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ARTICLE

A qualitative pilot study examining Tibetan bowls and monochord sound meditation with adults with mental health conditions and intellectual disabilities

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ABSTRACT

Tibetan bowls and monochords are millennia-old instruments used for spiritual and therapeutic purposes. In the last few decades, there has been growing interest in the use of these instruments in meditation and therapeutic settings. Nevertheless, they are still rarely used in music therapy in the Western world, either because of technical difficulties or musical or cultural biases. The purpose of this pilot study was to examine the experiences of adults with mental health conditions and intellectual disabilities during sound meditation sessions using Tibetan bowls and a monochord. In this qualitative pilot, a group of six psychiatric inpatients participated in seven weekly sound meditation sessions over eight weeks that implemented Tibetan bowls and the monochord combined with meditation. Semi-structured interviews were conducted after each session to capture participants' reflections on their experiences. The interview data was analysed using thematic analysis. Three main themes emerged: physical sensations, experiences of emotions, and visual experiences. The sounds of the Tibetan bowls and the monochord helped participants relax and evoked a wealth of emotions and mental imagery. These findings suggest that using these instruments with adults with mental health conditions and intellectual disabilities can foster relaxation, as well as heighten their awareness of physical sensations, feelings, and previous life events. Music therapists can thus integrate Tibetan bowls and the monochord into their skillset and use them during treatment sessions.

KEYWORDS

Tibetan bowls,
singing bowls,
monochord,
sound meditation,
sound therapy,
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INTRODUCTION

Between music and sound

There is considerable research on the benefits of meditation as a way to achieve relaxation and tranquillity (Burns et al., 2011; Young, 2011). Meditation is known to influence many aspects of life and contribute to reducing multiple physiological and psychological impairments, especially those linked to anxiety and stress (Burns et al., 2011). Several ancient cultures combine meditation with music or sounds to achieve deeper states of consciousness that are considered to lead to a more profound healing process (Goldman, 1996; Torri, 2011). These ancient techniques have gradually been incorporated into modern popular and therapeutic practices.

In music therapy, a number of receptive methods combine listening to recorded or live music with other approaches such as meditation and guided imagery (Bruscia & Grocke, 2002). These combined modalities have been shown to stimulate and have a range of psychological, physical, cognitive, and spiritual benefits (Grocke & Wigram, 2007). However, few make use of sound instruments such as TBs or the monochord (MC), which like gongs, crystal bowls, and tuning forks, are associated with sound therapy (Crow & Scovel, 1996), or sound healing (Bruscia, 1998). This pilot study implemented a combination of TBs and MC with meditation. The use of these instruments or other monochrome musical instruments[1], when associated with meditation and/or relaxation techniques, is alternatively termed sound therapy, sound bath, or sound meditation (Goldsby et al., 2022). These techniques primarily involve sound vibrations, not only as auditory stimuli, but also as physical sensations (Bartel & Mosabbir, 2021).

Sound therapy principles: Resonance and entrainment

Resonance and entrainment are thought to account for the therapeutic value of most types of sound therapy. Both derive from the basic musical element of rhythm, which holds a substantial factor in balancing and survival mechanisms (Davis, 2004). Sound also manifests as a rhythmic cycle that can be measured in Hertz (Hz) (Goldman, 1991).

Resonance is the natural frequency at which an object vibrates. When one object vibrates at the same frequency as another object, they both resonate harmoniously (Davis, 2004). Entrainment occurs when a strong rhythmic vibration affects a weaker rhythmic vibration to cause synchronisation. Whereas resonance is a passive process that corresponds to the natural frequency of an object, entrainment is an active process that changes the object's rhythmic pattern (Goldman, 1991). The principle of entrainment is universal (Thaut et al., 2015). In the human body, breathing is entrained by the rhythmic pattern of the heart and vice-versa. Music can also entrain various physiological systems (Juslin et al., 2010). Different ways of using sound can entrain rhythmic patterns in breathing, circulation, and brainwaves (Fachner, 2011).

[1] "Monochrome sounds are monotonously played sounds with a characteristic timbre" such as those found in monochords, gongs, or singing bowls (Schmucker, 2007, p. 174).

Sound therapy as a medium for change

Physiological change

The relaxation response, a term coined by Benson and Klipper (1975), is one of the underlying mechanisms in sound-based techniques. By engaging in a repetitive mental or physical activity such as breathing techniques, yoga, mantras or sound, deep relaxation and a calming of the mind and body can be achieved (Benson & Klipper, 1975; Moberg, 2003).

Body-mind unity

One of the main characteristics of monochrome musical instruments is their ability to transmit vibrations. Vibrations can be felt by either placing the instruments on the body, being in contact with a surface of the instrument or being very close to it. Different positions generate different sensations and physical experiences. The idea of body-mind unity as conceptualised in therapeutic uses of sound draw on the notion that human beings are a unitary whole (Mate, 2011). Pert (1997) discussed the interconnectedness between emotional and physiological manifestations. She suggested that neuropeptides may convey information from the nervous system to the immune system. These enzymes may carry emotional information and affect the body by connecting with cell receptors. The gut in particular is rich in neuropeptides. More recent work suggests that neuropeptides, which play a role in regulating stress, can facilitate crosstalk between the nervous system and the immune system (Deng & Chiu, 2022).

