions, which can be aimed at relaxing or activating patients or users. This could help and allow them to achieve social, emotional, recreational, psychological, and cognitive benefits, among others (Odell-Miller, 2019).

In our study, we asked healthcare professionals to play percussion instruments and to sing in order so that they would be able to describe what MT had done for them on a personal level. They indicated the following positive effects: connection with colleagues, fun, well-being, evocation of memories, and calmness. By specifically applying the receptive technique (based on listening to music) they participated in a moment of relaxation during which live music was used. Most of the healthcare professionals agreed that the MT had helped them disconnect and in turn, they had experienced what we had sought to achieve: relaxation. In this line, the study by Zamanifar et al. (2020) aimed to determine the effect of MT and aromatherapy on anxiety, specifically in clinical nurses. Their results showed a significant reduction in symptoms and these authors concluded that these non-pharmacological interventions could, in turn, improve the work performance of the participants.

Other studies such as the one by Yıldırım and Yıldız (2022) investigated the effect of a breathing practice (based on mindfulness and MT) on the consequences of work-related stress and tension affecting the levels of psychological wellbeing of nurses that had provided care for patients with COVID-19. Their results showed that these healthcare professionals positively valued the MT sessions, indicating that they had felt satisfied, had found the session thought-provoking, and associated it with a feeling of wellbeing and relaxation. Thus, these findings demonstrated that these techniques had increased the psychological wellbeing of their study cohort. In this sense, it should be noted that, in general, the healthcare professionals in our research said that the MT session had given them a sense of satisfaction associated with a feeling of wellbeing and relaxation, also stating that, in some cases, it led them to reflect upon a certain situation or personal experience.

The benefits of music therapy in patients: children and adolescents

In this second category, the healthcare professionals in our study agreed that MT enables communication, creates personal bonds, and in turn, favours and strengthens social relationships between patients, their family members, and healthcare personnel. In this sense, the study by Arndt et al. (2016), concluded that MT contributes to the transformation of social reality by using sound as a tool for interpersonal

communication. Similarly, the study by Khan et al. (2016) aimed to explore attitudes towards MT and learn about the recommendations of healthcare professionals regarding its use in older people. These authors showed that MT had a positive impact on these patients, and facilitated social communication and interaction, as well as impacting, for example, their memory. In short, MT improved the mood of these individuals. Furthermore, the study by Osuna et al. (2018) concluded that healthcare professionals believed that MT could influence the quality of communication, making it possible to identify communication deficiencies, and so also impacting decision-making in the field of healthcare.

Another aspect to consider is that, in our research, the majority of healthcare professionals described the benefits of MT in the transformation of emotions. In other words, how MT can improve or change certain moments hospitalised children and adolescents go through. Thus, MT could help generate positive emotions, and could constructively impact their wellbeing and state of mind (Ugglá et al., 2018; Wong et al., 2021). This aspect has also been considered by some recent reviews on this topic (Facchini & Ruini, 2021; Rodríguez-Rodríguez et al., 2022) which argue that MT is an important component in critical health situations such as the care of children and adolescents with cancer. These authors reported that MT allowed their patients to express their emotions, thereby helping to improve their personal autonomy and promote self-knowledge. This ultimately facilitated better management of feelings and transformed their state of mind, which improved their quality of life. Furthermore, the work published by Giordano et al. (2022) found that MT served as an effective intervention specifically within paediatric palliative care because it facilitated emotional expression in terminally ill patients, thus promoting relaxation, decreasing social isolation, and increasing communication and self-expression.

In contrast, in our work, the healthcare professionals also described the important idea that summarises the repercussions of MT on the health status of patients: that it can help at a comprehensive level by addressing both the physical and mental aspects of patient health. In this regard, studies have been carried out in psychiatry departments to understand the effects of MT specifically targeting children and adolescents (Freitas et al., 2022; Repinçay, 2019). These authors found that the proposed interventions had a strong positive impact and great potential because they provided the patients with coping skills, increased their self-esteem, and improved motor coordination, while also impacting body control, thereby favouring relaxation and stress relief. These changes not only occurred at the level of the patients themselves, but also had added benefits for both clinical staff and the general hospital environment (Kennedy et al., 2014).

