

Building musical lives: The impact of supporting musical play in the everyday lives of autistic children and their families

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Abstract

Musical spaces have been observed to be highly engaging for autistic children, ameliorating barriers often experienced in communication and interaction. Music interventions with this group are widespread and have frequently noted the importance of integrating caregivers. Yet beyond music therapy, there is limited research on how to support music-making in daily life for autistic children and their families. In particular, there is a lack of long-term ecological evidence with this group for how music can support everyday functioning, care routines, and wellbeing. In this study, 25 families participated in a 12-month program which supported the integration of music into everyday life. Families were interviewed at the end of the project regarding the effectiveness of music as a support for daily routines, play, and wellbeing. Qualitative thematic analysis highlighted how families implemented musical strategies in widespread ways as a medium to support communication, create valued opportunities for shared interaction, and as a way to scaffold everyday caring routines. Families' uses of musical play strategies, as observed in this study, emphasize the importance of incorporating caregivers and home environments as part of arts programs for autistic children, and the effectiveness of empowering parents to use music as a tool to navigate everyday life.

Keywords

musical play, autism, early years, caregiver, everyday life, musical care

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Background

Music has been observed to be an engaging and motivating space for autistic children, ameliorating barriers often experienced in everyday communication and interaction (Lense & Camarata, 2020; Lisboa et al., 2021; Ockelford, 2012, 2013). Evidence of the benefits of music for autistic children is widespread, particularly within music therapy (De Vries et al., 2015; Geretsegger et al., 2014; James et al., 2015; Mayer-Benarous et al., 2021; Reschke-Hernández, 2011; Simpson & Keen, 2011). Its therapeutic effects have been observed for a range of behavioral and developmental outcomes including supporting social and nonverbal communication (Kim et al., 2008; Sharda et al., 2018; Thompson, 2012), verbal development (Lim & Draper, 2011), and socio-emotional reciprocity (Kim et al., 2008). More widely, the uses of music beyond the therapy room, such as in musical social stories (Brownell, 2002), for learning self-care routines (Kern, Wakeford & Aldridge, 2007), and managing transitions (Kern, Wolery & Aldridge, 2007) as well as increasing social responsiveness among peers (Finnigan & Starr, 2010), suggest that the role of music has more widespread applications within everyday life. Indeed, as research with children with additional disabilities has found, music can be important within everyday settings as a way to build relationships and regulate mood (Chou et al., 2019; Murphy & McFerran, 2017; Rushton & Kossyvaki, 2021), ignite playfulness (Corke, 2011; Rushton & Kossyvaki, 2020), and promote wellbeing (McFerran & Shoemark, 2013; Stensaeth, 2013).

Caregivers and home environments have played an important role in previous music interventions with autistic children (Gottfried et al., 2018; Hernandez-Ruiz, 2020; Thompson, 2012; Williams et al., 2012), and integrating parents has been shown to have positive interpersonal outcomes for both parent and child (Hernandez-Ruiz, 2020; Thompson, 2012). Although some programs include caregivers as *participants* in music therapy (e.g. Di Renzo et al., 2015; Thompson, 2012; Thompson et al., 2019), others specifically focus on the *training* of parents to mediate the musical interactions and programs themselves (e.g. Nicholson et al., 2008; Yang, 2016). In research with neurotypical children, the musical nature of child-parent interactions (Custodero & Johnson-Green, 2008; Niland, 2009; Trevarthen & Aitken, 2001), and the natural integration of music as part of early childhood play and parenting strategies (Barrett, 2009; Custodero & Johnson-Green, 2008; de Vries, 2009) highlights how capitalizing on these wider networks may further support autistic children's musical engagement. Indeed, as evidence from parents has emphasized, the most advanced musical interests and abilities of their children are most regularly observed at home (Trehub & Gudmundsdottir, 2019; Voyajolu, 2021).

Many of the therapeutic applications of music within home environments highlight the crossover between everyday uses of music and those specifically applied within therapeutic settings. Although most therapeutic studies using music for autistic children have clinical or behavioral outcomes, the strategies in these studies utilize many of the approaches seen in arts-in-health, musical care, and play. As the wealth of research in arts-in-health has shown, music is widely used as a platform for meaning-making, shared understanding, and promoting wellbeing (Krueger, 2011; Ruud, 2010), and forms of "musical care" to support functioning and flourishing are used across the life-course (Spiro & Sanfilippo, 2022). Music can therefore be regarded as an important individual and participatory medium for co-creation, empathetic understanding, and creative development, which may help autistic children to flourish (DeNora & Ansdell, 2014). Indeed, the ubiquity of musical play in early childhood (Zachariou et al., 2023) and its importance as a site for expression and creativity means it may play an important role for autistic children in the early years (Adachi & Trehub, 2012; Barrett & Tafuri, 2012).

