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ARTICLE

Exploring clinicians' experiences of engaging in collaborative music therapy and speech and language therapy for children with an acquired brain injury

James Burns
Irish World Academy of Music and Dance, University of Limerick, Ireland

Rebecca Susan O'Connor
National Rehabilitation Hospital, Ireland

ABSTRACT

Music therapy and speech and language therapy are extensively used in the rehabilitation of communication and social interaction skills following acquired brain injury (ABI). Increasing evidence suggests that collaboration between the two disciplines may yield positive outcomes for the paediatric population. However, little is known about clinicians' experiences of engaging in collaborative music therapy and speech and language therapy within paediatric rehabilitation settings, and there is a need to further explore and understand collaborative therapy to identify strategies for improving client outcomes as well as clinicians' experiences. This study aimed to explore music therapists' and speech and language therapists' experiences of working collaboratively to develop communication and social interaction skills in children with ABI. The study also intended to gain further insights into collaborative practices as well as strategies and interventions used in joint sessions. Semi-structured interviews were conducted with three clinicians (two music therapists and one speech and language therapist) who have previously engaged in collaborative practices with this population. The interviews were analysed using thematic analysis. Four themes emerged from the data: (a) benefits of a collaborative approach, (b) limitations of conjoint work, (c) collaborative practices, and (d) need for further research. Key findings suggested that conjoint working between music therapy and speech and language therapy facilitates increased attention and motivation which enables the client to engage in interpersonal interactions and develop communication skills. Joint working is a crucial component of music therapy practice within paediatric ABI. Larger studies are warranted to further explore its complexities and to advocate for this valuable yet demanding approach.

KEYWORDS

music therapy,
speech and language therapy,
collaboration,
paediatric acquired brain injury

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AUTHOR BIOGRAPHIES

James Burns is a music therapist and PhD Candidate at the University of Limerick. [james.burns@ul.ie] **Rebecca O'Connor** is a senior music therapist and creative arts therapy service lead at the National Rehabilitation Hospital, Dublin. [rebecca.o'connor@nrh.ie]

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BACKGROUND

There is a broad range of consequences associated with acquired brain injury (ABI), from physical impairments to financial pressures, and while there are commonalities, an injury will affect each person differently. Paediatric rehabilitation aims at enabling children to achieve their maximum potential following a major accident, illness, or injury (Gordon & di Maggio, 2012). Magee and Baker (2009) provide an overview of the main principles supporting the use of music therapy in the rehabilitation of individuals with ABI, highlighting that all human beings have the innate ability to appreciate and respond to music. Music therapy offers a secure creative space for exploration and expression, and evidence demonstrates that music promotes neuroplasticity, which is the brain's ability to reorganise itself by creating new neural connections between healthy and damaged brain centres (Baker & Roth, 2004; Magee & Baker, 2009). This process assists in the restoration of impaired function and the development of compensatory skills. Moreover, Tamplin (2015) states that music has a motivating quality which can aid clients in adhering to and enduring rehabilitative training.

While there is a rapidly growing body of evidence that demonstrates the positive effects of music therapy intervention for adults with ABI (Magee et al., 2017), music therapy practice in paediatric rehabilitation is expanding at a slower pace (Kennelly, 2013). Paediatric rehabilitation presents unique challenges, primarily due to a child's ongoing development. As a result, the consequences of an ABI may not be immediately apparent but may only emerge as the child moves through the developmental trajectory (DePompei & Blosser, 2019; Schrieff-Elson et al., 2017). Ardila (2019) reports that early damage to the brain may not result in the direct loss of ability but difficulty to develop that ability in the future. When working with children with ABI, it is essential to consider pre-morbid neurological development across all areas of functioning in order to best adapt interventions for children. For example, cognitive skills, including memory, attention, and choice-making, as well as communication skills such as comprehension and expressive language will affect the music therapy interventions that can be used during treatment (Kennelly, 2006, 2013; Pool & Magee, 2016). Briggs (1991) provides a four-phase model for musical development within the context of cognitive and psychological child development. This model describes musical milestones in four categories of development – auditory, vocal/tonal, rhythmic, and cognitive – and can be utilised to inform clinicians' choice of music and interventions to provide effective music therapy treatment which is developmentally appropriate.