Another study, carried out in an adolescent psychiatric ward sought to assess the viability of offering a MT programme, finding that it was a feasible and acceptable inpatient treatment that was highly valued by staff and patients as a complementary therapy (Patterson et al., 2015). The findings in our current work were very similar, with the participants describing their opinions that MT allows both enjoyment and the expression of feelings in healthcare personnel and patients alike, perhaps also impacting recovery and increasing social engagement in their relationships with patients, thereby improving affective ties. There are also examples of studies carried out in adults in mental health units which support the results of the aforementioned studies (Marques et al., 2020; Silverman & Bibb, 2018). These showed that MT reduced agitation and motivated and activated communication channels, thereby facilitating the evocation of memories, feelings, and emotions in patients.

If we consider all the physical, psychological and physiological repercussions of MT, its effects have been widely demonstrated. In addition to the extensive benefits already described above, the clinical academic literature even indicates that MT reduces salivary cortisol levels, anxiety symptoms, aids the treatment of depression, and reduces tiredness and drowsiness, for example, in people with terminal disease

(Gao et al., 2019; Schmid et al., 2018). Our participants also described the value of MT as being positive for families. This aspect was analysed in an investigation designed to evaluate an art programme (personalised music, singing, and drawing, among others) implemented in an intensive care unit and applied specifically to elderly patients. The authors concluded that, in addition to the benefits for patients, families also benefited by achieving an emotional release and by having fun, meaning that the programme received positive evaluations (Ford et al., 2018).

Finally, it is worth mentioning the possibilities offered by the different MT intervention methods available (Odell-Miller, 2019). When applied as part of a therapeutic process they must be adapted according to the objectives and needs of each patient. In our study the participants indicated the disease phases through which the children and adolescents they treat go through according to their diagnosis, meaning that future MT interventions could take this information into account. Our findings add to the recommendation that MT should be implemented in a standardised way in units for children and adolescents in order to improve their hospital stay and quality of life.

Limitations

The perceptions of the participants of this work may have been limited by the availability of healthcare professionals finding time in their schedules and being willing and able to participate in these types of activities. In future work, it would be interesting to record and compare perspectives on MT from healthcare professionals from different medical units and geographical locations.

Implications to practice

MT can be utilised in a myriad of ways to improve the health and well-being of patients and families. The findings of this research provide important new insights regarding the usefulness of MT both on a personal level and in clinical practice. Healthcare professionals can use music therapists to improve patient outcomes and reduce the negative effects of hospitalisation.

Conclusion

Based on our results, we can confirm that MT is a useful tool because it allows critical reflection. This type of intervention has become a gold standard for improving the self-knowledge of healthcare professionals and for improving patient care, enhancing self-care in both patients and their carers. The use of active and receptive MT techniques such as listening to music, singing, and playing percussion instruments, among others, allowed healthcare professionals to discover more about their inner worlds, connect with their peers, and learn about the possibilities of MT for improving the care of hospitalised children and adolescents. The results of this study indicated that MT is likely to have comprehensive benefits for hospitalised children and adolescents and so its standardised inclusion in their care, as well as in other hospitalisation areas, is recommended.

Funding

There was no direct funding for the research undertaken or the writing of this article.

CRediT authorship contribution statement

Román-Carlos Rodríguez-Rodríguez: Writing – original draft, Methodology, Investigation, Formal analysis, Data curation. **Ana Noreña-Peña:** Writing – review & editing, Writing – original draft,

Supervision, Formal analysis, Data curation. **Teresa Cháfer-Bixquert:** Writing – review & editing, Writing – original draft, Formal analysis. **Javier González de Dios:** Supervision, Methodology, Formal analysis, Data curation. **Carmen Solano Ruiz:** Writing – review & editing, Formal analysis, Conceptualization.

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.

Acknowledgments

We would like to thank all the healthcare professionals that participated in this study.