In community settings, programs such as Oily Cart's sensory theater, (<https://oilycart.org.uk/>) as well as the Amber Trust's resources for those with profound and multiple learning difficulties (<https://amberplus.ambertrust.org/>) have provided some ideas and materials for parents of autistic children to use music in the home with their children. Despite a wealth of informal reporting, there is limited published research on how parents can use the arts and music to support wellbeing at home. In light of the growing recognition of the latent opportunities of the arts to promote wellbeing for neurodivergent individuals (Goldstein et al., 2017), understanding how music is used by families with autistic children in everyday life (and how this can be supported) can help illuminate the wider role of music as a source of wellbeing and expression, rather than simply as an intervention for behavior change. This can further build evidence for how to improve autistic children's quality of life by supporting their musical special interests, understanding how to use music as an environmental support and as a way to alleviate potential stressors (Happé & Frith, 2020; Pellicano & den Houting, 2022).

This study therefore sought to understand how to support the use of music in the everyday lives of autistic children and their families, and how this contributes to wider environmental supports and wellbeing. The research questions were thus as follows:

1. What is the impact of supporting everyday music-making for autistic children and their families?
2. How and for what purposes can musical supports be incorporated into everyday routines?

Methods

Materials and procedure

As part of a 12-month musical program to support music-making in the home, parents were provided with a set of handheld instruments, an echo microphone, a 44-note Casio keyboard and a set of 24 A6 flashcards, detailing ideas, and games for musical play. These cards were structured around the Sounds of Intent levels of musical development (Voyajolu & Ockelford, 2016), with six cards at each level detailing progressively more complex activities. The design of the program builds on the piloting of the procedure by Lisboa et al. (2021). Full details of the cards can be found at <https://tuninginautism.com/resources>. Families were visited at four times across the year in their homes by the first author, with remote support also given throughout.

Participants

Twenty-five families with autistic children with high support needs between the ages of 4–9 were recruited from the program. Participant families with no previous musical experience were recruited through social media and mailing lists of autism support groups and charities (including local National Autistic Society groups). The project was advertised through these mailing lists, with interested parents emailing the first author for further details. All families were recruited from the Greater London area. Children taking part in the project were required to have an existing autism spectrum diagnosis. Table 1 details the characteristics of the children taking part, with Table 2 detailing the sociodemographic details of their families.

Table 1. Demographic Details of Participants.

	n
Age at start	Mean = 5.8
Under 5	9
5–8 years old	14
8–9 years old	2
Gender	
Male	23
Female	2
Verbal ability	
No language	4
Signs/single words	10
Simple sentences	7
Full sentences	4

Table 2. Sociodemographic Details of Participant Families.

	n
Ethnicity	
White background	4
Mixed ethnic backgrounds	7
Asian ethnic backgrounds	5
Black ethnic backgrounds	4
Any other ethnic background	5
Household income	
Under £15,000	3
£16,00–£29,999	7
£30,000–£49,999	1
£50,000–£74,999	5
£75,000–£99,999	4
£100,000–£150,000	3
Over £150,000	2
Relationship status	
Married	21
Single-parent family	4
Caregiver education	
Secondary qualification (e.g., high school diploma)	5
Tertiary/higher/further qualification (e.g., bachelor's degree)	16
Advanced qualification (e.g., masters, PhD, DMA, DMus degree)	4
Family musical experience	
Parent plays an instrument	4
None	21

Methods

A qualitative approach was adopted to understand the lived experiences of the participant families. Interviews were conducted at the end of the program in person in the family homes. Before the project began, ethics approval was granted by the University of Roehampton Ethics and

Integrity committee (Ref: EDU 19/175). Written informed consent was obtained before each interview, and all interviews were recorded with permission and then fully transcribed. During semi-structured interviews that lasted between 30 and 45 min, parents' views were sought on their perceptions of both their own and their child's experiences during musical play. This included the specific uses of music in wider environments, and the importance of music for their children. This flexible, semistructured approach was used to enable focus on particular topics while also providing freedom to follow up on points of significance and interest mentioned by the participants. Some of the participants had English as a second language and as sessions were transcribed verbatim in some cases linguistic idiosyncrasies remain.