Another physiological mechanism that may give rise to affective responses are the mechanoreceptors, especially the Pacinian Corpuscles (PC). These mechanoreceptors are crucial for proprioception, sensitive to vibrations and resonate with sounds. They are located in the skin, tendons, bones, several organs in the abdomen, and the genitals (Koelsch, 2015). Afferent impulses from the PC travel through the nervous system and reach different areas in the brain, including the limbic system. PC is primarily located in the mesentery and inner organs (Sigurdardóttir, 2019).

Altered states of consciousness

Another important feature of sound as a medium that impacts the human body is the way it affects brainwaves (Huang & Charyton, 2008; Wahbeh et al., 2007). People who engage in meditation, play, or music listening often experience a change in their subjective awareness of themselves and their surroundings, or in their state of consciousness (Garcia-Romeu & Tart, 2013). States of consciousness that represent a departure from “normal” states are referred to as altered states of consciousness (ASC), and can be characterised by subjective experiences, physiological and neurological responses (Vaitl et al., 2005). In meditation and other relaxation-inducing techniques, the predominant measured EEG patterns are alpha and theta wave bands (Williams & Gruzelier, 2001; Vaitl et al., 2005).

There are numerous age-old approaches, methods, and media for inducing ASC (Garcia-Romeu & Tart, 2013). In ancient traditions, shamans used various techniques, including monochrome sound instruments to elicit ASC in themselves and others (Winkelman, 2011). This enabled shamans to evoke imagery in their listeners designed to expand their consciousness and provide an outlet for internal pressures caused by personal conflicts and issues (Moreno, 1995). In old shamanic traditions and

modern music therapy approaches, music or sound is used to reach an ASC to promote healing, with or without evoking imagery (Kovach, 1985).

Imagery

Images that come to mind unconsciously are comparable to symbols that represent certain aspects of individuals' inner psychological states. Similar to a dream, these symbols may represent difficult or repressed emotions or life events (Bruscia, 2015). Images evoked by music in a therapeutic process are used in Guided Imagery and Music (GIM). These experiences can activate inner reflections, memories, and feelings to promote greater well-being and health (Bruscia & Grocke, 2002). Ballan and Abraham (2016) discussed the role of sensory integration when experiencing imagery and suggested that input from several senses result in a stronger response in the nervous system. For example, when an auditory input is too weak, simultaneous visual or somatosensory input may enhance the auditory response and strengthen the therapeutic process.

Tibetan bowls and the monochord as sound therapy instruments

Tibetan bowls (TBs), also known as singing or Himalayan bowls, probably originated in China around the 6th century BC (Jansen, 1992) and were historically used for religious purposes. This instrument gradually became a therapeutic tool in various cultures in East Asia, such as the Bon tradition in Tibet (Humphries, 2010; Price, 2001). The shaman used sound as a tool for altering states of consciousness and entering into a meditative state.

The MC is also an ancient instrument dating back to around the 6th century BC. It originally consisted of one to three strings and was used for scientific purposes, such as probing the mathematical relationships governing musical intervals (Creese, 2010). In the past few decades, monochords (MCs) with more strings and a variety of shapes and sizes have been used for both music and therapy. One type of MC commonly mentioned in studies is the body MC, a modern development designed for therapeutic use (e.g., Jungalberle & Altieri, 2002; Sandler et al., 2017). Built like a massage bed, it is composed of a resonance box with up to 60 strings tuned to the same pitch. Players usually sit beside the instrument and use their fingers to strum the strings continually. In this manner, overtones begin to emerge and can be differentiated.

A number of empirical studies on the therapeutic value of TBs, MCs, and other monochrome sound instruments have been reported in the last three decades, mainly in German (e.g., Oelmann, 1993; Rose & Weis, 2008; Strobel, 1988). One of the first to research the therapeutic features of monochrome sound instruments was Wolfgang Strobel (1988). Strobel developed the *sound-guided trance* method where monotonous playing is used to enable individuals to enter into an ASC so that repressed content can become conscious, thus fostering therapeutic processes which potentially allows healing to occur (Shmucker, 2007).

Monochord sound research

Several studies have indicated that MC sounds have a positive impact on perceived anxiety and relaxation. These studies show prominent experiences of ASC as well (Jungalberle & Altieri, 2002; Sandler et al., 2017). Sandler et al. (2017) compared a treatment with body MC to listening to a relaxing CD in a sample of individuals with psychosomatic disorders. The results showed that participants with higher depression and anxiety scores tended to experience the CD music as less emotionally positive.

Experiences of the MC sounds can also manifest as physiological changes in perception (Fendel et al., 2018), such as changes in the temperature of the hands and feet, and have an effect on breathing, inner calmness, and inner warmth. In that study, participants compared the vibrations to a waterfall or a river, although unpleasant sensations such as exhaustion or restlessness were also reported. Another study investigated the effects of the table MC and found different physiological changes in perception as well as pleasant emotions (Kearl, 2017). Studies that have compared the effects of MC sounds to Progressive Muscle Relaxation[2] (PMR) reported increased relaxation, although without a significant difference between interventions (Gaebel et al., 2017; Lee et al., 2012). Both interventions induced positive feelings in the patients and were not experienced as threatening.

