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A Software-Assisted Qualitative Study on the Use of Music in People with Anorexia Nervosa

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Abstract

Anorexia nervosa (AN) is an eating disorder associated with a high mortality and an often chronic and disabling course. Thus, novel treatment options should be explored. We performed two focus groups with a total of six people with AN on their use of music and their thoughts about music as an additional therapeutic option. Interviews were transcribed and analyzed in-depth using the NVivo 12 software package. The most prevalent theme throughout the focus groups involved positive expressions, emotions and memories related to music. This theme occurred in ~25% of the data. The importance of music was the second most common theme. Negative feelings and memories associated with music accounted for only ~10% of all references. All six patients expressed that they see benefit in using music therapy as an adjunct to their current treatment. Our analysis shows that people with AN connect music mainly with positive emotions and memories. Therapists might think about applying music more frequently during their sessions with AN patients and consider adding music therapy to their overall treatment concept. However, the results also suggest that music can influence mood not only positively but negatively as well. Quantitative research in bigger patient samples and randomized clinical trials will be necessary to verify these results.

Keywords: music, music therapy, eating disorders, anorexia nervosa, qualitative research, NVivo software

1. Introduction

Anorexia nervosa (AN) is one of the eating and feeding disorders. This group is characterized by a persistently disturbed eating behavior, which leads to changes in food intake, impaired physical health and psychosocial problems. According to the Diagnostic and Statistical Manual of mental disorders (DSM)-5, people with AN show a restrictive eating behavior, a body weight that is significantly too low for age, sex, and developmental trajectory, fear of gaining weight and a disturbance in the perception of one's own body (body image disturbance) [1]. AN occurs in approximately 0.5% of the population, with women being affected about 10 times more often [2]. The risk of death in patients with AN is five times higher compared to people of the same age and gender [3]. The course of AN is often chronic and can lead to a permanent disability.

The eating and feeding disorders cluster further includes bulimia nervosa (BN), binge eating disorder (BED), avoidant/restrictive food intake disorder (ARFID), pica and rumination disorder.

BN occurs in about 2% of the population with a male to female ratio of about 1:10 [2]. The main criteria for diagnosing BN are recurrent binge eating, compensatory behaviors and excessive concerns with body shape and weight [1]. BED is the most common eating disorder. It is about twice as common (approx. 4% of the population) as the BN, with the proportion of women in patients with BED being around 60% [2]. It is mainly characterized by binge eating without the use of compensation strategies [1]. ARFID is hallmarked by a restrictive eating pattern that leads to malnutrition; pica means the consumption of non-food; and rumination disorder features choking up and chewing food again. Within those eating disorders, clinical features may change over time, with some patients with AN changing to BN or BED. Therefore, we are dealing with a spectrum of eating disorders rather than well-defined disease entities [4].

According to the National Institute for Health and Care Excellence (NICE) [5], the main pillars of therapy for eating disorders such as AN are psychological therapy, diet counseling as well as weight and physical health monitoring. Additional therapies can be family therapy, occupational and art therapy. Despite the availability of these therapies, a recent study that examined acutely ill AN patients over 20 years showed that despite existing therapies, only about 30% recovered after about 10 years and only 60% after 20 years [6]. Thus, there is a demand for additional treatments, and music therapy could be such an additional approach.

In a recently conducted systematic review on the effects of music in people with or at risk for eating disorders, researchers found that the use of music as an adjunct treatment was beneficial in certain cases [7]. The review encompassed 16 studies and 3792 participants using music in an experimental or observational study. Important studies cited in this review found that listening to classical piano improved food consumption with inpatients with AN [8] and that a “vodcast” of visual images and soothing music favorably influenced eating behaviors in patients with AN [9].