References

- Arnal, J., del Rincón, D., & Latorre, A. A. (1992). *Investigación educativa fundamentos y metodología [Educational research foundations and methodology]*. Barcelona: Labor.
- Arndt, A. D., Cunha, R., & Volpi, S. (2016). Aspectos Da Prática Musicoterapêutica: Contexto social E Comunitário Em Perspectiva [Aspects of the music therapy practice: Social and community context in perspective]. *Psicologia & Sociedade*, 28, 387–395. <https://doi.org/10.1590/1807-03102016v28n2p387>.
- Barrett, F. S., & Janata, P. (2016). Neural responses to nostalgia-evoking music modeled by elements of dynamic musical structure and individual differences in affective traits. *Neuropsychologia*, 91, 234–246. <https://doi.org/10.1016/j.neuropsychologia.2016.08.012>.
- Bieleninik, L., Ghetti, C., & Gold, C. (2016). Music therapy for preterm infants and their parents: A meta-analysis. *Pediatrics*, 138. <https://doi.org/10.1542/peds.2016-0971>.
- Bradt, J., Dileo, C., Myers-Coffman, K., & Biondo, J. (2021). Music interventions for improving psychological and physical outcomes in people with cancer. *Cochrane Database of Systematic Reviews*, 10(10), Article CD006911. <https://doi.org/10.1002/14651858.CD006911.pub4>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <https://doi.org/10.1191/1478088706qp0630a>.
- de Campos, M. D., Araujo, J. P., da Pinto, K. R. T. F., Matos, G. M., & Zani, A. V. (2022). Musicoterapia para crianças e adolescentes elegíveis para cuidados paliativos: revisão integrativa [Music therapy for children and adolescents eligible for palliative care: Integrative review]. *Research, Society and Development*, 11, Article e383111234707. <http://doi.org/10.33448/rsd-v11i12.34707>.
- Chadder, N. (2019). An exploration into the perception of music interventions in hospitals amongst healthcare professionals. *A World Forum for Music Therapy*, 19(1). <https://doi.org/10.15845/voices.v19i1.2711>.
- Clark, B. A., Siden, H., & Straatman, L. (2014). An integrative approach to music therapy in pediatric palliative care. *Journal of Palliative Care*, 30, 179–187. <https://doi.org/10.1177/082585971403000308>.
- Colwell, C. M., Edwards, R., Hernandez, E., & Brees, K. (2013). Impact of music therapy interventions (listening, composition, orff-based) on the physiological and psychosocial behaviors of hospitalized children: A feasibility study. *Journal of Pediatric Nursing*, 28, 249–257. <https://doi.org/10.1016/j.pedn.2012.08.008>.
- Docherty, S. L., Robb, S. L., Phillips-Salimi, C., Cherven, B., Stegenga, K., Hendricks-Ferguson, V., ... Haase, J. (2013). Parental perspectives on a behavioral health music intervention for adolescent/young adult resilience during cancer treatment: Report from the children's oncology group. *The Journal of Adolescent Health*, 52, 170–178. <https://doi.org/10.1016/j.jadohealth.2012.05.010>.
- Duda, L. J. (2013). Integrating music therapy into pediatric palliative care. *Progress Palliative Care*, 21, 65–77. <https://doi.org/10.1179/1743291X13Y.0000000049>.
- Elfil, M., & Negida, A. (2017). Sampling methods in clinical research; an educational review. *Emergency (Tehran, Iran)*, 5(1), Article e52.
- Facchini, M., & Ruini, C. (2021). The role of music therapy in the treatment of children with cancer: A systematic review of literature. *Complementary Therapies in Clinical Practice*, 42, Article 101289. <https://doi.org/10.1016/j.ctcp.2020.101289>.
- Fedhila, F., Hannachi, M. W., Jbebli, E., Selmi, I., Rhayem, S., Magouri, I., ... Khemiri, M. (2023). Impact of music therapy on quality of life in children with cancer. *Children*, 10. <https://doi.org/10.3390/children10091486>.
- Ford, K., Tesch, L., Dawborn, J., & Courtney-Pratt, H. (2018). Art, music, story: The evaluation of a person-centred arts in health programme in an acute care older persons' unit. *International Journal of Older People Nursing*, 13. <https://doi.org/10.1111/ijn.12186>.
- Freitas, C., Fernández-Company, J. F., Pita, M. F., & García-Rodríguez, M. (2022). Music therapy for adolescents with psychiatric disorders: An overview. *Clinical Child Psychology and Psychiatry*, 27, 895–910. <https://doi.org/10.1177/13591045221079161>.
- Gao, Y., Wei, Y., Yang, W., Jiang, L., Li, X., Ding, J., & Ding, G. (2019). The effectiveness of music therapy for terminally ill patients: A meta-analysis and systematic review. *Journal of Pain and Symptom Management*, 57(2), 319–329. <https://doi.org/10.1016/j.jpainsymman.2018.10.504>.