Studies that have investigated the impact of MC sounds on EEG signals have reported inconsistent results (Bhattacharya, 2016; Fachner and Rittner, 2005; Sandler et al., 2008). Bhattacharya (2016) compared the neurological effects of MC sounds to those induced by PMR and found a significant theta band effect induced by MC sounds. Sandler et al. (2008) also observed an increase in intensity of theta activity in participants exposed to MC sounds. By contrast, Fachner and Rittner (2005) found no increase in theta band activity. However, this study only investigated two participants. Both had different EEG scans and both reported imagery content.

Tibetan bowls sound research

Sound vibrations can have a physiological effect and are shown to lead to relaxation in muscle tone, lower blood pressure, and slower respiration, which can enhance blood flow and metabolism (Halstead & Roscoe, 2002). Landry (2014) found that using TBs in meditation lowered blood pressure and heart rate. Bidin et al. (2016) explored TBs treatment in oncology patients and found that it contributed to a decrease in skin conductance, indicative of a decrease in anxiety and stress. Similarly, participants' EEG data indicated reduced arousal and lower levels of mental exhaustion as shown by a decrease in beta waves. There was a decrease in alpha waves and no significant change in theta waves. Other anecdotal reports showed beneficial health effects of TBs, especially with respect to relaxation (Gaynor, 2002; Jansen, 1992).

Sound meditation research

To the best of our knowledge, only two studies have used a sound meditation approach similar to the one implemented in this study. Rose and Weis (2008) showed that MC and other monochrome sound instruments such as TBs can have a positive impact on mood. In their study, which was conducted

[2] PMR is a relaxation technique that involves alternating tensing and relaxing of the muscles (Jacobson, 1938).

over a period of three weeks in a rehabilitation center, there were significant changes in the patients, who reported feeling more balanced, less nervous, and less exhausted. Goldsby's (2017) study on the effects of sound meditation primarily via TBs also found a significant increase in positive mood and well-being. The participants reported significantly less tension, anger, fatigue, and depressed mood.

In a comprehensive systematic review of several TBs studies, Stanhope (2020) indicated that using TBs show some evidence of a beneficial impact on human health. Nevertheless, there is a substantial need for more research. There are few English-language studies on the effects of MCs, TBs, and other monochrome sound instruments over an extended period, let alone in a psychiatric setting. To respond to this need, this pilot study examined how psychiatric inpatients experienced group sound sessions of TBs and MCs combined with meditation.

There are a number of issues when conducting a TBs and MC study on a sample of individuals with intellectual disabilities and mental health conditions. Researchers have cautioned about the use of monochromatic musical instruments, such as gongs, with individuals who have schizophrenia (Wigram & De Backer, 1999). This is due to the potential of these sounds to evoke images or emotions that might become overwhelming. Goldberg (1994) highlighted the possibility of relapse when working with people with schizophrenia, although she also cited the possible positive outcomes of doing this kind of work in a group setting. This pilot study was designed to explore the potential benefits of using these instruments in group sessions to better understand the potential outcomes and therapeutic effects of this approach.

Based on the review of the literature, the research questions were as follows: (1) what was the nature of participants' physical and psychological experiences? (2) Did participants experience ASC and if so, how? (3) Were there any visual experiences during the sessions and if so, what sort of images were involved?

METHOD

This pilot study employed a qualitative research design to explore participants' experiences during sound meditation sessions using TBs and MC. Semi-structured interviews were conducted, and all sessions including the interviews, were recorded and transcribed. The first author also maintained a research diary (RD) containing reflections and observations. The analysis process involved thematic analysis (Braun & Clarke, 2006).

Participants

Six participants took part in this pilot study. The psychiatric hospital director, together with the music therapist recruited participants from that hospital. The inclusion criteria were: (a) relatively good verbal capabilities and a stable mental condition; (b) aged 20-50; and (c) a lack of or moderate tendency toward behaviours destructive to self or others. Pseudonyms are used below to ensure confidentiality. Table 1 lists the participants' demographics.

Pseudonym	Gender	Age	Diagnosis
Ronit	F	38	Borderline personality disorder: factitious disorder with predominantly psychological signs and symptoms.
Oren	M	41	Personality change due to a known physiological condition and mild intellectual disabilities from childhood.
Abraham	M	27	Personality change due to a known physiological condition and mild intellectual disabilities.
Ilia	M	34	Psychosis with delusions due to a known physiological condition and mild intellectual disabilities.
Idit	F	43	Personality change due to a known physiological condition and mild intellectual disabilities.
Dina	F	34	Schizophrenia and mild intellectual disabilities.

Table 1: Demographics

Ethical considerations

Participants were given a complete verbal explanation of the study by the first author. It was made clear to them that their participation was voluntary and that they could leave the pilot study at any time without jeopardizing their treatment or otherwise. In addition, participants' guardians were provided with a written explanation about the procedure and signed a written informed consent form. The participants also gave their consent to be part of this pilot study. This pilot study was approved by the Ethics Committee of the University of Haifa, Israel.