Apart from music therapy, the role music as such plays in daily life is expansive. Essentially, all cultures produce and use music in some way. Whether that is listening to a favorite song or dancing at a wedding, music seems to have an expansive power of triggering an emotional response. It is used as a source of healing and can be used as a source of comfort for many. The value of music on a person's life is dependent on the context with which they hear it, how much they engage with it and the feeling that it evokes when listening to it [10]. Music can have transformative effects on stress levels and the autonomic nervous system. For instance, studies have shown that listening to slow and smooth music reduces blood pressure and regulates breathing, in comparison to fast paced music which can lead to increased blood pressure [11]. Music has also been shown to influence neurotransmission such as the amount of dopamine release [12].

We sought to conduct a software-assisted qualitative analysis of two in-depth interviews performed during focus groups with people with AN to find out how they use music in daily life, how they talk about music, and what they think about the therapeutic application of music. We used this qualitative approach, because we wanted to identify and conceptualize aspects of the use of music which are important for them [13–16].

2. Methods

Study participants: Six female patients between 22 and 49 years with AN were recruited at the inpatient eating disorders service at the Bethlem Royal Hospital

and the outpatient eating disorders service at the Maudsley Hospital. Both hospitals are managed by the South London and Maudsley NHS Foundation trust (SLaM), London. Patients gave written informed content to participate in the focus groups. They also agreed that the focus group would be recorded and transcribed, the content analyzed, the results of this analysis harnessed for further service development and publication. They also agreed that their recorded and transcribed statements may be cited, potentially verbatim, in an anonymized way.

Study Design: Each patient took part in one of the two focus groups. The focus groups were advertised within both the inpatient and outpatient eating disorders units with posters including the information about the topic and the focus group's research purpose. In preparation of the group, a questionnaire was devised containing 15 questions on listening to music, making music and music as a therapeutic strategy in order to guide the in-depth interviews (see Appendix). The focus groups were recorded, transcribed and subjected to thematic and content analysis [13–16].

Procedure: For evaluation of the transcribed focus groups, we used the NVivo 12 software. NVivo is a qualitative data analysis computer software package for qualitative research on text-based information. It organizes and analyzes non-numerical or unstructured data and allows users to classify, sort and arrange information [17]. Using NVivo, themes were extracted, a word cloud developed, the most frequently used words, and the distribution of coded themes and references analyzed.

3. Results

Following the transcription of both focus groups from audio recordings, a list of 14 themes were extracted from the data collected. Using Nvivo 12 software, the themes derived from both focus groups highlight the effects music has on the participants lives, the emotions experienced while listening to music, as well as the sentiments expressed about music therapy and its uses when treating their AN. The themes generated are as follows: Benefit of Music Therapy, Frequency (of music listening), Genre Listened To, How Music Makes You Feel, Importance of Music, Interest In Music Therapy, Music Dislikes, Music Making, Music Preference, Negative Emotion Elicited, Negative Memory Association, Neutral Emotion Elicited, Positive Emotion Elicited, and Positive Memory Association. **Table 1** illustrates the codebook of the analysis along with the description of the theme, file number and number of references within the data.

A word cloud of the two interviews was developed of the 1000 most frequently used words throughout both focus groups to illustrate which words/phrases appeared most frequently throughout data collection. Words most frequently used are indicated by the larger text size. These include 'music,' 'think,' 'listen,' and 'feel,' suggesting that music elicits a thoughtful emotive reaction within individual participants (**Figure 1**). Music accounts for the most frequently used word amongst participants with a count of 378, while 'think' had a count of 327 and 'feel' a count of 145 (**Table 2**).

The individual themes coded with the greatest number of text segments by participants include Music Preference, Positive Emotion Elicited, Positive Memory Association, Importance of Music and How Music Makes You Feel (**Figure 2**).

The themes were grouped into six main segments based on the content outlined by the participant in their responses: Music Therapy, Preference, Positives, Negatives, Neutrals, and Beliefs. The Positives grouping accounted for 25.1% of coded segments, while Preference and Beliefs accounted for 30.9 and 22.2%, respectively (**Table 3**).