Bower et al. (2021) report that infants and children process music at a slower rate than adults and use different cortical areas in the brain for this processing. As a result, more complex musical stimuli have the potential to cause overstimulation. They argue that "it is unlikely that an ABI sustained in childhood will impact musical processing in the same way it would an adult, and therefore adult research is not immediately translatable to the paediatric population" (p.16). Kennelly (2006, 2013) highlights that paediatric music therapists need to be mindful of modern accompaniment styles, the wide range of musical tastes and preferences for repertoire, the suitable use of live versus recorded music, and instruments that are appealing and appropriately sized when planning interventions. These considerations provide valuable insights into the decision-making processes of music therapists involved in interventions for children who have experienced an ABI

and contribute to the creation of a more engaging and effective therapeutic environment that fosters a child's growth and development. However, there is a need for further research to explore the experiences of music therapists, both in individual and collaborative settings with other disciplines. This would complement existing literature and contribute to the development of evidence-based guidelines and recommendations for interdisciplinary teams working with children who have an ABI.

Collaborative music therapy in paediatric rehabilitation

Interdisciplinary collaboration plays a crucial role in fostering new ideas and approaches to rehabilitative intervention (Behm & Gray, 2012). Twyford (2008) advocates for collaborative work between music therapy and other disciplines as this sharing of expertise and skills allows access to a wider range of knowledge which enables the provision of comprehensive care to service users. Magee and Baker (2009) reiterate this by stressing that interdisciplinary working within rehabilitation settings helps to address common goals. Twyford and Watters (2016) highlight the potential benefits of collaborative music therapy and occupational therapy for children with ABI. They highlight that music is motivating and non-threatening for children and through collaboration, clinicians are enabled to work more holistically and address multiple goal areas simultaneously. Moreover, the occupational therapists involved in their study gained valuable experiential understanding of music therapy which assisted them in making informed referrals in the future. O'Doherty and O'Connor (2015) propose a collaborative approach to paediatric ABI, combining music therapy and neuropsychology. They emphasise that both professionals need to have a comprehensive understanding of each other's disciplines in order to deepen the working relationship and enhance treatment outcomes for clients.

Music and language share several similarities, such as their use of pitch, rhythm, and tempo to expressive emotive meaning (Besson & Schön, 2001). Additionally, music is a social activity that operates at both pre-verbal and verbal levels and is a powerful form of communication that is widely accessible long before expressive language, making it an effective medium to relearn and develop communication and social interaction skills (Bunt & Stige, 2014). Twyford (2008) suggests that collaboration between music therapy and speech and language therapy can increase motivation and attention which provides opportunities to strengthen these skills. Kennelly et al. (2001) echo this by stating that music is stimulating and enjoyable for children which motivates them to participate in speech exercises. In a survey conducted by McCarthy et al. (2008), music therapists reported a number of benefits when working with speech and language therapists across various client populations. Speech and language therapists enhanced their knowledge of music therapy, while music therapists broadened their understanding of anatomy and therapeutic techniques. However, the survey also identified several challenges tied to collaboration including scheduling conflicts and speech and language therapists' lack of experience with music.

Leung's (2008) case vignette highlights the benefits of collaborative music therapy and speech and language therapy in paediatric neurorehabilitation for addressing communication goals. The vignette describes work with an 11-year-old boy who sustained a severe garrotting injury which resulted in paralysis of the tongue and swallowing difficulties. Leung reflects on how collaborative music therapy and speech and language therapy offered a well-balanced, person-centred programme

due to its ability to address the emotional well-being of the client in addition to focusing on functional communication goals. Case study reports have illustrated the potential of joint music therapy and speech and language therapy in the rehabilitation of paediatric acquired neurogenetic communication disorders. This approach has been noted to address articulation, rate of speech, pitch range and intonation, and volume control in dysarthria rehabilitation (Kennelly & Brien-Elliott, 2001; Kennelly et al., 2001), and word-finding capabilities and expressive language in aphasia rehabilitation (Bower & Shoemark, 2009; Kennelly et al., 2001). Although interdisciplinary collaboration is widely recognised as beneficial, there is a dearth of empirical evidence supporting its effectiveness in enhancing outcomes for children with ABI. Existing research heavily relies on anecdotal reports and case studies, which limits the generalisability and robustness of the findings. Moreover, the studies often highlight the benefits of collaboration without adequately addressing the potential challenges and drawbacks. Exploring the experiences of music therapists and speech and language therapists in utilising a collaborative approach within paediatric rehabilitation can provide insights into the successes, challenges, and best practices associated with this approach and can ultimately support multidisciplinary models of care and lead to improved client outcomes.

METHODOLOGY

The aim of this research was to investigate and explore music therapists' and speech and language therapists' experiences of working collaboratively with children who have had an ABI. The researchers intended to gain further insights into collaborative practices by documenting the collaborative interventions and strategies used by clinicians with this population to develop communication and social interaction skills. It is important to note that the purpose of this study was not to compare the use of collaborative music therapy and speech and language therapy against single disciplinary therapeutic intervention, but rather highlight a conjoint approach that can be utilised by clinicians where deemed appropriate.