Data collection

This qualitative pilot study was based on semi-structured interviews (Kvale & Brinkman, 2009) and the participants' reflections at the end of each session and during the listening phase. In addition, the first author kept a research diary (RD), consisting of his observations, thoughts and impressions during and after each session. The interviews were conducted by the first author at the end of the study.[3]

Procedure and setting

The participants took part in seven weekly group sound sessions lasting approximately one and a half hours each, over a period of eight weeks. The sessions were led by the first author, who was at the end of his Master of Arts (MA) degree in music therapy. Prior to his MA, he worked as a Shiatzu therapist, took part in several sound therapy workshops, and incorporated TBs and the MC in his Shiatzu sessions. Each session was audio recorded and the first author's reflections where written in a diary (RD). After the last session, the participants were interviewed.

The sessions were conducted in a multi-sensory room (i.e., a Snoezelen room) in the hospital. White mattresses were placed on the floor. The room was also equipped with several lighting and audio instruments. To ensure a "clean" environment and prevent overstimulation, the lighting equipment and audio instruments were not used during sessions. To minimise any risks related to participants' mental state, several precautions were taken. Firstly, the sessions included the hospital

[3] See Appendix A for the semi-structured interview schedule.

music therapist as a passive participant to ensure that participants' needs were addressed and to reduce any anxiety participants might experience. At times, the hospital music therapist played a more active role during the sessions by mediating certain instructions or providing additional support to some of the participants. Secondly, the sounds of the instruments were presented gradually by incorporating self-playing in the first few sessions. This made it possible to get a preliminary impression of how participants reacted to the sounds. In addition, it served as a way of establishing trust and a bond between the first author and the participants.

The sessions involved the following instruments: nine TBs of various pitches and sizes consisting of two large bowls measuring 9.5-10.5 inches in circumference and weighing 3-5kg, 5 medium bowls measuring 6.5-7.5 inches in circumference weighing 2-2.5kg, and two small bowls measuring 4-5 inches and weighing 0.5-1kg. The MC used in this pilot study was a 60-inch long resonance box with 25 strings. It had a movable bridge which allowed for one pitch on either side. During the sessions, it was tuned to have a perfect fifth between two pitches. The TBs were played by either striking or rubbing around the rim of the bowls.

Each session was composed of four stages:

(1) Preparatory (10-20 mins). Presenting the instruments and/or providing the participants with general guidelines, as well as explaining the session structure. The first author informed the participants that they would have the chance to experience the sounds of the instruments and they could also feel the vibrations of the TBs on their bodies if they wanted to. The participants were reminded that they could move around as they liked during the session. However, the emphasis was on being attentive to their individual experiences and minimizing conversations during the listening phase. The participants were also encouraged to share any thoughts or concerns, either related to the ongoing session or from the previous session.

(2) Meditation (5-10 mins). This stage was characterised by different techniques over the course of the study. In the first two sessions, a combination of movement, listening, and striking the TB were used. This strategy aimed to reduce anxiety and build trust between the participants and the facilitator (the first author). The following sessions incorporated a few minutes of relaxation, using breathing techniques with prolonged verbal guidance.

(3) Listening (30-45 mins). Participants were guided to listen to the sounds created by the first author and to notice any effects they might experience in the process. At times, verbal guidance was given by the first author to encourage participants to explore their experiences.

Although the music was improvised, the order of playing was almost identical. Firstly, the TB sounds were gradually introduced with pauses between the strikes. Then the sounds of the MC were introduced and the overall intensity gradually increased by adding the TBs to enhance the richness of sounds. Towards the end of this phase, the sounds gradually became softer and quieter.

The listening phase unfolded as follows: (a) TB improvisation, from the largest to the smallest TBs; (b) playing the MC; (c) MC+TB improvisation; and (d) placing some TBs on the participant's stomachs or backs while playing other TBs in the room. During this phase (d), the first author walked around the mattresses where the participants were lying and asked whether they wanted to have a TB placed on their bodies. A medium-sized TB was positioned on each participant who requested it. Participants told the first author to put the TB on their stomach or back. While the TBs were resting on

their bodies, they were gently struck with a mallet, occasionally accompanied by striking other TBs positioned on the mattress.

(4) Closure (15-25 mins). The first author provided verbal guidance to achieve an awakened state by raising the participants' awareness of the sensations in their entire body. After awakening[4], the participants were invited to reflect on their experiences and share whatever came up while experiencing the sounds with the group.

Data analysis

The session recordings and interviews were transcribed. To identify research themes and subthemes, we followed the principles of thematic analysis which consists of familiarisation with the data, generating initial codes, searching for themes, reviewing, and defining and naming themes. We grouped the data and compared our findings by returning to the transcripts and the first author's reflections. Throughout this process, the first author maintained intersubjectivity by consulting with the second author. Ultimately, the overarching themes were generated, reviewed, and selected based on their relevance to the research questions.