- Giordano, F., Rutigliano, C., Baroni, M., Grassi, M., Muggeo, P., & Santoro, N. (2022). Music therapy and pediatric palliative care: Songwriting with children in the end-of-life. *World Journal of Pediatrics : WJP*, 18(10), 695–699. <https://doi.org/10.1007/s12519-022-00578-6>.
- Giordano, F., Zanchi, B., De Leonardi, F., Rutigliano, C., Esposito, F., Brienza, N., & Santoro, N. (2020). The influence of music therapy on preoperative anxiety in pediatric oncology patients undergoing invasive procedures. *The Arts in Psychotherapy*, 68, Article 101649. <https://doi.org/10.1016/j.aip.2020.101649>.
- Golino, A. J., Leone, R., Gollenberg, A., Christopher, C., Stanger, D., Davis, T. M., ... Friesen, M. A. (2019). Impact of an active music therapy intervention on intensive care patients. *American Journal of Critical Care*, 28, 48–55. <https://doi.org/10.4037/AJCC2019792>.
- González-Martín-Moreno, M., Garrido-Ardila, E. M., Jiménez-Palomares, M., González-Medina, G., Oliva-Ruiz, P., & Rodríguez-Mansilla, J. (2021). Music-based interventions in paediatric and adolescents oncology patients: A systematic review. *Children*, 8, 73. <https://doi.org/10.3390/children8020073>.
- Guba, E. G., & Lincoln, Y. S. (1994). *Competing paradigms in qualitative research*. *Handbook of Qualitative Research*, 2(163–194), 105.
- Haase, J. E., Robb, S. L., Burns, D. S., Stegenga, K., Cherven, B., Hendricks-Ferguson, V., ... Phillips, C. (2020). Adolescent/young adult perspectives of a therapeutic music video intervention to improve resilience during hematopoietic stem cell transplant for cancer. *Journal of Music Therapy*, 57, 3–33. <https://doi.org/10.1093/jmt/thz014>.
- Halkier, B. (2010). Focus groups as social enactments: Integrating interaction and content in the analysis of focus group data. *Qualitative Research*, 10, 71–89. <https://doi.org/10.1177/1468794109348683>.
- Hamui-Sutton, A., & Varela-Ruiz, M. (2013). The focal groups' technique. *Investigación en Educación Médica*, 2(5), 55–60. [https://doi.org/10.1016/S2007-5057\(13\)72683](https://doi.org/10.1016/S2007-5057(13)72683).
- Kennedy, H., Reed, K., & Wamboldt, M. Z. (2014). Staff perceptions of complementary and alternative therapy integration into a child and adolescent psychiatry program. *The Arts in Psychotherapy*, 41, 21–26. <https://doi.org/10.1016/j.aip.2013.10.007>.
- Khan, W. U., Yap, I. A. M. O., O'Neill, D., & Moss, H. (2016). Perceptions of music therapy for older people among healthcare professionals. *Medical Humanities*, 42, 52–56. <https://doi.org/10.1136/medhum-2015-010778>.
- Klyve, G. P., Rolvsjord, R., & Elgen, I. B. (2023). Polyphonic perspectives: A focus group study of interprofessional staff's perceptions of music therapy at an inpatient unit for children in mental health care. *International Journal of Qualitative Studies on Health and Well-Being*, 18. <https://doi.org/10.1080/17482631.2023.2197750>.
- Knott, D., Krater, C., MacLean, J., Robertson, K., Stegenga, K., & Robb, S. L. (2022). Music therapy for children with oncology & hematological conditions and their families: Advancing the standards of psychosocial care. *Journal of Pediatric Hematology/Oncology Nursing*, 39(1), 49–59. <https://doi.org/10.1177/27527530211059726>.
- Kobus, S., Diezel, M., Dewan, M. V., Huening, B., Dathe, A. K., Felderhoff-Mueser, U., & Bruns, N. (2021). Music therapy is effective during sleep in preterm infants. *International Journal of Environmental Research and Public Health*, 18. <https://doi.org/10.3390/ijerph18168245>.
- Koelsch, S. (2014). Brain correlates of music-evoked emotions. *Nature Reviews Neuroscience*, 15, 170–180. <https://doi.org/10.1038/nrn3666>.
- Koelsch, S. (2020). A coordinate-based meta-analysis of music-evoked emotions. *Neuroimage*, 223. <https://doi.org/10.1016/j.neuroimage.2020.117350>.
- Krueger, R., & Casey, M. (2015). *Focus groups: A practical guide for applied research* (5th ed.). Los Angeles, CA.
- Lam, H. L., Li, W. T. V., Laher, I., & Wong, R. Y. (2020). Effects of music therapy on patients with dementia-a systematic review. *Geriatrics (Basel, Switzerland)*, 5(4), 62. <https://doi.org/10.3390/geriatrics5040062>.
- Lerwick, J. L. (2016). Minimizing pediatric healthcare-induced anxiety and trauma. *World Journal of Clinical Pediatrics*, 5, 143. <https://doi.org/10.5409/wjcp.v5.i2.143>.