Analysis

Transcripts were analyzed in the first instance by the first author using the procedures of reflexive thematic analysis as detailed by Braun and Clarke (2006, 2014, 2021). The procedure followed five phases: (i) familiarization, (ii) generating codes, (iii) collating codes into potential themes, (iv) reviewing themes to generate a thematic map, and (v) revising and defining overarching themes and subthemes. The subthemes generated in phase four were grouped into three wider themes relevant to the research questions that reflected the families' uses of music in everyday life and their experiences of musical play. The process of reflexive thematic analysis enabled the identification of similar patterns of experiences across the cohort, while retaining individuals own diverse experiences. The bottom-up, inductive approach, which requires a two-way recursive process enables themes to be led by the data, and participants' experiences to be reflected in detail. Throughout, codes and themes were cross-checked with members of the research team and analysis was conducted using NVivo (2020).

Results and discussion

Three overarching themes and eight subthemes pertaining to the uses of music in everyday life were identified during analysis (see Figure 1 for full visualization).

Theme 1—Supporting Communication

Subtheme 1.1—Finding their voice. Parents associated music with aiding their children's vocal development. At the earliest stages of development, this was the first time they had begun to hear their children vocalize, as they observed them begin to hum along to music or whistle certain melodies. This grew, moving from unstructured babbling to sounding out and comprehensive engagement with particular songs. Although this was perceived as a bridge to development in wider communication and verbalization, it was also reflected that these musical babblings and singing were distinct, and in some ways more complex and advanced than their child's verbal abilities:

He has really become . . . I don't know what the correct wording is, the school says "vocal" but it's . . . he's making a lot, a lot of sounds . . . just yesterday he was watching something on YouTube of letters and comics and stuff and he was starting to sound out along to the music . . . he really likes "Hey Duggee" and when it goes "Duggee" he starts you know vocalise, and a lot of that is to music. (Parent, Participant 7)

For those children that were predominantly nonverbal, many parents described the joy in hearing their children express themselves. Rather than being associated with frustrated or