RESULTS

This section presents the participants' experiences as shared in the semi-structured interviews and the participants' reflections during and at the end of each session. The sessions are indicated by their ordinal number (S1-7) and the data from the interviews by (I). Data from the RD are also discussed in relation to the associated themes.

Three main themes generated from the data analysis: physical sensations, experiences of emotions, and visual experiences.

Theme 1: Physical sensations

This theme deals with participants' experiences related to a sense of calmness and relaxation, as well as negative or positive, pleasant or unpleasant physical sensations as described by the participants.

1.1 Calmness and relaxation

During the sessions, most of the participants reported a sense of relaxation or calmness. According to Oren "it calms the whole body, there was quiet everywhere" (S2). Other participants confirmed this feeling: "I felt calmness, I felt serenity" (Abraham, S2); "Fun, calmness, like meditation" (Idit, S2); "It really relaxes" (Ilia, S4).

Both Oren and Abraham mentioned the prolonged effect of calmness: "It helped me in general, for two weeks… I am now very relaxed. Whatever you did with the TBs got me into a state of concentration" (Oren, I); "I was calm a lot, for one month" (Abraham, I). Idit also mentioned the continued effect of calmness in one of the sessions: "All day I feel quiet and calm and don't make any trouble; I don't shout or threaten anyone" (S5).

[4] Some of participants were alert during the sessions and reflected on their experiences during the listening phase.

Observations that were documented in the RD also suggested a process of gradual increase in calmness and relaxation. Idit, who typically sat leaning against the wall, began to lie down in the fourth session (RD, 29.1.2017). Abraham also claimed he had difficulty falling asleep. In the initial sessions, he would usually lie down with his eyes open. From the third session onward, he seemed to become more relaxed as he would shut his eyes and sometimes fall asleep (RD, 22.1.2017). During the sessions, some of the participants appeared to experience a calming effect and showed an improvement in muscle tone, which became looser (RD, 5.2.2017). During the instrumental part of the last session, Ilia fell asleep for the first time (RD, 26.2.2017).

1.2 Sensation of currents

One of the main experiences that participants shared was a current-like sensation. Some described it as being like an electric current and others as a kind of ticklish vibration: "I feel currents all over my body" (Oren, S3). "When you stroked the bowl, I felt an electric current and what characterised it is not the difficulty but the strength" (Omer, S6); "Currents all over the body, really a pleasant sensation, calmness, quiet, everything is positive… I feel positive currents. It tickles me… I feel vibrations all over my body" (Idit, S5).

In the interviews, Oren and Idit mentioned certain body parts where they felt the sensation and also related it to a positive experience: "I felt it in my legs, hips, hands and head, in the skull… I wouldn't call it a negative current but a positive current" (Oren, I). "When you placed bowls on my back, I felt currents from my head to my feet and also when you placed one on my stomach… Positive currents" (Idit, I).

As the sessions progressed, two of the participants, Oren and Idit, enjoyed the sensations more and wanted more TBs to be placed on them for longer periods (RD, 19.2.2017).

1.3 Unpleasant sensations

Some participants also described unpleasant sensations including physical pain, although it was unclear whether this was due to the sounds or whether the pain was already present. Others mentioned a mixture of unpleasant and pleasant sensations: "My stomach hurts.... I have a lot of bowel movements… It was fun when you placed a bowl on me… It was pleasant" (Dina, S3). Oren mentioned a stomachache as well: "I have had pain in my stomach since last Sunday, I ate a lot, and maybe if you put a bowl on me it will help" (S4).

Theme 2: Experiences of emotions

Several participants shared experiences related to emotions. In some cases, the participants could not specify any particular emotion, but classified what they felt as "positive" or "negative".

2.1 "Positive" emotions

The participants expressed various emotions related to enjoyment and satisfaction and used words such as "good," "fun," and "positive" to describe how they felt: "It was good" (Dina, S2); "[The sessions] took away the negative qualities and brought in the positive ones" (Oren, S3); "I felt positive and not

negative sensations. I felt great and it was fun" (Idit, S3); "I felt great" (Abraham; S3); "I felt good, it's good with you" (Ilia, S2); "It was nice, fun, calming, made you calm, with a good sensation in your heart" (Ilia, S7).

2.2 "Negative" and ambivalent emotions

There were also expressions of "negative," unpleasant, or difficult emotions: "After the session, sometimes I had feelings that were not good... I have a lot of frustration in me. I wanted this session to continue to calm me down" (Oren, S5).

Some emotions were ambivalent like Ronit's: "I don't feel comfortable here… it's good for my spirit; you calm me down… I don't feel good [starts to cry] I don't want to quit… I want to get out… I'm sorry, I'm not calm" (S4). Ronit then exited the group. At the same session, Idit also expressed an ambivalent emotion after placing a TB near her legs: "I felt sadness and joy" (S4). Oren was also ambivalent: "I felt both sorrow and happiness, but in a profound way… I had positive thoughts at first but when the negative thoughts appeared, all went away" (Oren, S4). Idit and Oren expressed ambivalent emotions when certain memories of their deceased family members emerged: "I felt a longing for my grandfather... I felt sadness when I thought about him and... I felt calmness at first and then sadness" (Oren, S5). "I had pleasant sensations with the bowls but I thought about my father and felt sadness" (Idit, S5).