A qualitative approach was chosen for this project as the researchers aimed to gain an emic perspective on clinicians' experiences of collaborative working. Denzin and Lincoln (2011) describe qualitative research as the study "of things in their natural settings, attempting to make sense, or interpret phenomena in terms of the meanings people bring to them" (p. 3). Qualitative research describes social phenomena as they occur naturally and provides the researcher with rich information that is difficult to convey with quantitative methods. A qualitative methodology allows the researcher to produce large amounts of textual data which is often necessary when investigating relatively unexplored and sparsely represented areas, such as collaborative music therapy and speech and language therapy for children with ABI (Clarke & Jack, 1998). The approach to this study is underpinned by a constructivist worldview. Also known as naturalism and interpretivism, constructivism is based on the understanding that knowledge is created by the individual or society, and the researcher and participants co-construct understandings and inductively develop a pattern of meaning (Creswell, 2013). Interpretivists believe that there are as many intangible realities as there are people constructing them. While positivism is objective, constructivism is subjective and personal (Tashakkori & Teddlie, 1998). By adopting a qualitative approach grounded in constructivist

principles, this study aimed to uncover the nuances, complexities, and contextual factors that shape the collaborative practices of music therapists and speech and language therapists.

Sampling and recruitment

Due to the specific nature of this research within a paediatric rehabilitation setting, a purposive sampling method was employed. Purposive sampling allows for the researcher to glean knowledge from individuals that have particular expertise and experience "that is valuable to the research process" (Bowling, 2014, p. 209). Ethical approval for this study was granted by the Arts, Humanities, and Social Sciences Research Ethics Committee at the University of Limerick. Contact was then established with an interdisciplinary paediatric rehabilitation team at a rehabilitation hospital. Potential participants were identified and offered the research information letter and consent form by a gatekeeper at the facility. The inclusion criteria required that participants (a) be fully qualified music therapists or speech and language therapists with at least five years of clinical experience working with children with ABI, (b) have previously engaged in collaborative music therapy and speech and language therapy practices with this population, and (c) be willing to discuss their experiences of that work. Three clinicians accepted the invitation to participate in this study, two music therapists and one speech and language therapist.

Procedure

The researchers determined that semi-structured interviews would be the most appropriate means of data collection. Semi-structured qualitative interviews are used "when the researcher knows enough about the topic or phenomenon to identify the domain but does not know and cannot anticipate all of the answers" (Morse, 2012, p.197). This approach allowed for a comprehensive discussion of pertinent topics and provided opportunities to spontaneously explore areas that might not have been originally anticipated by the researchers (Bowling, 2014). Through in-depth discussions, the researchers actively sought to gain critical and insightful perspectives from clinicians to provide guidance for forthcoming collaborative endeavours and document effective interventions targeted at enhancing communication and social interaction skills in children with ABI.

Norum (2008) recommends conducting qualitative research in natural settings in order to investigate phenomena in their everyday context. Therefore, the interviews took place in the hospital at which each of the participants work. The interviews were conducted by the first author over a two-week period in December 2021 and ranged from 18-45 minutes in length. The interview questions were devised in consultation with Patton's (2002) guidelines for preparing interview questions. A combination of open-ended and probing questions was used to elicit knowledge from the participants. Open-ended questions were used to encourage participants to provide detailed and comprehensive responses, allowing them to freely express their experiences and perspectives. Probing questions were employed to delve deeper into specific aspects, seeking clarification and elaboration on the participants' initial responses. See Table 1 for sample interview questions.

All interviews were recorded and later transcribed verbatim. The transcripts were sent to participants for revision and were given two weeks to respond with any corrections. All electronic data was stored on a password-protected desktop computer, and all non-electronic data stored in a locked cabinet. All participants are represented by pseudonyms to ensure confidentiality.

Sample interview questions
Open-ended questions • Why might a child with an ABI be referred to a joint music therapy and speech and language therapy session? • What are your experiences of working collaboratively in sessions with a music therapist / speech and language therapist when working with a child with an ABI? • In your experience, what specific goals have been addressed through this collaborative work? • What strategies, techniques, and interventions have you found effective in supporting and developing communication and social interaction skills during collaborative music therapy and speech and language therapy sessions? Probing questions • Would you elaborate on that? • You said _____. What do you mean by that? • Can you provide an example that illustrates your experiences of collaborative work with a music therapist / speech and language therapist when working with a child with an ABI? • Can you provide more details about the specific roles and responsibilities of the music therapist and speech and language therapist in the collaborative sessions?