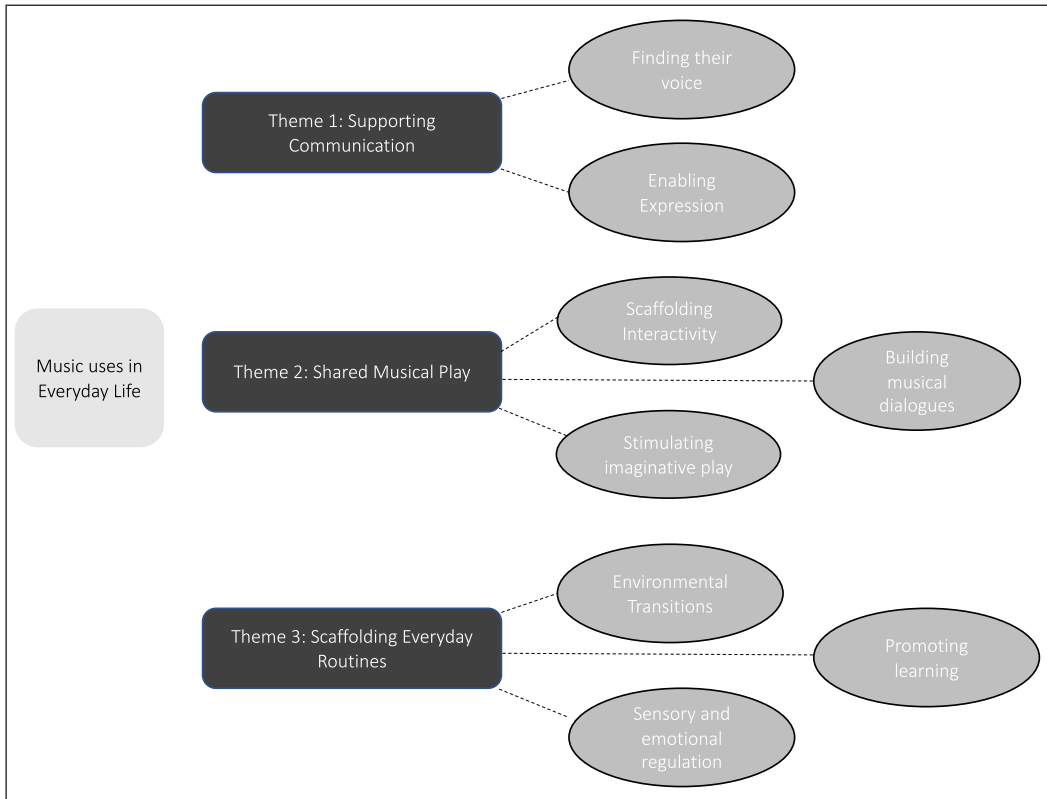


Figure 1. Thematic Diagram of Uses of Musical Care in Everyday Life.

transactional communication for many, these proactive verbalizations were described as highly significant in being able to engage vocally with their child: “The singing is a huge, huge step. And I guess like for me, I just I want to like, obviously encourage it. . . and just enjoy the fact that I’m hearing his voice for the first time” (Parent, Participant 7). The importance of these opportunities as a release was also recognized. This was seen both in the parents’ opportunities to hear their own children, but also for their own emotional wellbeing and control:

The singing has been really lovely actually, that never happened before. But I think she’s just kind of tapped into something. I hear her sometimes as she’s playing, and it’ll be song that I’ve heard a million times, I’ll hear her little voice like, coming out. That’s been really, really a gift, actually. (Parent, Participant 12)

The parents perceived the opportunity for vocal expression as an outlet for expressive communication, shared enjoyment, and confidence for the children. This importance of singing also went beyond the limitations of their child’s expressive speech capacities:

And it’s funny because he does talk, but not as well as he sings. So he’ll now sing a whole song, all the words complete and everything. So I don’t know how that must feel for him to be able to sing, because it must feel really good. To be able to sing everything out, if you can’t really talk (Parent, Participant 14)

Subtheme 1.2—Enabling expression. Music was reported as a way to communicate, both for the parents to understand how their children were feeling, and as a medium through which speech and verbal development were scaffolded. For those children with limited verbal capacities, musical communication was often more interactive, of a higher quality, and more informative. These included developing pseudo-musical languages, through which they were able to express themselves:

He sings throughout the day and has a different song for different emotions or actions. This indicates when he is feeling upset, happy or in discomfort. Each song signifies how he is feeling. For example, when he is unsure of something and feeling overwhelmed, he sings “ii45” [a song of his own making] in tune and this means he needs a break or time out. He sings Humpty Dumpty when he is happy and even when he is using the toilet to relax himself. . . . When he is sleepy, he will sing Twinkle, Twinkle little star . . . we never realised how much he uses music to communicate! (Parent, Participant 6)

In understanding the role of their children’s musicality and everyday singing, the parents appeared able to respond more appropriately and engage in these musical dialogs. As the parent above describes, using a small motif of “ii45” (a motif he created) for when he needed a break further indicates its potential for communicating simply and clearly his acute needs and wants, through proactive expression when verbal communication is not possible or accessible. The significance of musical communication was also echoed by parents who noted its importance to communicate in times of crisis: “When he wasn’t speaking, music was quite a good way, especially to communicate emotions,” (Parent, Participant 13).

Evident in the parent accounts was a recognition that music was a way to bypass the struggles and uncertainties so regularly associated with verbal communication. Instead, they were able to harness the emotional and semantic meanings woven through music, as a form of interaction as a musical script:

I think because it’s the way he uses to communicate with everyone. He doesn’t know how to communicate with someone new in terms of coming and talking about something, he can’t—he knows only single words. His communication usually is only like a one or two words . . . but music, he goes to my mum and he starts to sing and he knows my mum will continue the music. He can play with my mum and with everyone else to, it’s a way to communicate. (Parent, Participant 15)

In the absence of the ability to communicate through other means, the child’s knowledge of the musical structures and its clear reciprocal scripts created opportunities for shared attention, which the child sought out to create musical conversations and play.