Themes	Description	Files	References
Benefit of music therapy	What are the benefits one associates with music therapy?	2	9
Frequency	How often does one listen to music?	2	13
Genre listened to	What type of music one listens to?	2	10
How music makes you feel	What feelings does one experience because of music?	1	22
Importance of music	What value does music have on one's life?	2	24
Interest in music therapy	Is there an interest in the therapeutic uses of music therapy as well as attending a music therapy session?	2	9
Music dislikes	What music does one dislike?	2	14
Music making	Playing an instrument, singing, recording, composition etc.	2	6
Music preference	What does one prefer to listen to? (i.e. favorite artists, song, recording etc.)	2	21
Negative emotion elicited	Is there a negative emotion associated with music?	2	12
Negative memory association	Is there a negative memory associated with music?	2	9
Neutral emotion elicited	Is there an indifference/ impartiality to music?	2	6
Positive emotion elicited	Is there a positive emotion associated with music?	2	28
Positive memory association	Is there a positive memory associated with music?	2	24

Table 1.
Codebook with themes, their description, their appearance in only one or both focus groups and their frequency (extracted from NVivo 12).

Throughout both focus groups, the most commonly shared themes represented positive associations with music, in the form of Positive Memory Associations (28 references) and Positive Emotion Elicited (24 references). A commonality that participants shared throughout the focus group discussions were the positive emotions that music makes them feel. One patient described music as “(it) can be a comfort; it can be something to move you up... (it’s) obviously something that’s a release of emotions...and it definitely cheers me up and makes me more determined and motivated”. This was a popular sentiment amongst and between the two focus groups, with one patient stating “(music) makes me feel good, content even.”

The importance of music was also a common theme for participants accounting for 24 references within the data. Patients discussed the uses of music within their day to day life and through their recovery process. One patient stated “(music) gives you space to kind of like describe stuff that you can’t necessarily put into words yourself,” and serves as an “incentive” or “motivator” throughout their recovery process.

The most commonly discussed themes fall under the Preference grouping with a total of 64 references throughout both focus groups. Accounting for 30.9% of the coded references, patients discussed their music preferences in great detail (Table 3). Patients listed the genres they listened to and how often they listened, if they participated in making music, and their music dislikes. Music preference