- Liang, J., Tian, X., & Yang, W. (2021). Application of music therapy in general surgical treatment. *BioMed Research International*, 2021, 6169183. <https://doi.org/10.1155/2021/6169183>.
- Livesley, J., & Long, T. (2013). Children's experiences as hospital in-patients: Voice, competence and work. Messages for nursing from a critical ethnographic study. *International Journal of Nursing Studies*, 50, 1292–1303. <https://doi.org/10.1016/j.ijnurstu.2012.12.005>.
- Loewy, J., Stewart, K., Dassler, A. M., Telsey, A., & Homel, P. (2013). The effects of music therapy on vital signs, feeding, and sleep in premature infants. *Pediatrics*, 131, 902–918. <https://doi.org/10.1542/peds.2012-1367>.
- Lopes-Júnior, L. C., Bomfim, E., Olson, K., Neves, E. T., Silveira, D. S. C., Nunes, M. D. R., Nascimento, L. C., Pereira-Da-Silva, G., & Lima, R. A. G. (2020). Effectiveness of hospital clowns for symptom management in paediatrics: Systematic review of randomised and non-randomised controlled trials. *The BMJ*, 371. <https://doi.org/10.1136/bmj.m4290>.
- Marques, D. A., da Alves, M. S., da Carbogim, F. C., de Vargas, D., de Paula, G. L., & Almeida, C. P. B. (2020). Multiprofessional team perception of a music therapeutic workshop developed by nurses. *Revista Brasileira de Enfermagem*, 73. <https://doi.org/10.1590/0034-7167-2017-0853>.
- Mas-Herrero, E., Dagher, A., & Zatorre, R. J. (2018). Modulating musical reward sensitivity up and down with transcranial magnetic stimulation. *Nature Human Behaviour*, 2, 27–32. <https://doi.org/10.1038/s41562-017-0241-z>.
- Nguyen, T. N., Nilsson, S., Hellström, A. L., & Bengtson, A. (2010). Music therapy to reduce pain and anxiety in children with cancer undergoing lumbar puncture: A randomized clinical trial. *Journal of Pediatric Oncology Nursing*, 27, 146–155. <https://doi.org/10.1177/1043454209355983>.
- Noreña Alcaraz-Moreno, N., Rojas, J. G., & Malpica, R. (2012). Applicability of the criteria of rigor and ethics in qualitative research. *Aquichan*, 12(3), 263–274. <https://doi.org/10.5294/aqui.2012.12.3.5>.
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16. <https://doi.org/10.1177/1609406917733847>.
- O'Callaghan, C., Dun, B., Baron, A., & Barry, P. (2013). Music's relevance for children with cancer: Music therapists' qualitative clinical data-mining research. *Social Work in Health Care*, 52, 125–143. <https://doi.org/10.1080/00981389.2012.737904>.
- Odell-Miller, H. (2019). *A comprehensive guide to music therapy: Theory, clinical practice, research and training*. Jessica Kingsley Publishers.
- del Olmo, M. J., Tarrío, F. R., Garrido, C. R., & Marina, P. C. (2015). The effects of a music therapy intervention in PICU as measured by the comfort behavior scale. *Music as Medicine*, 7, 20–24. <http://doi.org/10.47513/MMD.V7I2.399>.
- Ormston, K., Howard, R., Gallagher, K., Mitra, S., & Jaschke, A. (2022). The role of music therapy with infants with perinatal brain injury. *Brain Sciences*, 12(5), 578. <https://doi.org/10.3390/brainsci12050578>.
- Osuna, E., Pérez-Carrión, A., Pérez-Cárceles, M. D., & Machado, F. (2018). Perceptions of health professionals about the quality of communication and deliberation with the patient and its impact on the health decision making process. *Journal of Public Health Research*, 7. <https://doi.org/10.4081/jphr.2018.1445>.
- Patterson, S., Duhig, M., Darbyshire, C., Counsel, R., Higgins, N. S., & Williams, I. (2015). Implementing music therapy on an adolescent inpatient unit: A mixed-methods evaluation of acceptability, experience of participation and perceived impact. *Australasian Psychiatry*, 23, 556–560. <https://doi.org/10.1177/1039856215592320>.
- Ravenek, M. J., & Rudman, D. L. (2013). Bridging conceptions of quality in moments of qualitative research. *International Journal of Qualitative Methods*, 12(1), 436–456. <https://doi.org/10.1177/160940691301200122>.
- Repinçay, I. (2019). Music therapy in a children's psychiatric unit. *Soins. Pédiatrie, Puériculture*, 40, 36–37. <https://doi.org/10.1016/J.SPP.2019.01.011>.
