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Research Article

What evidence? Designing a mixed methods study to investigate music therapy with children who have autism spectrum disorder (ASD), in New Zealand contexts

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ABSTRACT

Music therapists are frequently called upon to produce 'evidence' that the services they offer are 'effective'. However, a vicious cycle can exist in which efforts to develop a knowledge base that will satisfy demands for Evidence Based Practice (EBP) are hampered by limited music therapy practice, which is partially due to the lack of current evidence. In this article we discuss the dilemmas that music therapists face in designing research to meet the demands of EBP with children who have Autism Spectrum Disorder (ASD), when populations and practices are heterogeneous, and professional values are incongruent with quantitative paradigms. Our discussion is grounded in the context of exploratory research which aimed to gather information regarding the practice of music therapy with children who have ASD in New Zealand, in order to scope and design research appropriate for the New Zealand context. We use this discussion to demonstrate the value of mixed methods designs for music therapy, and introduce a specific proposal based on the findings of our exploratory research to investigate the perceived impact of music therapy to support the interpersonal communication of individuals who have ASD using a convergent parallel mixed methods design.

Introduction

Music therapy has been defined as a research-based practice and profession in which music is used to actively support people as they strive to improve their health, functioning and wellbeing (Australian Music Therapy Association, 2012). As practitioners in a relatively new profession, music therapists are frequently called to produce 'evidence' that the services they offer are 'effective'. A limited body of small scale randomized controlled trials (RCT) suggest music therapy is particularly helpful in developing the social interaction and communication skills of children with Autism Spectrum Disorder (ASD) (Gattino, Santos Longo, & Loguercio Faccini, 2011; Ghasemtabar et al., 2015; Gold, Wigram, & Elefant, 2006; Kim, Wigram, & Gold, 2008, Kim et al., 2009; Thompson, McFerran, & Gold, 2013). Highly encouraging evidence for music therapy has also come from clinical reports, case studies, and single group studies (Gold et al., 2006 Wigram & Gold, 2006), and families and other professionals provide anecdotal evidence for the usefulness of music therapy. Nevertheless, music therapy is still only considered to be a 'promising' treatment for children with ASD (Geretsegger, Holck, & Gold, 2012; James et al., 2015) and therapists are often unable to convince potential employers of its value (Accordino, Comer, & Heller, 2007). As a case in point, the New Zealand Autism Guidelines (Ministry of Health, 2008) list music therapy as an intervention option, yet the authors write:

> *At present, the evidence for the effectiveness of music therapy is unclear. Standardised models of assessment in music therapy should be considered for future development. No large scale randomized control trial involving young children with autism has been conducted. With this level of evidence, broad claims about the universal effectiveness of music therapy for all children with*

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autism must be met with caution, and tested through studies with appropriate design and methodological rigour (p.300).

The ASD guidelines seek to inform primary care practitioners, specialists, education professionals, policy makers, funders, parents, carers, and any others who make provision for individuals with ASD, about the best evidence currently available. They include evidence-based summaries of interventions and services for people with ASD to help with decision-making that will improve health, educational and social outcomes. Following their review of various published reports, systematic reviews, controlled studies and clinical case reports in music therapy, the authors of the guidelines reported that existing studies provide good rationale for developing more 'rigorous' research, specifically more Randomised Controlled Trials (RCTs).

The number of registered music therapists in New Zealand has increased significantly since 2008, to 77 at the time of writing, yet prior to our exploratory research very little was known about the numbers of children and adolescents with ASD who were receiving music therapy in New Zealand, their goals, or outcome measures. We felt it was timely to engage in exploratory research that could identify the factors that would influence the potential for music therapy research to be undertaken in this country. Approval for the study was granted by the Victoria University of Wellington Human Ethics Committee (Ref: 0000021142). Full demographic findings have been published elsewhere (Rickson, Molyneux, Ridley, Castelino, & Upjohn Beatson, 2015), while this paper presents the discussion and outcome with regard to research design.