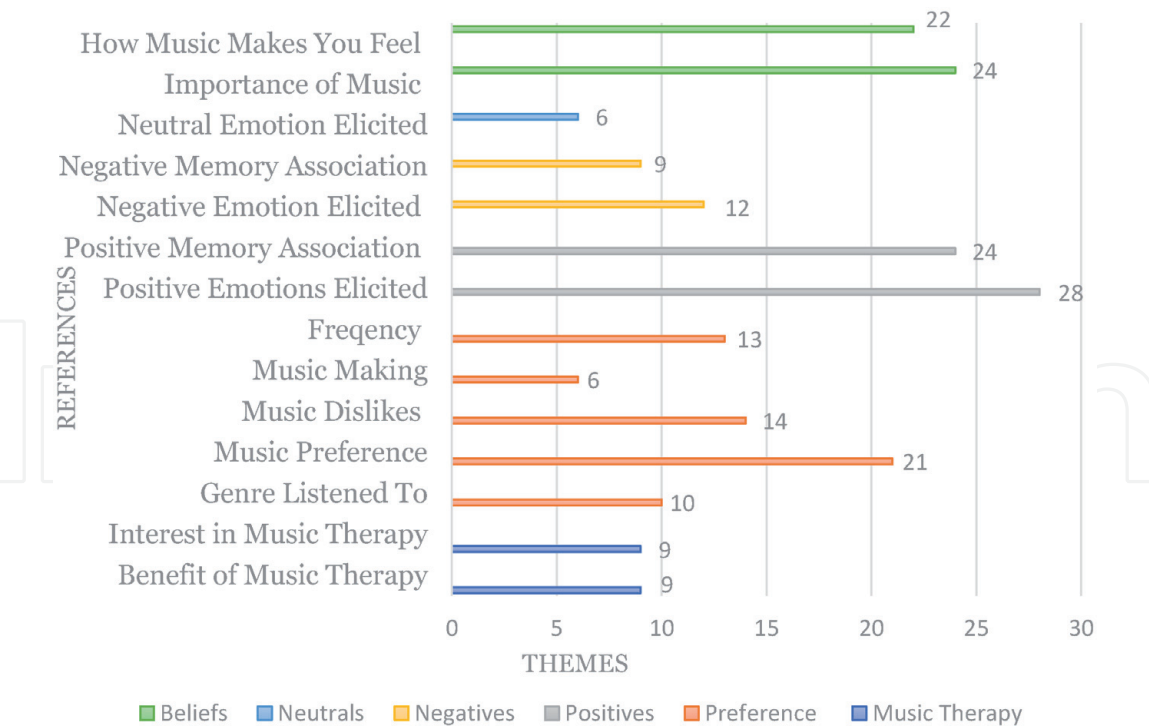


Figure 2.
Distribution of the frequency of themes coded from both focus group.

Coded theme group	Number of coded references	Percentages of all coded references
Music therapy	18	8.7
Preference	64	30.9
Positives	52	25.1
Negatives	21	10.1
Neutrals	6	3
Beliefs	46	22.2

Table 3.
Coded references by group.

piece of music. One patient describes a particularly sad event in their life that was tied to an artist, saying, “that would be with Frank Sinatra’s song, that was played at my Granddad’s funeral. So, again if I feel like I need to cry and let it all out... Ten out of ten it would make those tears fall.” Music seems to elicit an emotive reaction based on the participants life experience.

Music Therapy was discussed totaling 18 references throughout both focus groups (**Figure 2**). Patients were asked for their thoughts on music therapy, if music therapy can be helpful through their recovery process, as well as if they would be interested in attending a music therapy session. None of the patients had any experience with music therapy but all six of the patients unanimously agreed that they would be interested in attending a music therapy session.

There were nine references during the focus groups about the benefits of music therapy. One patient stated “I know it’s brilliant. And I know it could help me sort through a lot of issues,” while another stated its uses in a group setting with others undergoing treatment for their eating disorder, saying “...a lot of girls I was in daycare with, music was definitely a thing that we did a lot. So, I think that sort of being able to mingle with other people through the recovery process too, I think would be really, really helpful.” Overall, patients all seemed to have a strong

connection with music, specifically throughout their recovery process and viewed music as an important tool for healing throughout their lives.

4. Discussion

In this study, we conducted a software-assisted qualitative study exploring people with AN's attitudes toward music, music therapy, and the uses of music throughout their life, treatment and recovery. The results of the study point to a promising potential for the varied uses of music throughout the recovery process for eating disorders. Patients were questioned in focus groups concerning the uses of music in their day to day life and as a therapeutic strategy. Responses were analyzed with NVivo 12 qualitative software for recurring themes throughout the discussions.

The most prevalent theme throughout the focus groups involved positive expressions and positive memory associations related to music. This theme occurred in ~25% of the data and totaled 52/207 of all of the coded themes (**Table 3**). This suggests patients have pleasant feelings about music and associate good things that have happened in their lives along with musical experiences. The importance of music was the second most common theme accounting for 24 references throughout the focus groups (**Figure 2**). Patients described the effect music had on their day to day life, with regulating emotions and providing an outlet of peace through their recovery process, suggesting that it was the study participants' opinion that music could be used to improve their mental state throughout their recovery.

Negative feelings and negative memories associated with music accounted for only ~10% of all of the references from both focus groups (**Table 3**). Patients discussed how music they dislike can make them feel low in mood and also described negative memories linked to a certain genre or song. This suggests music can influence mood not only positively but negatively as well.

The final main result concerns the potential uses of music as a therapeutic adjunct to their treatment. When asked about music therapy, 6/6 patients stated they were interested in attending a music therapy session; in addition, all patients expressed that they see benefit in using music therapy as an adjunct to their current treatment for their eating disorder. This suggests music could be helpful for patients in the treatment of AN.