Table 1: Sample interview questions

Data analysis

Data gathered through the semi-structed interviews was analysed manually using thematic analysis. Braun and Clarke's (2006) six phase cyclical process was employed in this research as its flexibility was useful for identifying and summarising key features, similarities, and differences across the data set. This involved: (i) familiarising yourself with your data; (ii) generating initial codes; (iii) searching for themes; (iv) reviewing themes; (v) defining and naming themes; and (vi) producing the report. An inductive approach was implemented by the researchers as it allowed for a more expansive analysis of the entire data set. Therefore, the derived themes were data-driven rather than guided by predefined theories (Kiger & Varpio, 2020). To establish trustworthiness, both authors independently reviewed and analysed the data. A meeting was held by the research team to further develop themes and discuss results.

RESULTS

Two senior music therapists (MTs) and one clinical specialist speech and language therapist (SLT) described their experiences of working collaboratively with children with ABI. Four main themes were identified through the process of thematic analysis (Braun & Clarke, 2006). These were: (a) benefits of a collaborative approach, (b) limitations of conjoint work, (c) collaborative practices, and (d) need for further research.

Themes	Sub-themes
Benefits of a collaborative approach	• Therapeutic synergies • Contextualised communication through the medium of music • Catalyst for achieving goals • Carryover
Limitations of conjoint working	• Resource heavy approach • Difficult to replicate in community settings
Collaborative practices	• Collaborative interventions • Therapists' roles • The collaborative relationship
Need for further research	• Practice guidelines • Outcome measures

Table 2: Themes and subthemes

Theme 1: Benefits of a collaborative approach

Participants expressed that collaborative working possesses a multitude of benefits for both clients and clinicians. Four key subthemes were identified: (a) therapeutic synergies, (b) contextualised communication through the medium of music, (c) catalyst for achieving goals, and (d) carryover.

Therapeutic synergies

All participants remarked that a collaborative approach enhanced the rehabilitative therapeutic intervention targeted at communication and social interaction skills in children with ABI. Participants attributed this success to the sharing of knowledge and expertise between clinicians. They agreed that working collaboratively provides access to a wider range of skills and therapeutic approaches and strengthens the continuity of care in rehabilitation services. Participants spoke in detail of how shared understanding and problem solving between therapists can aid in supporting clients to achieve their rehabilitation goals in both collaborative and individual sessions.

> If I'm working with a child before the speech therapist gets involved, I'll be thinking, I'm just not sure where this child is at in their communication ability. Do they have apraxia? Dysarthria? What's going on? And I need some help (Lauren, MT).

Participants also explained how this collaborative approach is effective in accessing clients that have difficulty engaging in traditional therapeutic intervention. For example, children with cognitive communication impairments incurred by ABI often demonstrate very poor attention skills, experience behavioural difficulties, may be non-verbal or pre-verbal, and are not yet ready for formal speech and language therapy. Participants stated that a collaborative music therapy and speech and language therapy approach supports these clients in overcoming barriers to engagement. The additional therapeutic use of music therapy serves as a conduit for clinicians to connect with their clients as "*it is a way of communicating and interacting with somebody whilst removing the language load"* (Emma, SLT).

Participants illustrated how the SLT can build upon the musical interactions between the MT and client through the use of conventional communication means and intensive interaction techniques. Participants noted that additional visual prompts and therapeutic input from the SLT reinforce appropriate social interaction and allow for the development of communication skills. In turn, the MT can musically hold and reflect the interactions between the SLT and client, and facilitate desired social interaction skills through anticipatory cues in the music.

> The added value is the speech therapist's diagnosis informing my musical solution. This combined together with SLT techniques, and music therapy techniques, the child gets a double whammy, a double dose of therapeutic intervention (Lauren, MT).

Contextualised communication through the medium of music

Participants discussed how the combined therapeutic intervention provides context for the client's communication through the interactional musical environment, thus optimising opportunities for engagement and connection. Both therapists are reflecting and exaggerating the client's actions within the music to create meaningful interactions from seemingly insignificant behaviours to support the development of communication and social interaction skills.

> We're always creating conversation and communication by mirroring and reflecting the client's interactions (Jenny, MT).

The participants further elaborated that developing any complex communication system is very difficult if a child does not have the ability to sustain attention, engage in choice-making and turn-taking, or have an awareness of cause and effect. Participants stated that music making is an inherently communicative activity and drew parallels between musical play and pre-verbal communication. They spoke about how musical interactions often incorporate and promote social

interaction skills and expressive language which assists the SLT in solidifying the foundations of pre-verbal communication mentioned above. Together, the MT and SLT create an easily accessible environment for the client to explore, respond immediately to what has been said, and be responded to without language.

> We're trying to engage them in an interaction and trying to expand on how they're engaging and how they're communicating. And attuning to what they're doing, you're responding to them in that moment. And supporting their communication and their development (Jenny, MT).