Towards the end of the sessions, all of the participants were very disappointed that the program had come to an end. Ilia, for example, had an intense emotional response in the last session. He put his head on the first author's lap and began to cry, saying he did not want the sessions to end (RD, 26.2.2017).

Theme 3: Visual Experiences

This category deals with the content of the participants' mental imagery evoked during the sessions. The images related to memories of family members, places, life events, water, dialogue, trips, and human interactions.

3.1 Previous group homes

Abraham and Oren mentioned their previous group homes more than once: "The group home in Ramla appeared in my mind; leaving it was a mistake" (Abraham) (S2); "When I was lying down, I felt I was dreaming of three group homes that could have advanced me" (Oren) (S2).

3.2 Deceased family members

Ilia and Idit saw images of their deceased fathers: "I was dreaming that I was at a Purim[5] party with my stepmother and my father who were alive" (Ilia) (S6); "I was thinking of my deceased father, it's been two years since he died, I remember exactly when it happened" (Idit) (S2). Oren shared imagery of his deceased mother: "I felt my mother touching me, telling me: son, be with me up above because this is where our life's at" (Oren) (S4).

[5] A Jewish holiday where people wear costumes.

3.3 Water imagery

Water imagery was experienced in different ways by three of the participants. Oren described an experience of flowing water: "The TBs gave me a flowing sensation like water, but inside of me there is Coke, like a shower" (S3); "I felt a wave of water, like water from a well that draws me out to the sea… It felt negative and positive, like I was drifting in the water and people came to rescue me" (S6). When Oren was asked during the interview about what he felt when the TB was placed on his body, he talked about water again: "The water was flowing, it was like going into the water and a strong current flowed over me". Abraham and Idit also mentioned the sea: "It reminds me of the sea" (Abraham) (S4); 'It reminds me of a quiet sea" (Idit) (S4).

3.4 Travelling

Oren had several mental images related to trips and transitions to other places: "When you did the meditation with the instruments I felt like I was in another world, a world of music, a very important world of dancing. I felt very positive about it" (S2). "When you placed a bowl on my stomach or on my back I felt like I was getting on a train and travelling to my former group home" (S5).

During the interview, Ilia mentioned several types of seafaring vessels when the TBs were played: "I felt good, like a ship, water, a boat". Once he imagined that the bowl was being played in India: "I was imagining that you are in India" (S2).

3.5 Human interactions

Some of the participants had images that can be described as interactions with others, or between other people. Oren saw himself speaking and interacting with several figures:

> The minute you switched bowls, I felt different things happening to me, and that I was succeeding in life. For example, someone wanted to give me a job and I couldn't take it then, and he said never mind you can come tomorrow and I felt good about it. (S3)

Abraham mentioned a promise he had made to his brother several times: "I recalled my brother who said to me: If you won't burst out for a whole year, I'll take you on a trip to Paris" (S4).

DISCUSSION

This pilot study examined a sound therapy intervention that focused on the use of TBs and MC within a group psychiatric setting consisting of six adults with mental health conditions and intellectual disabilities. It examined the participants' physical and psychological experiences as well as their ASC and visual experiences. The results suggest that the participants had a variety of experiences in several domains.

Sounding the body: Physical, mental , and emotional responses

All participants experienced a number of physical sensations in different parts of their body, regardless of whether the instruments were listened to or in contact with their bodies. These physical effects may be explained in terms of sound vibrations. Using sound instruments such as TBs in a therapeutic setting may cause participants to experience various sensations. The TBs can be placed on different parts of the body and act as both a tactile and auditory instrument. Thus, the participants' experiences varied from physical sensations to mental, cognitive, and emotional responses.

Each participant responded differently to a different set of sounds. One of the main experiences was an electric current or tickling, which was mentioned by three participants in their reflections after the sessions or in their interviews. These experiences were usually associated with calmness, relaxation, or other positive sensations. These sensations were also experienced while the TBs were placed on their body.

Calmness and relaxation

Several participants experienced a sense of calmness and relaxation when the TBs or MC were played. Sound vibrations can have a physiological effect since they lead to a relaxation of muscle tone and a decrease in circulatory and respiratory rates (Halstead & Roscoe, 2002). These findings correspond with the effects of the relaxation response (Benson & Klipper, 1975), where sound can act as the repetitive vessel.

Idit and Oren frequently said that the MC in particular had a calming effect, more than the sounds of the TBs. One possible explanation for this effect may be connected to the repetition and continuous type of sounds produced by the MC which creates a grounding effect. Playing the MC in a steady, slow pattern (60-70 bpm) acted as rhythmic grounding. Slower tempos induce slower respiratory and heart rates, and thus help the individual achieve a more relaxed state and reduce anxiety (Halstead & Roscoe, 2002). This technique can support feelings of physical and psychological safety and stability (Bruscia, 1987).