Theme 2—Shared musical play

Subtheme 2.1—Scaffolding interactivity. Musical play was noted as particularly important for providing opportunities for interaction that would rarely occur elsewhere, where communication and interaction could be easily understood, reciprocated, and enjoyed. Within this subtheme, the interviews detailed the importance of musical play for seeking shared experiences. Parents emphasized the importance of musical play for their children’s wellbeing and their enjoyment in being able to communicate and share with others in their environments, an aspect not always seen in everyday play:

Without communication skills, you really have to find other ways to connect with him. His instincts are always to play alone, so things like music where you can do it together is really great (Parent, Participant 7).

The association of music as an enjoyable mode of communication for children was further linked to creating opportunities for proactive interaction:

When he is singing he will maintain eye contact and sometimes he will ask for it—if it is a funny, little silly song like “Johnny,” he will *ask* for it. He seems to enjoy it, he’s interacting, he’s properly interacting, he’s actually taking pleasure in the singing with other people (Parent, Participant 17).

The importance of the mutuality of the shared interaction was seen as a way to create a meeting point of worlds where their child could interact more freely. Music was regarded as a crucial opportunity for children to express and create social connections that were often less accessible in normative spaces:

I think being autistic and non-verbal is lonely, and I think the music thing that we did gives him an audience gives him something to be seen . . . you know, the shared sense . . . it’s like you’re piercing into his world and giving him that time, that’s what he has enjoyed and had a real impact upon him in that way. It’s not talking but you’re giving him that interaction . . . And I think what music does, it allows and makes people engage . . . it’s something that engages and connects, it connects both worlds—his world, your world and he gets that attention. I think he can be lonely, but I think this . . . that has allowed him to be more sociable . . . More like, connected to people, so now I know I can play with him (Parent, Participant 4).

As this parent discusses, part of the importance of musical play came from its capacity to scaffold communication and interaction. The connection that was achieved within musical spaces provided a platform where they were able to relish that enjoyment, without the distractions and stressors of everyday environments.

Subtheme 2.2—Building musical dialogues. Musical play provided opportunities for more concrete forms of interaction, forming musical conversations and games. Sharing instruments and songs promoted joint attention, during which the children sought out turn-taking with their partners. This was reported within the context of musical interplay, where musical dialogues created possibilities for two-way conversation:

He loves singing “My Way” and ‘That’s Why’ and he’s been doing duets, which is quite nice . . . because he’s been doing it with my husband and they just take it in turns to sing a few words . . . he’s cooperating more . . . sort of actually playing along with the rules a bit more than he would in normal life like playing a game and taking turns . . . actually I was watching him singing with my husband and I was amazed that actually . . . they took it in turns with a few rows each and he was going along with that. (Parent, Participant 20)

The parent’s reflection that interactions within musical spaces surpass those in everyday life highlights the potential of musical spaces as emancipating and as providing clearer rules and scripts for interaction. This was further seen during instrumental play. As interests in music grew, it was described how children sought out partners to share their skills and games:

With the keyboard, he’ll ask me to join in with him. So what we do is he’ll take my finger get me tried to get me to copy what he’s doing. So he’s playing one note, I need to play the same notes. So I ended up copying what he’s doing . . . and then he’ll just copy what I’m doing with my fingers and say “Ready, steady, go, stop. Ready, steady, go faster, slower,” that sort of thing. He interacts, he interacts a lot better now, he has developed with his interaction, so he’ll come and ask you to play with him (Parent, Participant 16).

The shared attention that was reported within this subtheme, and the emphasis on imitation and question-and-answer highlight the structural advantages of musical spaces. Underlying musical structures of repetition, imitation and question-and-answer that feature particularly prominently within the musical repertoires of young children created clear scaffolds and scripts which provided engaging and comforting opportunities for joint attention and play for this group.

Subtheme 2.3—Stimulating imaginative play. Families reported how music promoted imaginative play, through exploration or by getting lost in songs that prompted imaginative dialogues and creative release within their imagined musical worlds:

The keyboard is so interesting to him, and sound obviously plays a big part . . . he likes the investigation anyway, investigating how things work, so he could probably sit there for quite a long time and work it all out . . . It stimulates his imagination as well like whatever he is thinking now [points to child playing on keyboard], it's complementing what he is doing on the keyboard, so that's good in a way because he's extremely imaginative, which I thought wasn't an autistic trait so much. (Parent, Participant 14)

The observation of interests and creative forms of expression, where cognition is complemented by playing and sound-making on the keyboard, links with forms of expressive and creative scaffolding, as internal cognitive processes are acted out through the music. This importance of music as an imaginative space was also linked to social wellbeing:

It's like companionship a little bit, like something else. A lot of time it is thinking that the songs that she's singing, because it's from the movies that she's seen, that she's back in those things with those characters, so she does get a little bit lost in those things . . . So I think it's just a way to give herself some companionship. (Parent, Participant 12).

