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The Subjective Experience of Music in Autism Spectrum Disorder

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Semi-structured interviews were conducted with 12 high-functioning adults on the autism spectrum in order to examine the nature of their personal experiences of music. The analysis showed that most participants exploit music for a wide range of purposes in the cognitive, emotional and social domains, but the autism spectrum disorder (ASD) group's descriptions of mood states reflected a greater reliance on internally focused (arousal) rather than externally focused (emotive) language, when compared with studies of typically developing individuals.

Key words: music; autism; arousal

A number of recent experimental studies have explored an association between autism and absolute pitch, autism and savant skills in music, and autistic traits in musicians with absolute pitch.^{1,2} However, these focused on the development of special or unusual skills, and did not investigate the nature of musical experience in the wider population with autism spectrum disorder (ASD).

Some studies have explored sensitivity to emotion in music in a broader ASD group.³ However, such designs test the ability to make conventional musical associations, and provide only limited insights into the nature of the participants' *personal* experience of music.

Recent findings based on interviews and other self-report measures of the value of music to typically developing (TD) people⁴⁻⁶ suggested that it would be fruitful to use an alternative, nonexperimental, and qualitative approach to studying musical engagement in persons with ASD.

Method

Participants

Twelve high-functioning adults (10 men and two women; ages 21–65, mean 41, SD 16) with diagnoses on the autism spectrum (nine with Asperger's syndrome, three with autism) took part in the study.

Design

We used a semi-structured interview format to explore the nature of the musical experience in autism, covering the early development, as well as the current nature, of participants' musical experience. Responses to the questionnaire were analyzed using a qualitative data tool, NVivo7.⁷ The method of analysis was modeled on Grounded Theory, as developed from the work of Glaser and Strauss.⁸

Results

Development of Musical Interests

The questionnaires and interviews suggested that with a couple of exceptions, the

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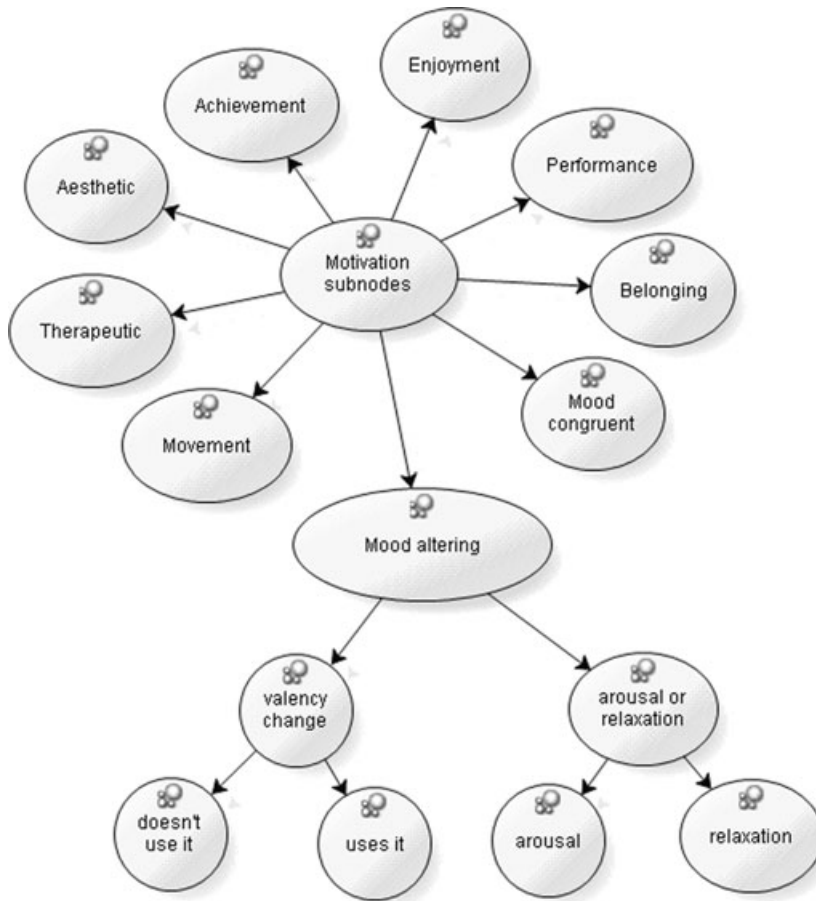


Figure 1. Motivations subnodes.

participants fell into two categories, with five individuals in each. The first, which we refer to as the “classical” group, acquired a liking for music at a relatively young age, and now enjoy listening to, and in some cases also playing, primarily classical music. The second, the “pop” group, comprises those whose interest in music blossomed when they discovered pop music in their teenage years, having previously shown little or no interest in music. Two participants did not fit easily into either group, and were “outliers” in a qualitative sense. Of these, one was interested in music solely in its setting as an accompaniment to films; the other focused primarily on the narrative structure and dramatic qualities of Wagner’s operas.