The relaxation and sense of safety that Ilia experienced during the sound sessions were very apparent. In the first session, he was talkative and fidgety, but gradually became more relaxed and even fell asleep during the final session. This gradual process of relaxation suggests that the sounds had a calming effect on him. The relaxation effect of the MC sounds as presented in this pilot study supports other studies that described a similar effect (Lee et al., 2012; Sandler et al., 2017).

Most participants reported that the physical sensations were enjoyable and pleasant, although in some instances, unpleasant sensations also emerged. Three participants experienced physical pain during some of the sessions. Oren and Dina experienced a stomachache and Ilia had chest pain. Although Oren and Dina mentioned that they also felt discomfort beforehand, the sound experiences could have evoked some pain. Physical pain can also be caused by repressed emotions that present as a psychosomatic reaction (Ventegodt & Merrick, 2005).

Given that sounds stimulate mechanoreceptors in the body through vibrations and that emotions are linked to our biological essence through the concept of body-mind unity, it is likely that different vibrations on different parts of the body can evoke different emotions depending on where certain

emotions are more present in the body at a given moment. For example, because the abdomen contains a high concentration of Pacinian corpuscles (Sigurdardóttir, 2019) and neuropeptides (Pert, 1997), pleasant or unpleasant sensations in this area may be more prominent.

Emotional experiences

The interconnectedness of body and mind emerged clearly in the participants' descriptions of their emotional experiences. The participants often used general words such as "positive" or "negative" to describe how they felt during sessions. This mode of expressing emotions is common among individuals with developmental disabilities, for whom identifying and labelling emotions can be difficult. Hatton (2002) reported that these individuals often use simplified emotional labels and broader categories such as "happy" or "sad."

Most participants experienced positive emotions and used words such as "happy," "good," "nice," and "fun." Conversely, some participants expressed unpleasant emotions. This variety of emotional responses indicates that the sounds had a broad emotional impact on the participants.

Another interesting finding was the parallel presence of both positive and negative emotions. At times, there was a positive emotion followed by a negative one, or vice-versa. These cases might indicate deep emotional processes. When one of the participants experienced a negative emotion, it might have been related to a release of repressed emotions. This in turn might have contributed to psychological relief that was translated into a positive emotion. Gaynor (2002) discussed the affective responses to TB sounds, where sound can transform emotions, particularly negative ones, into a state of calmness and composure that can affect physiology.

There were two instances where an experience of mixed emotions was reported. Oren related to an experience of mixed emotions of sorrow and joy to an image he had and said that at first, he had positive thoughts, but then negative ones appeared and "made the positive ones go away." Ronit had an intense emotional experience where she felt both calmness and stress. An experience of emotional duality can be therapeutically beneficial, as the client learns, at a physical and emotional level, that it is possible to experience both positive and negative or contain the good and the bad at the same time (Yalom, 1983).

In music psychology, the experience of mixed emotions is usually related to listening to music which has contrasting musical features[6] (Hunter et al., 2008; Ladinig & Schellenberg, 2012). However, in the current pilot study, the nature of playing was relatively monotonic across sessions, with no apparent changes that might imply a conflicting cue. This raises questions regarding the differences in vibrational sound experiences versus listening to music in evoking emotions. This kind of intervention, which is receptive and monotonic, may elicit a more spontaneous emotional response. However, the participants' mental health condition may have contributed to their experiences of emotional fluctuation. More research is needed on this topic.

In this context, the emergence of unpleasant emotions or sensations may have been related to leaving the group. Two participants left the group during the pilot study. Dina left after the third session and Ronit attended the first and fourth sessions but did not return after that. The reason for Dina's

[6] Such as a fast tempo and a minor mode, or a slow tempo with a major mode.

departure was unclear. During the third session, she mentioned having a stomachache, but also mentioned having had bowel movements prior to the session and experiencing a pleasant sensation at the same time.

Visual imagery

Another possible explanation for the participants' emotional experiences may have been related to their visual imagery. Visual imagery is considered to be one of the underlying mechanisms that evoke emotions (Juslin et al., 2010). The listener may be influenced by the images and experience different emotions. The content of mental imagery is affected by emotional state and imagery experiences can elicit further emotions.

Different modalities in music therapy often use musical structure as an important element for evoking certain emotions or psychological states (Sloboda & Juslin, 2011). Although the first author's playing was relatively monotonous in this study, multiple emotions, physical reactions, and mental visualisations were evoked.

The participants frequently mentioned the elicitation of visual content, including figures and scenes or events from their lives. According to Juslin et al. (2010), music can induce an emotion in the listener that evokes a personal memory or specific event in the listener's life. Many of the participants' visual experiences involved memories of deceased family members and past life events or locations. This may have significant therapeutic value. Moe (2002) suggested that music can help individuals understand themselves and their lives through a nonverbal narrative model. The sounds of the instruments in this pilot study mediated the external and internal worlds, thus providing a conduit into the participants' memories and emotions. Over time, these experiences may strengthen the sense of self, particularly for individuals with schizophrenia (Moe, 2002). The participants' visual experiences appeared to be connected to their biographical selves, as though their unconscious selves were trying to bring unresolved issues to consciousness (Schmucker, 2007). This may have been the case for Oren and Ilia, who experienced images of conversations or interactions with their deceased fathers. According to Hübner (2007), sounds can bring blocked or lost elements from the subconscious to the surface, thus allowing them to be processed and integrated.