Catalyst for achieving goals

Participants shared that goals surrounding communication and social interaction skills can often be achieved more rapidly within a collaborative music therapy and speech and language therapy environment than in an single disciplinary context.

> The speech therapists often say, we've achieved so much in that joint session that would have taken five or six one-to-one pure SLT sessions to achieve. Look at what we can achieve in one joint session through the learning through music (Lauren, MT).

Participants agreed that a contributing factor is music's motivational quality that can be utilised therapeutically to maintain engagement with the rehabilitation process. The SLT explained how music making is an interactive process that can disguise difficult and repetitive tasks in an enjoyable and accessible manner. Participants described how music's ability to captivate and hold a child's attention creates an access point for the therapists to connect with the client and reach their therapeutic goals. It was noted by participants that the immediate auditory feedback created by the MT is intrinsically motivating and brings a process through which the child can improve and sustain attention.

> Music holds attention for longer. I mean I don't have the terminology, all I know is that it holds a space, because it can linger and last and can be manipulated. Whereas words and language, they're spoken, and then they're gone (Emma, SLT).

All participants discussed how the conjoint sessions are client-led and cater to the immediate needs of the child. The sessions are non-directive yet incorporate concrete choices throughout to give the client a level of control while continuing to target goal areas. Participants spoke about how interventions are adapted and modified to create opportunities for success which supports clients in achieving their communication and social interaction goals at an accelerated rate.

> It's all learning through play. It's about supporting the child in a really spontaneous, flexible way (Jenny, MT).

Carryover

> It's a really fantastic way to work because you see results (Jenny, MT).

Participants stated that they have observed clients apply the skills developed within collaborative sessions outside of the therapeutic space. Participants noted improvements in areas such as expressive communication, eye contact, non-verbal communication skills, turn-taking, listening, and attention.

> You do see carryover, especially in a child's ability to attend to tasks (Emma, SLT).

Participants also illustrated how an *"intense burst"* (Lauren, MT) of collaborative working can help build rapport and trust between the SLT and client which supports engagement during individual speech and language therapy sessions.

> It's a great way of building rapport. We're seeing [the client] in a new light. They also see us in a new light. We can take this back to our session, and it helps before we drill down into the harder stuff (Emma, SLT).

Theme 2: Limitations of conjoint working

Participants acknowledged that there are limitations of engaging in collaborative work. Two predominant themes emerged from the data: (a) resource heavy approach and (b) difficult to replicate in community settings.

Resource heavy approach

Participants remarked that planning and organising collaborative sessions can be a timely process as clinicians need to establish their desired goals, session plans, and collaborative interventions. After a session, clinicians need to meet again to discuss their observations, reflect, and evaluate the need for future intervention. Participants stated that dedicated time for team meetings as well as administrative and institutional support are paramount to ensure the smooth running of collaborative sessions. One participant also described collaborative music therapy and speech and language therapy as a *"high cost, low volume service"* (Emma, SLT), recognising the financial cost of having two senior clinicians working simultaneously with one client.

Difficult to Replicate in Community Settings

Participants discussed how collaborative interdisciplinary working is more commonly found within complex specialist rehabilitation settings. Participants explained that it can be difficult to engage in collaborative working outside of these settings as some clinicians within the community may not have prior experience engaging in collaborative work and may not have the necessary connections and relationships with members of the opposite profession.

> It can be very difficult to get started with this type of work, especially for therapists working in the community (Jenny, MT).

Theme 3: Collaborative practices

Participants provided an insight into their collaborative music therapy and speech and language therapy practices. Three subthemes were established: (a) collaborative interventions, (b) therapists' roles, and (c) the collaborative relationship.

Intervention	Goal areas	Description
Familiar songs	Verbal expression; interaction; choice-making; sequencing	Singing familiar songs can trigger automatic speech and memory. The MT adapts a familiar song to make it more accessible for the client. The SLT emphasis key sounds, modelling mouth shapes to support sound production. Props such as toys can be utilised as additional visual supports.
Action songs	Gross motor; fine motor; sequencing; higher order thinking skills; interaction	The MT adapts an action song for accessibility. The SLT can model actions and gestures, supporting non-verbal communication.
Drumming	Non-verbal communication; interaction; attention; expression; creativity; gross motor; coordination; motor planning; listening	Drumming is an inherently social activity that provides opportunities for the client to connect without the fear of playing the wrong note. The drum provides an immediate auditory response regardless of musical background. The child drumming with the therapists can stimulate cognition and increase feelings of connectedness.
Musical games	Turn-taking; listening; control; eye contact; sustained attention; cooperation; interaction	Musical games are accessible and engaging ways to support social skills. Conductor – The client conducts the group, using cues to stop and start the music, vary tempo, and dynamics. Call and Response – Each player leads, and the group mirrors their rhythm. Pass the Beat – The MT starts by playing one beat and passing it around the circle. Participants turn towards the next person when passing the beat.
Improvisation	Cause and effect; non-verbal communication; expression	The MT attunes to the client and cross-modally reflects their actions and mood to reinforce cause and effect. The SLT utilises intensive interaction techniques to connect with the client. Both therapists are working to offer appropriate and meaningful interactions through which the client will feel valued, supported, and heard.
Visual prompts	Attention; choice-making	Visual prompts such as flashcards, timetables, and "now and next boards" support routine, structure, and consistency. These aids keep the client on task, assist in choice-making, and gives power to the client, allowing them to decide what they would like to engage in, and therefore increasing motivation.