In previous studies on the use of music in eating disorder treatment, researchers found that patients with AN managed to eat more when listening to classical piano music and had a significant reduction in postprandial anxiety when participating in music therapy; listening to a violin concerto by Mozart induced the recall of autobiographical memories in patients with BN and reduced body width estimation [7–9, 18–20]. These previous findings align with the results of our current research as patients described that when listening to their favorite music, they generally feel happier and more positive. In addition, patients expressed their interest in attending music therapy citing the potential benefits it could have in their own life specifically with their treatment of their AN.

In other studies, however, negative symptoms presented when patients watched music videos. More specifically, researchers found that watching music videos was associated with an increase in body dissatisfaction [21], and sexually objectifying videos were associated with increased perception of body size in young women with suffering from low self-esteem [22]. In our study, we found that patients who listened to music outside their usual preference or that they did not like, as a result, had negative emotional reactions (i.e. crying, dissociation). This aligns with the previous findings suggesting that while music not only can produce positive side effects, it can also produce negatives as well [7].

Our study has several limitations. The number of participants ($N = 6$) was small. All study participants suffered from AN. Due to the small sample size, we could not differentiate between the subtypes of AN (restricting vs. binge eating/purging), length of illness duration and their stage of recovery. Our sample was ethnically homogeneous with only white Caucasian participants, and all patients were female. Thus, the results are not generalizable to other ethnic groups or males. From our perspective, the lack of generalizability is a main problem of research in the area of music therapy for people with eating disorders, and specifically AN. Even though there is plenty of case studies (for a comprehensive review and further literature see [23]), randomized controlled trials (RCT) are scarce [7].

AN is one of several eating disorders. As we have explained in the introduction, eating disorders are not distinct entities, but should rather be seen as symptom clusters within a spectrum of serious problems related to body image disturbance, disordered eating and their physical and psychosocial consequences. Therefore, it might be worth investigating, whether our findings can be reproduced and confirmed in people with BN, BED, ARFID or other eating disorders.

Taken together, our analysis shows that people with AN connect music mainly with positive emotions and memories. Therefore, music may be used more frequently and more extensively in psychological therapies as a tool to modulate emotions. As patients would welcome music therapy as an adjunct treatment option during inpatient or outpatient treatment, therapist might think about including music therapy into their overall treatment concept. However, quantitative research in bigger patient samples and RCTs will be necessary to verify these results.

5. Conclusions

Based on the current study and previous publications on music and music therapy in people with AN, the following preliminary conclusions can be drawn:

- Music elicits mainly positive emotions and memories in people with AN.
- Music is an integral and important part of life.
- Music can help with recovery, overcome anxieties and improve eating.
- People with AN would like to be offered music therapy as an adjunct to their usual treatment.
- Music may be used as a tool to provoke emotions during psychotherapy.
- Music may also elicit negative feelings and memories.
- Watching sexually objectifying music videos can increase body dissatisfaction and the perception of body size in vulnerable people.

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Conflict of interest

The authors declare no conflict of interest.

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Appendix: questionnaire for the focus groups

Listening to music:

- How do you find listening to music?
- What impact does listening to your favorite music have on your body and brain?
- How often do you listen to music?
- What type of music do you prefer to listen to?
 - Genre, style
 - Instrumental, vocals, both
 - Stimulating, relaxing
- How do you prefer to listen to music?
 - Recordings, live music
 - TV, radio, DVD, CD, MP3
- How often do you listen to something that is not your usual preference?
- How does listening to music relate to your emotions?
- Can you name of experience where music made you feel happy or sad?
- Is there a time in your life that you connect a certain situation with a specific song?
- How does it make you feel, if you have to listen to music you do not like?

Making music:

- Have you played, or do you play an instrument or sing?
 - Singing alone/in a choir
 - Play instrument alone/in a band/in an orchestra

Music as a therapeutic strategy:

- How could listening to music be helpful to cope with difficult emotions or problems in your life?
- Do you feel that there could be an effect of music in your life?
- Do you have any experience with music therapy?
- Would you attend a music therapy session?

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