As this account reflects, through song the children were able to situate themselves within the shared (imagined) musical space, and form those imaginary dialogues between themselves and the characters. In contrast to the shared interactive behaviors in the two subthemes above, the role of imaginative play that was identified by the parents here highlights a more internal musical experience. It suggests the children are connecting to their own musical memories and “getting lost” in their own musical and imagined narratives.

Theme 3—Scaffolding everyday routines

Subtheme 3.1—Environmental transitions. Music was also a way of transitioning between different routines more easily, navigating what can often be stressful changes in time and location:

He stimms¹ less at school when they play music, so they have it on in the background, so it's become a big part of his life now, part of everyday life. It's part of our strategy now as well, in the morning for breakfast the music is there at the start. And then when he comes home from school, we've got these tunes that we play, which calm him down and show him that school is over and it's into the evening routine, and he knows the difference between them (Parent, Participant 6).

Music was often a regulating tool; as a strategy to communicate the changes in mood and energy required for each period of the day, but also as an aid for the transition itself by calming the child down. For one family, it formed a bridge between shared play time and individual playing time:

It's just like, if she's really frustrated, like I have to go cook dinner or something else, and I say let's put on some music . . . just the music itself. And it does tend to calm her down. And even if she's doing another activity, it's totally fine. So, whereas before, sometimes I'd really struggle to kind of let her be on her own, with like, an activity (Parent, Participant 12).

Distraction was also a feature for other families, particularly during distressing or difficult scenarios:

For example, the other day we had to do a [medical procedure] and the only way we could keep him down . . . was for me to lie down with him and we sang together and that was the way we got through it (Parent, Participant 6).

Encapsulated here is the importance of music to create a shared space of regulation and togetherness, through which music both acts as a distraction from the task at hand and regulates the distress caused by the environment. Although this is not an uncommon use of music in early years parenting, particularly within medical settings, the specific needs of autistic children who struggle more with these types of procedure emphasizes the role of music as a regulatory and familiar space.

Subtheme 3.2—Promoting learning. Music was widely used to support everyday forms of interaction and learning, such as using routine-based songs was a way scaffold everyday tasks, as well as a way to structure understanding. These strategies used a combination of pre-existing and ad hoc musical material to scaffold understanding, as greater comprehension of the task required can be gained from the recognition of the music alongside speech:

To teach him about brushing teeth, we made up and sang a song about brushing teeth. To wash the hands everything that he will learn or do, he knows about it through song. To teach him I sing to him, either something from what I have heard, or just made up like “now you wash your hands, hands, hands” so he can be like “aaah” and he likes that (Parent, Participant 15).

The integration of musical strategies to encourage children's everyday behaviors had the benefits of creating enjoyment for the children, making it a game, but also of promoting understanding. As the parent elaborated, this process was two-way, and enabled the child to further communicate these needs in reciprocal ways:

Sometimes he will come to us and sing the washing hands song, and then we know he wants to wash his hands. If his hands are very dirty, he will come and sing to me and I'll be like yeaah and continue the song with him and he loves it (Parent, Participant 15).

This highlights the value of these musical dialogues for a minimally verbal child and his caregivers. The shared enjoyment through these musical interactions was used by others as a strategy to negotiate more challenging aspects of everyday life:

I was singing “you can share, you can share” because it's the “Sharing is caring” song. Because he has a lot of feeding disorders, I'm always trying to slow him down. He was trying to request more oranges. And I was like, slowing him down that way by singing to him. And you know, this part of the songs, it's like for you and then that's when I did the handover. And he thought that was hilarious (Parent, Participant 7).

The use of specific musical exchanges to scaffold turn-taking and mold interactions to promote more positive behaviors was highly enjoyable for this child. The persistence of these songs to target particular behaviors for autistic children, and their continued use into older age groups where communication difficulties exist, suggest that they have a greater advantage than is potentially recognized. The regularity of using music as a way to communicate everyday tasks such as teeth brushing and handwashing, as reported by the parents, highlights the advantages of using music to create enjoyable interactions during these necessary occasions, to avoid trauma and negative experiences, and to promote understanding and to encourage communication.