Table 3: Collaborative interventions

Collaborative interventions

Participants shared the collaborative interventions and strategies they used within conjoint sessions to achieve their desired communication and social interaction rehabilitation goals. Table 3 draws together a range of collaborative interventions discussed by participants during the interviews.

Therapists' roles

Participants agreed that clinicians engaging in collaborative work need to demonstrate an openness and willingness to cooperate and be flexible and responsive within the therapeutic space. Participants were reluctant to offer strict roles for the MT and SLT and emphasised that an awareness of roles and responsibilities within the session is necessary, however, it is important to avoid dictating tasks and restricting clinicians as sessions need to remain client-led and not all aspects of collaboration will be clearly defined.

> It's a fluid process. We're supporting one another in how we interact and engage with the client (Emma, SLT).

The collaborative relationship

Participants agreed that *"the key to successful conjoint working is the speech and language therapist and the music therapist have to understand and respect each other's professions"* (Lauren, MT). Participants acknowledged that their strong professional relationships, consistent and clear communication, and years of collaborative practice has had a positive impact on the outcomes of their conjoint working. Participants stated that they feel comfortable and confident to work within a shared environment and recognise that it took *"a period of trial and error to establish an effective method of collaboration"* (Jenny, MT).

Theme 4: Need for further research

Participants identified avenues for future research that would support and enhance collaborative music therapy and speech and language therapy service provision for children with ABI. Two key areas for further investigation were recommended: (a) practice guidelines and (b) outcome measures.

Practice guidelines

Participants demonstrated their awareness of the paucity of research on collaborative music therapy and speech and language therapy within paediatric rehabilitation. It was noted that while case study reports have illustrated that collaborative working between the disciplines can increase speech output, improve speech intelligibility, and strengthen breath control with this population, little is known about the approaches and methods used to accomplish these outcomes. Participants welcomed further studies and practice guidelines that would address these gaps and enhance knowledge surrounding collaborative clinical practices.

> There's not a lot of resources out there for clinicians (Lauren, MT).

Outcome measures

A common discussion point raised by participants was the lack of appropriate outcome measures available to evaluate the work accomplished in collaborative sessions. Participants felt that existing outcome measures and assessment tools cannot accurately capture the progress a child has made as they are often *"very broad"* (Emma, SLT). Participants are currently using clinical notes, report writing, reviewing established goals, video analysis, and feedback from parents and guardians to evaluate the service and review the client's progress. Participants described the need for formalised outcome measures that can produce qualitative and quantitative data to accurately capture a client's progress as they will help to advocate for further resources to support service provision.

> We don't use any formalised music therapy outcome measures. There is a need for one for sure. And I think there's a huge market and necessity to develop one (Lauren, MT).

DISCUSSION

The findings from this study suggest that collaborative working between music therapy and speech and language therapy yields a number of benefits for children with ABI. The results also highlight the limitations of working collaboratively, provide insights into collaborative practices, and outline avenues for future investigation.

Interviews with participants revealed perceived positive outcomes of collaborative working. Participants described clients as being more attentive, motivated, and communicative within the collaborative environment when compared to a single disciplinary context. Music therapy is a stimulating, enjoyable, and playful medium to promote therapeutic change and engages children to participate in the rehabilitation process and in speech and language therapy intervention. These results align with findings from a number of case study reports (Kennelly & Brien-Elliott, 2001; Kennelly et al., 2001; Leung, 2008).

Music therapy and speech and language therapy can be effectively combined to enhance social capacity due to the structural elements and characteristics that music and language share. Besson and Schön (2001) explain that music and language are created by sounds and rhythm that are combined and organised to convey meaning through the rules of harmony and syntax. This similarity was viewed as a valuable tool by participants. Participants identified moments where music mirrors language. For example, the speech and language therapist stated that language is used consecutively in dialogue and conversation, in a way that is paralleled in musical call-and-response. The ability to listen, take-turns, and maintain attention are necessary to succeed in both scenarios. This study has highlighted that the rehearsal of communication and social interaction skills within a collaborative environment can help the client to learn and attain specific strategies to improve their interactions in external settings at an accelerated pace.