- Rodríguez-Rodríguez, R. -C., Noreña-Peña, A., Cháfer-Bixquert, T., González de Dios, J., Gutiérrez García, A. I., & Solano Ruiz, C. (2023). The value of music therapy in the expression of emotions in children with cancer. *European Journal of Cancer Care*, 2023, 2910350. <https://doi.org/10.1155/2023/2910350>.
- Rodríguez-Rodríguez, R. -C., Noreña-Peña, A., Cháfer-Bixquert, T., Lorenzo Vásquez, A., González de Dios, J., & Solano Ruiz, C. (2022). The relevance of music therapy in paediatric and adolescent cancer patients: A scoping review. *Global Health Action*, 15. <https://doi.org/10.1080/16549716.2022.2116774>.
- Sargin Yildirim, N., Demirkaya, M., Sevmir, B. B., Güler, S., Vural, A. P., Demiröz, C., & Çirpan Kantarcioğlu, A. (2017). A prospective follow-up of quality of life, depression, and anxiety in children with lymphoma and solid tumors. *Turkish Journal of Medical Sciences*, 47, 1078–1088. <https://doi.org/10.3906/sag-1510-9>.
- Schmid, W., Rosland, J. H., Von Hofacker, S., Hunsikar, I., & Bruvik, F. (2018). Patient's and health care provider's perspectives on music therapy in palliative care - an integrative review. *BMC Palliative Care*, 17. <https://doi.org/10.1186/S12904-018-0286-4>.
- Sepúlveda-Vildósola, Arolina, A. C., Herrera-Zaragoza, Ené, O. R., Jaramillo-Villanueva, L., & Anaya-Segura, A. (2014). Music as an adjuvant treatment for anxiety in pediatric oncologic patients. *Revista Médica del Instituto Mexicano del Seguro Social*, 52, S50–S54.
- Silverman, M. J., & Bibb, J. (2018). Acute care mental health workers' assumptions and expectations of music therapy: A qualitative investigation. *The Arts in Psychotherapy*, 59, 94–100. <https://doi.org/10.1016/j.aip.2018.05.002>.
- Siponkoski, S. T., Martínez-Molina, N., Kuusela, L., Laitinen, S., Holma, M., Ahlfors, M., ... Särkämö, T. (2020). Music therapy enhances executive functions and prefrontal structural neuroplasticity after traumatic brain injury: Evidence from a randomized controlled trial. *Journal of Neurotrauma*, 37, 618–634. <https://doi.org/10.1089/neu.2019.6413>.
- Stegemann, T., Geretsegger, M., Phan Quoc, E., Riedl, H., & Smetana, M. (2019). Music therapy and other music-based interventions in pediatric health care: An overview. *Medicine*, 6, 25. <https://doi.org/10.3390/medicines6010025>.
- Thofehn, M. B., Montesinos, M. J. L., Porto, A. R., Amestoy, S. C., de Arriera, I. C. O., & Mikla, M. (2013). Grupo focal: una técnica de recogida de datos en investigaciones cualitativas [Focus group: A technique for data collection in qualitative research]. *Índex de Enfermeria*, 22, 75–78. <https://doi.org/10.4321/S1132-12962013000100016>.
- Tucquet, B., & Leung, M. (2014). Music therapy services in pediatric oncology: A national clinical practice review. *Journal of Pediatric Oncology Nursing*, 31, 327–338. <https://doi.org/10.1177/1043454214533424>.
- Ugglå, L., Bonde, L. O., Hammar, U., Wrangsjö, B., & Gustafsson, B. (2018). Music therapy supported the health-related quality of life for children undergoing haematopoietic stem cell transplants. *Acta Paediatrica, International Journal of Paediatrics*, 107, 1986–1994. <https://doi.org/10.1111/apa.14515>.
- Ugglå, L., Bonde, L. O., Svahn, B. M., Remberger, M., Wrangsjö, B., & Gustafsson, B. (2016). Music therapy can lower the heart rates of severely sick children. *Acta Paediatrica, International Journal of Paediatrics*, 105, 1225–1230. <https://doi.org/10.1111/apa.13452>.
- Ugglå, L., Mårtensson Blom, K., Bonde, L. O., Gustafsson, B., Wrangsjö, B., Ugglå, L., ... Wrangsjö, B. (2019). An explorative study of qualities in interactive processes with children and their parents in music therapy during and after pediatric hematopoietic stem cell transplantation. *Medicine*, 6, 28. <https://doi.org/10.3390/medicines6010028>.
- Ullán, A. M., & Belver, M. H. (2021). Visual arts in children's hospitals: Scoping review. *Health Environments Research and Design Journal*, 14(4), 339–367. <https://doi.org/10.1177/19375867211003494>.
- Wang, S., & Agius, M. (2018). The use of music therapy in the treatment of mental illness and the enhancement of societal wellbeing. *Psychiatry Danubina*, 30(Suppl. 7), 595–600.
- Wilson, C., Bungay, H., Munn-Giddings, C., & Boyce, M. (2015). Healthcare professionals' perceptions of the value and impact of the arts in healthcare settings: A critical