Key point: Limited potential exists for positivist research with children who have ASD in NZ

We found that the numbers of New Zealand registered music therapists working with this population are still small, and that they employ an extensive range of music therapy approaches and techniques to address an array of ASD symptoms based on the needs of individual children. A wide range of goals are being addressed, although the predominant broad foci are on supporting the children's communication and social skills. We found that music therapists work in holistic, person-centred and strengths-based ways, drawing on the innate musicality of their participants to communicate through music which is often improvised. The flexibility afforded by improvisational approaches is highly valued. Further, high numbers of music therapists are working with children in groups which include typically developing children or those who might have alternative challenges. Sessions are often videoed, and progress is captured descriptively. Perhaps it is not surprising given the heterogeneity of practice, that music therapists in New Zealand argue strongly that there is a lack of awareness of music therapy; and lack of understanding with regard to what can be achieved. Research that is transparent and rigorous is needed to counter the 'mystique' surrounding the profession.

It is also clear from our findings that the values that underpin music therapy practice in New Zealand are not conducive to research in the positivist paradigm. The naturalistic, flexible, improvisational approaches music therapists employ when working with children who have ASD allow them to respond to the needs of their participants in the moment. In contrast, intervention studies demand not only that the independent variable of music therapy is delivered in an accurate and consistent manner to all study participants over time but also that dependent variables, i.e. outcomes for participants, are also predictable and likely to be consistent.

New Zealand music therapists have given indications that their primary motivation in undertaking quantitative research would be to satisfy the demand for evidence that comes from funders or other influential groups such as the Autism Guidelines Group, rather than to answer questions that are truly meaningful to them. The values that they espouse, and the language that they use to describe their practice is incongruent with experimental research in which the children they work with would become experimental units or 'subjects', randomly assigned (if possible) to treatment and/or control conditions, and exposed to repeatable interventions, from which specific outcomes could be anticipated. They are unlikely to agree that the 'success' of a music therapy intervention for individual participants can be judged on the difference in outcomes between treatment and control groups or treatment and control interventions (i.e. average treatment effects). Rather, they would argue that aspects of music therapy are *intangible* (Molyneux et al., 2012) and that quantitative research is unable to communicate the essence of music therapy practice (Bradt, 2012; Porter et al., 2014; Rolvsjord, Gold, & Stige, 2005).

Music therapists would typically examine their work using a particular paradigm that reflects their various training and work experiences, and the questions that emerge from those experiences. While there might be considerable variation in the research questions and paradigms that individual New Zealand music therapists would choose, at the national, or macro level, we found a clear leaning towards qualitative research paradigms for investigations which involve children with ASD. The twenty-nine survey respondents and twenty-four interviewees in our study (some of whom would have contributed both forms of data) readily communicated their understanding that individual children with ASD, their families, and other professionals experience varied and complex subjective realities. These music therapists, family members, and stakeholders suggested that one of the goals of research should be to reveal the multitude of experiences and perspectives their individual music therapy participants and families might have, in an attempt to understand what the process might mean for them. They argued that people who are not music therapists intuitively sense that engagement with music and other creative mediums can bring benefits for children who have ASD; and expressed strong interest in research that would include the voices of parents and other professionals, and focus on the ways they perceive the music therapy process. They maintained that people are readily convinced of the value of music therapy when they are able to see it in action, and understand it in context.

Key The EBP concept has inherent challenges which are reflected in the practice of music therapy with children who have ASD in NZ

Sackett, Rosenberg, Gray, Haynes, and Richardson (1996) define Evidence-based Medicine (EBM) as "the conscientious, explicit, and judicious use of current best evidence in making decisions about care of individual patients" (p. 71). Systematic reviews of the scientific literature, practitioner experience and opinion, and patient or client preferences and values, are used in combination to support clinical plans and decisions (Wheeler & Bruscia, 2016). Evidence based practice (EBP) is a derivative of EBM, the terms are often used interchangeably, and although EBP is now applied in a range of fields it maintains a strong positivist bias that emanates from the medical field (Aigen, 2015; Edwards, 2005; Else & Wheeler, 2010; Otera, 2013; Silverman, 2010; Wheeler & Bruscia, 2016). Many music therapists accept the need to engage with Evidence-based Practice in order to make appropriate decisions within their music therapy practices.

However, EPB was initially developed in order to challenge and improve medical practice (Aigen, 2015; Edwards, 2005) and it continues to be interpreted within a narrow medical framework. Those who are interested in music therapy's effectiveness are only inter-