Additionally, the use of music provides a safe, predictable, and familiar structure that allows the client to explore and engage in non-verbal interpersonal interactions. It could be suggested that collaborative working lays the foundation for conversational exchanges by enabling the acquisition of necessary social skills. This reflects Bower and Shoemark's (2009) statement that "increased

interpersonal skills support [the client] to successfully engage in aspects of functional speech rehabilitation" (p. 71).

It can also be surmised that collaborative music therapy and speech and language therapy can have a positive impact on a variety of other domains of functioning in addition to the communication and social domains as illustrated in Table 3. Secondary gains in motor skills, cognitive ability, and emotional well-being can be a result of conjoint working. Leung (2008) notes that music therapy and speech and language therapy offer complementary approaches to rehabilitation which can provide more comprehensive and holistic intervention. This correlation warrants further investigation.

Collaborative working was viewed as a successful intervention, but participants expressed concerns about its challenges and how it can be a demanding and daunting undertaking for those without prior experience. Participants highlighted that successful collaboration will not happen immediately, and clinicians may require training and exposure to collaborative working to prepare them for entering into a shared space in order to support the needs of their client. Collaborative working training programmes should offer a balance between theoretical foundations, building communication and team-building skills, and practical opportunities for role-playing activities that can support healthcare professionals in developing the skills necessary for effective interdisciplinary collaboration.

Surveys conducted with music therapists on their experiences of working with speech and language therapists revealed that professionals' lack of knowledge and scepticism about music therapy has been a barrier to effective collaboration (McCarthy et al., 2008). This finding was echoed by music therapists in this study as they briefly shared that a lack of understanding and awareness surrounding music therapy inhibits the effectiveness of any conjoint intervention with other allied health professionals. Participants illustrated that clinicians must have a working knowledge of the opposite profession and an awareness of each professions' strengths to ensure successful collaborative working. No musical knowledge is required by the speech and language therapist yet mutual respect, trust, and understanding of clinicians' disciplines and therapeutic methods are essential to achieving fruitful outcomes. This idea is not exclusive to collaborative music therapy and speech and language therapy and is one that is reiterated by O'Doherty and O'Connor (2015) in their discussion of collaborative music therapy and neuropsychology for children with ABI and again by Twyford and Watters (2016) in their illustration of collaborative music therapy and occupational therapy for the same population.

The lasting impact of conjoint working outside of the therapeutic environment was recognised as one of the key benefits of collaboration between music therapy and speech and language therapy. However, participants shared concerns about how measuring progress is currently a difficult process to navigate. Clinicians have observed change in attention and engagement as a direct result of collaborative working which has subsequently accelerated communication rehabilitation. Practitioners are aware that subjective observations are not enough to advocate for this line of work, and the need for further research to identify which qualitative and quantitative outcome measures could capture these benefits was frequently expressed.

Limitations and recommendations

One significant limitation of this study was the small sample size, and therefore findings need to be interpreted with care. The interview data was also limited to a single rehabilitation setting in Ireland and may not represent the practices and experiences of clinicians across the country or internationally. Despite these limitations, to the best of the researchers' knowledge, this study is the first of its kind to examine the experiences of music therapists and speech and language therapists engaging in collaborative work for children with ABI. It offers unique insights into the benefits and challenges of collaboration in paediatric rehabilitation, while documenting the collaborative interventions found effective in supporting communication and social interaction skills. The findings of this study may offer a foundation for future enquiry into collaborative working between these disciplines and its potential impact on the rehabilitation of children with ABI.

Further research with a larger sample size is warranted. It is important to acknowledge that all three participants had extensive experience of working collaboratively and were advocates for this approach. While this provided rich insights into effective conjoint working and its benefits, it did not support an alternative view. Future research across a variety of clinical settings with newly qualified clinicians and those with no prior experience of engaging in collaborative working may help to provide a more holistic perspective into clinicians' attitudes towards conjoint working. Additional research that compares the impact of collaborative music therapy and speech and language therapy with controlled measures would support further development of the field.

CONCLUSION

This was an exploratory study to investigate clinicians' experiences of engaging in collaborative music therapy and speech and language therapy for children with ABI. The study also intended to identify the collaborative interventions and strategies used by clinicians with this population to develop communication and social interaction skills.