Two Principal Nodes

In our initial analysis of the raw transcripts, two clear categories emerged, dealing broadly with the questions “why” and “what.” We chose the term *motivations* to represent the reasons or aims explaining “why” individuals decided to listen to music, and *characteristics* to represent the type of music that was chosen to achieve those effects (“what”).

Why Did Participants Engage with Music: Motivations

The full tree diagram for the *motivations* subnodes referred to in this paper is shown in Figure 1 above.

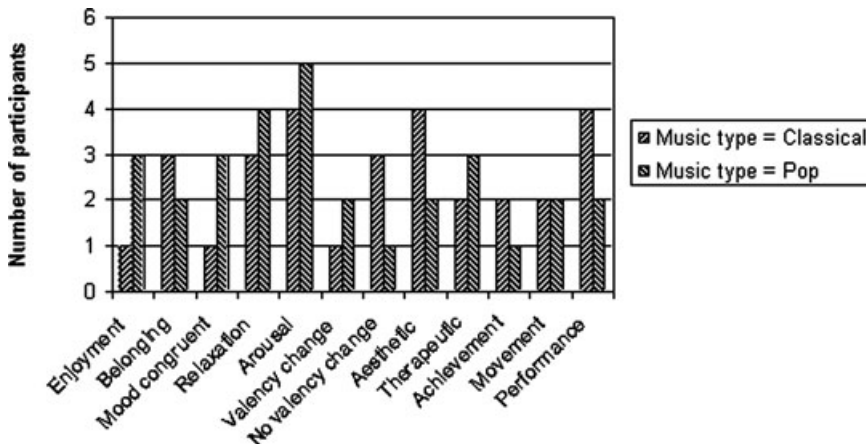


Figure 2. Numbers of participants in “classical” and “pop” groups by motivation subcategory.

Our sample used music to achieve a number of personal aims. The largest number (nine persons, or 75%) was under Mood altering. The words or phrases used to describe the moods aimed for could in most cases be grouped into two clusters: “Exciting,” “exhilarating,” and similar words suggest a state of pleasurable arousal, whereas “chillout,” “relaxing,” etc., suggest a state of pleasurable lack of arousal.

After Mood altering, the next most numerous category was Aesthetic, with seven (58%) individuals mentioning aesthetic appreciation. The Aesthetic category refers, by the definition we adopted for the purposes of this study, to feelings of pleasure that are derived from the conscious perception of the music.

The next commonest category was Therapeutic. Six participants (50%) reported experiences in which listening to music had had a healing effect, for example: “When I have been feeling depressed, I have listened to certain music, and I would claim the music healed me.”

The next most popular headings, with five participants each, were Belonging and Performance. These tended to co-occur, with four participants reporting in both categories. In the Belonging category, a characteristic quote was: “When someone’s released a classic album and you listen to it, I think ‘I’m part of something great now.’”

The distribution of these and other less common nodes among the classical and pop subgroups (omitting the outlier subgroup) are shown in Figure 2.

What Music Did They Engage with: Characteristics

The node structure for this tree is given below in Figure 3.

Under the *characteristics* node, we created a subnode, which included the features of music associated with its energizing or calming effect. Ten of 12 participants described characteristics linked to this aspect.

Five of these participants sometimes enjoyed slow quiet music to induce an effect of relaxation, when appropriate. However, several participants categorically disliked slow music, describing it as “dirgey” or “boring.”

Eight participants (67%) mentioned structure or pattern as one of the characteristics of the music they liked. Not all of these gave rise to entries in the Aesthetic category of musical motivations mentioned above, because in some cases an appreciation of structural aspects was not the key reason for listening to it and therefore did not count as a “motivational” factor.

Social connections were mentioned by four participants, in the context of introducing them to music, for example: “I went to Australia