Subtheme 3.3—Sensory and emotional regulation. Accounts also discussed how music and sound were able to provide sensorial release. This included regulating behaviors at times of crisis and during meltdowns to soothe and calm children down. Vibration sensations of the environment and the role of physicality in the children's experiences of musical spaces, where music provided a release to their anxieties and physical stressors was noted: "They've got the space where they just run and dance. They bring people in, drums and dancers . . . He needs, you know, the sound and the vibrations" (Parent, Participant 4). The sensory experiences of the vibrations and liveness of the music played an important role in the child's musical encounters. Other parents explicitly linked music to sensory needs, with the importance of the children being able to express themselves through sounds, and the control of particularly loud sounds a common account among many of the parents:

He's got that thing like, I don't know if it's a noise thing. But like, he'll throw something, like he'll throw his ship downstairs or like, slam a door or like he needs that. I don't know if its sound or what the sensory need is, but he likes those cause-react situations. It's like it's the sound of it like smashing on the wall. Or the sound of the door slamming. So the keyboard is quite good for that because you can lay it all out and get that response (Parent, Participant 14).

Parents observed that the features of the music itself provided comfort and regulation for their children:

. . .when he gets worked up or is having a meltdown, if I say now, it's music time, he will stop and calm down a lot. The music really helps make him calm (Parent, Participant 25).

The changes in mood were not just for modulating and calming behaviors but also as a way to amplify frustrations, which could be expressed through sound to avoid a meltdown. These opportunities for release were rare, and parents reflected how musical spaces provided an outlet to avoid further distress:

He gets annoyed it's to the point where he can't say, so he will sort of do an action or make a sound . . . so it's like when words I guess just take too long. So generally, I think sometimes there's a bit of anger in the playing as well. He'll do it as a way when he is frustrated . . . But I think that's all for the good really, because it's expressing that. So it's not always like "nice, nice, lovely music" but it's also angry, and that's a good thing in itself. (Parent, Participant 13)

This highlights the avenues for alleviation that musical play provides. The power that is captured in this account exemplifies these differing opportunities for emotional regulation and demonstrates how music can scaffold these frustrations within a conducive and responsive environment

General discussion

This research highlights the manifold ways that autistic children and their parents use music to scaffold and interact in everyday life—for communication, for play, and for navigating everyday routines. Across the accounts, what emerged was the positive impact and value of music as a shared, mutual space where the children were able to express themselves and be understood. As the parents described, by creating an environment in which their children felt comfortable to play, creatively and socially, mutual interaction was able to flourish. Parents were seen to capitalize on heightened engagement with music to structure their child's environments. This was most common as a way to support mood regulation, but also to create teachable moments and help bridge understanding. As many of the families' experienced, music was critical in times of crisis and meltdown, where it provided both a distraction and a scaffold for regulation.

The associated socialities during musical play; the eye contact, imitation and interactions that were reported with peers, friends, and family, emphasize its capacity to support and scaffold interactivity. In particular, the role of musical play as a space where social communication can be enacted. Indeed, it was often reflected that these abilities often appeared to exceed those that were observed in everyday life. This was particularly seen in the role of singing as an element that appeared to emerge before speech and subsequently supersede verbal communication. This further builds upon the evidence that has emphasized the heightened musical interests and abilities of autistic children, and the separation of this from assumed cognitive and verbal capacities (Lisboa et al., 2021; Ockelford, 2013).

The wider significance of the emotional, creative, and imaginative aspects of musical play emphasizes the importance of going beyond measures of behavioral change and taking a more holistic approach to the role of music for autistic children. The parent accounts demonstrate their active engagement in musical care practices (Spiro & Sanfilippo, 2022), with a clear understanding of the importance of these spaces for their children. Through the parents' experiences here, it was clear to see how the role of music in everyday life was serving wider well-being; by reducing the tensions associated with communication between family members, promoting opportunities to share in play together and strengthen relationships, and through the growing use of music as a vehicle for emotional regulation. This enjoyment and proactivity of the children in pursuing interaction within musical environments highlights the importance of developing supports to allow children to interact in safe spaces on their own terms (Pellicano & den Houting, 2022).