- review of the literature. *International Journal of Nursing Studies*, 56, 90–101. <https://doi.org/10.1016/j.ijnurstu.2015.11.003>.
- Wolfe, J., Orellana, L., Ullrich, C., Cook, E. F., Kang, T. I., Rosenberg, A., Geyer, R., Feudtner, C., & Dussel, V. (2015). Symptoms and distress in children with advanced cancer: Prospective patient-reported outcomes from the PediQUEST study. *Journal of Clinical Oncology*, 33, 1928–1935. <https://doi.org/10.1200/JCO.2014.59.1222>.
- Wong, K. C., Tan, B. W. Z., Tong, J. W. K., & Chan, M. Y. (2021). The role of music therapy for children undergoing cancer treatment in Singapore. *Healthcare (Switzerland)*, 9. <https://doi.org/10.3390/healthcare9121761>.
- World Federation of Music Therapy (2023). Retrieved February 7, 2024, from: <https://www.wfmt.info/>.
- Yates, G. J., Beckmann, N. B., Voss, M. E., Anderson, M. R., & Silverman, M. J. (2018). Caregiver perceptions of music therapy for children hospitalized for a blood and marrow transplant: An interpretivist investigation. *Global Advances in Health and Medicine*, 7. <https://doi.org/10.1177/2164956118788853>.
- Yıldırım, D., & Yıldız, C.Ç. (2022). The effect of mindfulness-based breathing and music therapy practice on Nurses' stress, work-related strain, and psychological well-being during the COVID-19 pandemic: A randomized controlled trial. *Holistic Nursing Practice*, 36, 156–165. <https://doi.org/10.1097/HNP.0000000000000511>.
- Zamanifar, S., Bagheri-Saveh, M. I., Nezakati, A., Mohammadi, R., & Seidi, J. (2020). The effect of music therapy and aromatherapy with chamomile-lavender essential oil on the anxiety of clinical nurses: A randomized and double-blind clinical trial. *Journal of Medicine and Life*, 13, 87–93. <http://doi.org/10.25122/jml-2019-0105>.