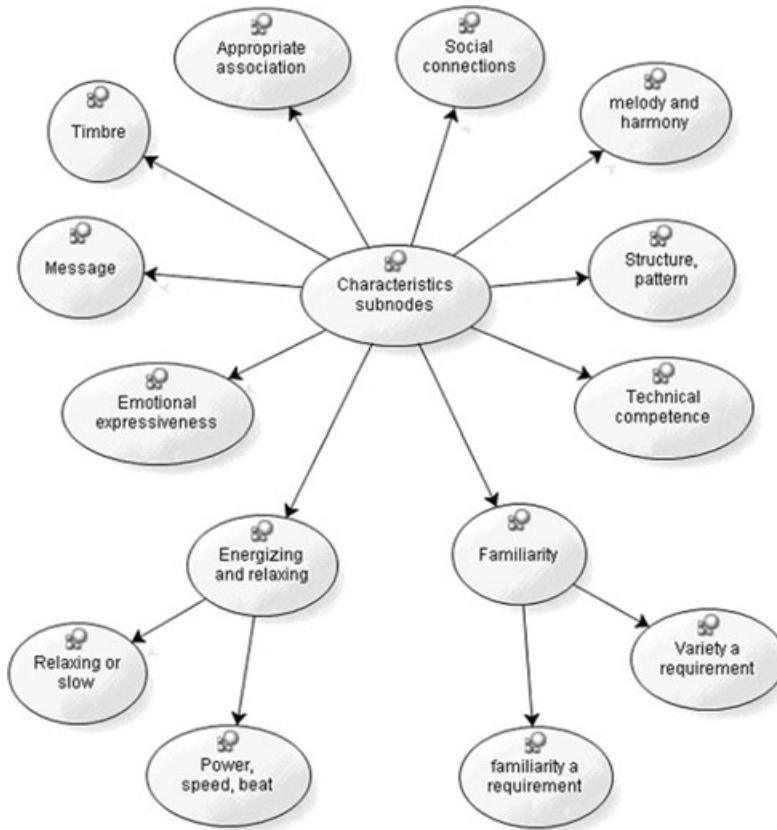


Figure 3. Characteristics subnodes.

when I was 20, and my friend in a record shop saved me a box of singles, [which was] when I heard some new groups.” This was not an aspect we had expected to find in this group, for which social and communication difficulties are diagnostic.

The between-group (classical and pop) distribution of these characteristics is shown in Figure 4.

Discussion

Motivations: Mood Change

Previous research⁹ has found that people with ASD experience emotional arousal and are conscious of such arousal, but have difficulties in verbalizing their emotional experiences and in analyzing their own emotional states and reactions, a condition known as type

II alexithymia. Our sample conformed to this pattern, showing conscious awareness of the emotional arousal induced by music combined with limitations in the terms used to describe its effect.

The most interesting finding among the motivations subnodes arose from the analysis of the largest subnode of the motivations category, involving the use of music to achieve changes in mood. This showed descriptions of desired states clustering around the two regions of exhilaration and calmness. Four participants described the state of tension as undesirable, but one that could be relieved by the calming effects of music.

Characteristics

The salience of Power as a desirable characteristic of music is consistent with the principal

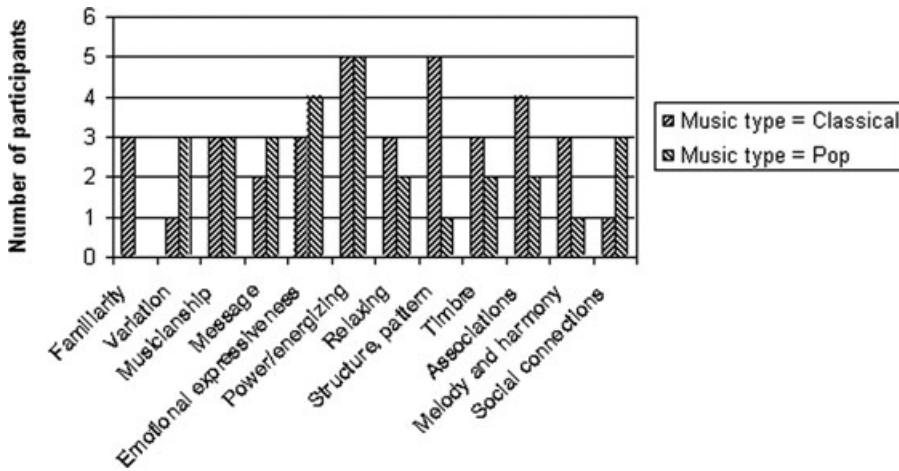


Figure 4. Numbers of participants in “classical” and “pop” groups by characteristic subcategory.

use made of music, to change mood, of which inducing a feeling of excitement or exhilaration is prominent. Powerful music seems likely to be an effective stimulant of such states. The importance of Structure is consistent with the salience of the Aesthetic use of music. The size of the Social category shows that this aspect cannot be ignored in considering music and autism.

Profile Differences between Pop and Classical Groups

The differences in the profiles of the pop and classical groups for the overall category of motivations suggest that the more formal and perhaps musically deeper engagement of the classical group is reflected in an emphasis on the enjoyment of performance and the more aesthetic side of music, while the pop group benefits more from the purely emotional charge of the music.

TD Populations: Similarities and Differences

Our results showed that music was used by our sample in several ways that were similar to those reported in TD literature, such as mood change, self-management for depression, and social affiliation. However, we found

one striking difference. TD individuals describe their mood changes in response to music as lying along two axes, one single axis of valency (happy/sad), and another single axis of arousal.¹⁰ But our sample showed almost no use of valency terms, and instead used descriptors of states lying along two dimensions of arousal, with calmness/tension as opposite poles of one axis, and excitement or exhilaration as the desired state on the other axis. This appears consistent with the observation that “individuals with ASD seem to engage in less top-down processing when making perceptual judgements, that is to say, their reactions to the world are based on information that is closer to the properties of the incoming stimulus” (p. 246).¹¹ Space does not permit a deeper discussion of these and other issues arising from this study, which have been discussed more fully elsewhere.¹²

Conflicts of Interest

The authors declare no conflicts of interest.

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