Significantly, the benefits described in these accounts were observed beyond the context of a music therapy setting. The themes resonate with the findings from more structured therapeutic approaches using music for autistic children and their families (e.g. Thompson, 2012; Williams et al., 2012; Yang, 2016), and strengthen the observations that integrating music in everyday settings can be an important asset to support autistic children. As reflected in these results, the centrality of music as a tool for communication and shared interaction indicates that the impacts that are regularly observed within therapeutic contexts can have wider applications. In particular, for music practitioners, therapists, and educators working with autistic children, empowering parents by introducing further resources and strategies that they can use at home could be further beneficial to supporting development in this area.

What was further evident was that uses of music in everyday life echo those widely used in early childhood, including at mealtimes, to strengthen bonds and to regulate mood (Barrett, 2009; Williams et al., 2015). From these accounts, to meet their child's needs these uses often persisted into later childhood, as routines developed through natural parenting for earlier learning such as language, feeding or toilet training became engrained as a mode of

communication. These uses can be seen in parallel with wider research on music for children with other disabilities, particularly the uses around daily routines (Kern, Wakeford, & Aldridge, 2007; Osei, 2009) and for wellbeing (McFerran & Shoemark, 2013; Stensaeth, 2013). The implications of these findings may therefore have wider applicability beyond autistic children. For families of children with other disabilities, recognizing the importance of music as a space for play and interaction may have similar outcomes, as Welch et al., (2009) and the Sounds of Intent project since the early 2000s has noted, even children with the most complex needs have the potential to experience, enjoy, and develop through music (Welch et al., 2009), despite responses at first that may seem minimal or nonengaged.

Although the experiences of the parents in this project were overwhelmingly positive, it is worth noting the limitations on the potential applicability of this type of approach longer term. Although the sociodemographic sample of the parents was diverse, the opt-in recruitment criteria of the project meant that participant families were inevitably those parents already engaged in their child's development, and crucially had the time and resources available to dedicate to a 12-month program. As has been observed by Hernandez-Ruiz (2020), family- and parent-implemented programs place a significant burden on the parents and families themselves, which in the context of children with high support needs, and often complex co-occurring conditions, can lead to the exclusion of many of the children most in need. For those most vulnerable families, sensitive training to build parent confidence and empowerment, and ensuring the ease with which approaches can be implemented into daily routines, can mitigate some of these barriers (Schreibman et al., 2015).

More widely, the findings from this project highlight the need for greater application of these types of naturalistic models of musical care for all children and their families. In light of the growing numbers of children emerging from the pandemic facing long waiting lists for specialized help, particularly in the area of social communication and language delay, there is a much greater potential to widen access to materials, such as those used in this project, and increase the awareness of the role of musical care to support well-being and development in the early years. In consideration of the challenges facing the health and early years sector in the UK, the approaches described in this paper offer the potential to provide strategies to a wider range of low-income and time-limited families with types of support that can provide ways for parents to have positive and enjoyable interactions with their children and encourage naturalistic play.

Conclusion and implications

This research highlights the importance of music beyond the context of the therapy room for autistic children and emphasizes how parents utilize musical care to help their children to navigate their environments and structure routines as well as to communicate and share in an enjoyable and mutually understood safe space. The accounts of the children's musical interactions provide further insights into the possibilities of musical play as an equitable space for communication, and as a natural outlet for the types of environmental supports that are advocated in neurodiversity-informed research and education. The parents' experiences and uses of music also have implications for how musical programs and access to music for autistic children and their families are framed in the future—as shared spaces to scaffold communication, play, and regulation in everyday life. The active role of the parents in nurturing and enacting these musical strategies further provides a crucial understanding of the role of music in development and wellbeing. It highlights the importance of providing appropriate guidance for caregivers to support the potentially beneficial outcomes that therapeutic and arts-in-health approaches can offer.

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Note

1. Stimming or self-stimulating behaviors can refer to a variety of physical behaviors, or the repetitive use of an object. Common stimming includes arm or hand flapping, but also flicking a rubber band or twirling shoelaces (an activity that involves stimulating the senses). For some individuals, stimming can involve more self-injurious behavior such as banging head or against objects. In the case of this particular child, whose stimming behaviors were physically harming, a reduction in stimming and the mood regulation described here indicates how some of the regulatory burden can be lifted from the child and scaffolded by the music to beneficial effect.

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