The findings demonstrate that clinicians perceive collaboration between the two professions to possess a multitude of benefits for the paediatric population. It was reported that conjoint working facilitates increased attention and motivation which in turn promotes and maintains adherence to the rehabilitation process. By contextualising the client's communication within an interactional musical environment, both the music therapist and speech and language therapist can create meaningful connections with the client to support and enable the acquisition of communication and social interaction skills.

The researchers also captured a variety of collaborative interventions and further explored the characteristics of effective collaboration. It is hoped that these findings will make conjoint working more accessible to clinicians and will encourage future collaboration between the two professions.

This research has identified that there is considerable potential for the use of collaborative music therapy and speech and language therapy in paediatric rehabilitation programmes, and further investigation is recommended to explore the complexities of joint working and to advocate for this resource-heavy approach.

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Ελληνική περίληψη | Greek abstract

Διερευνώντας τις εμπειρίες των επαγγελματιών σχετικά με την συμμετοχή τους σε συνεργατική μουσικοθεραπεία και λογοθεραπεία για παιδιά με επίκτητη εγκεφαλική βλάβη

James Burns | Rebecca Susan O'Connor

ΠΕΡΙΛΗΨΗ

Η μουσικοθεραπεία και η λογοθεραπεία χρησιμοποιούνται εκτενώς στην αποκατάσταση των δεξιοτήτων επικοινωνίας και κοινωνικής αλληλεπίδρασης μετά από επίκτητη εγκεφαλική βλάβη. Ένας αυξανόμενος αριθμός ερευνητικών στοιχείων υποστηρίζουν ότι η συνεργασία μεταξύ των δύο επιστημονικών πεδίων μπορεί να αποφέρει θετικά αποτελέσματα για τον παιδιατρικό πληθυσμό. Ωστόσο, λίγα είναι γνωστά για τις εμπειρίες των επαγγελματιών σχετικά με τη συμμετοχή τους σε συνεργατική μουσικοθεραπεία και λογοθεραπεία σε πλαίσια παιδικής αποκατάστασης, και υπάρχει ανάγκη περαιτέρω διερεύνησης και κατανόησης της συνεργατικής θεραπείας για τον εντοπισμό στρατηγικών βελτίωσης των αποτελεσμάτων των πελατών, καθώς και των εμπειριών των επαγγελματιών. Η παρούσα μελέτη είχε στόχο να εξερευνήσει τις εμπειρίες συνεργασίας των μουσικοθεραπευτών και των λογοθεραπευτών για την ανάπτυξη δεξιοτήτων επικοινωνίας και κοινωνικής αλληλεπίδρασης σε παιδιά με επίκτητη εγκεφαλική βλάβη. Η μελέτη σκόπευε επίσης να αποκτήσει περαιτέρω προοπτικές σχετικά με τις συνεργατικές πρακτικές, καθώς και τις στρατηγικές και τις παρεμβάσεις που χρησιμοποιούνται σε κοινές συνεδρίες. Πραγματοποιήθηκαν ημιδομημένες συνεντεύξεις με τρεις επαγγελματίες (δύο μουσικοθεραπευτές και έναν λογοθεραπευτή), οι οποίοι είχαν προηγουμένως συμμετάσχει σε συνεργατικές πρακτικές με αυτήν την πληθυσμιακή ομάδα. Οι συνεντεύξεις αναλύθηκαν χρησιμοποιώντας θεματική ανάλυση. Από τα δεδομένα προέκυψαν τέσσερις θεματικές ενότητες: (α) τα οφέλη μιας συνεργατικής προσέγγισης, (β) οι περιορισμοί της κοινής εργασίας, (γ) συνεργατικές πρακτικές, και (δ) η ανάγκη για περαιτέρω έρευνα. Τα βασικά ευρήματα υπέδειξαν ότι η κοινή εργασία μεταξύ μουσικοθεραπείας και λογοθεραπείας διευκολύνει την αυξημένη προσοχή και κινητοποίηση του πελάτη δίνοντάς του τη δυνατότητα να συμμετέχει σε διαπροσωπικές αλληλεπιδράσεις και να αναπτύξει επικοινωνιακές δεξιότητες. Η κοινή εργασία είναι ένα κρίσιμο συστατικό της πρακτικής της μουσικοθεραπείας με παιδιά με επίκτητη εγκεφαλική βλάβη. Μεγαλύτερες μελέτες κρίνονται απαραίτητες για να διερευνηθούν περαιτέρω οι πολυπλοκότητές της κοινής εργασίας και για να υποστηριχθεί αυτή η επιτακτική, αλλά απαιτητική προσέγγιση.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

μουσικοθεραπεία, λογοθεραπεία, συνεργασία, παιδιατρική επίκτητη εγκεφαλική βλάβη