The participants used various words to describe the images that seem to have unconscious meaning for them. These images can be thought of as symbols representing certain aspects of their internal psychological state. Similar to dreams, these symbols may reveal repressed emotions or events from the past (Bruscia, 2015). Jung (1964) described the emergence of symbols as a process that gives form and progression to certain energies in the unconscious. The sounds of the TBs and MC may have induced a trance-like state in some of the participants, allowing imagery to arise. Previous research has also found that MC sounds can have this effect (Sandler et al., 2017).

In the participants' experiences, water and travel-related words were commonly mentioned. These words can be interpreted as symbolic expressions of the participants' inner state. Water-related images may be connected to the participants' sensations of physical vibrations, whereas travel experiences may symbolise a deeper state of consciousness, access to certain areas of the psyche, or a journey through the subconscious.

Altered states of consciousness

It was difficult to determine the extent to which the participants experienced ASC in this pilot study, as it did not include EEG screening or measures of physiological parameters. In addition, it was difficult to gather information about their subjective experiences through interviews, due to their limited ability to express themselves. ASC are typically characterised by marked changes in subjective experiences (Vaitl et al., 2005). In this pilot study, the participants reported changes in mood and a sense of relaxation. Moreover, some of the participants also experienced imagery, which is usually associated with ASC (Winkelman, 2011). However, no experiences related to a change in body perception or sense of time was reported. It is noteworthy that some of the participants remained alert during the sessions and sometimes talked about their experiences during the listening phase.

Limitations, practical implications, and recommendations for future research

The procedures during the preliminary phase differed slightly from one another. Furthermore, the way TBs were played was improvisational and varied in terms of the order and dynamics across sessions. The sample was small and there were only a few sessions. In addition, only four of the six participants participated until the end. Future studies could expand upon the current findings by conducting sessions with a larger sample size. Another limitation is the participants' relatively limited verbal abilities, which may have hindered their ability to fully express their insights and experiences from the sound sessions. Alternative methods of communication, such as drawing or cards, could be used in future studies to address this limitation. Furthermore, the first author was the one who facilitated the sessions and conducted the interviews with the participants, which could have introduced a potential bias in the results.

In terms of practical implications, the sound work described in this paper may be helpful for individuals with mental health conditions and intellectual disabilities in reducing anxiety and addressing stressful issues. It is important to note, however, that extra care and safety measures should be taken when using TBs with this population. The placement of bowls on the body should be done gradually, with a constant evaluation of whether it is pleasant or not for the client.

Music therapists could benefit from incorporating monochrome sound instruments such as TBs and MC when working with clients from different backgrounds and when using a range of approaches. For example, therapists could combine TBs with relaxation techniques over an entire session or as a single intervention during a session. In addition, certain principles that are more closely associated with sound therapy such as resonance, entrainment, and ASC could be implemented in music therapy training programs. Learning about these principles could broaden future music therapists' approach to the use of sound or music in therapy. Gaining a deeper understanding of the mechanisms underlying the effects of sounds could help music therapists apply and adapt other receptive sound therapy techniques more effectively to optimise the therapeutic benefit of their interventions for their clients.

Our findings demonstrated that TBs and MC in a group setting were beneficial for some participants in various domains. Primarily, most felt more relaxed during or after the sessions – an important therapeutic benefit for this population that often suffers from high levels of anxiety and nervousness (Fletcher et al., 2016). Future quantitative research could consider exploring the

physiological effects of sound therapy on relaxation and sleep, and its impact on the need for anti-anxiety medication. Therapists working in different environments such as hospitals and nursing homes could use TBs to induce relaxation. The fact that the participants reported enjoying the sensation of vibrations from the TBs on their bodies suggests that this type of therapy may be particularly effective for clients who have an aversion to direct physical contact.

Instruments such as the MC and TBs may help therapists evoke emotions in their clients. The unique characteristics of TBs may also contribute to the client's sense of body-mind unity by strengthening their connection to emotions and physical experiences. Monochromatic sounds, which are not commonly used in Western music, may offer listeners a more passive experience and induce significant changes in ASC (Hübner, 2007). All the participants in this pilot study experienced some form of mental imagery, thus pointing to the potential of monochromatic sound instruments in evoking mental imagery. One advantage of using these instruments in therapy is that they are often new to clients, so they may be less conditioned or influenced by past experiences and attitudes towards the sounds compared to more conventional instruments. The images evoked during sessions can also be used for self-exploration in a therapeutic setting.

CONCLUSION

This pilot study explored the effects of monochromatic sound therapy using TBs and MCs in a sample of individuals with mental health conditions and intellectual disabilities. The results indicated that the sessions led to a sense of relaxation and a reduction in anxiety for the participants, although some also experienced unpleasant sensations. The use of monochromatic sound instruments also evoked a variety of emotions and mental imagery in the participants, thus pointing to the potential of these instruments in evoking emotional responses and facilitating self-exploration in a therapeutic setting. However, the small sample size and the participants' limited verbal abilities suggest the need for further research with a larger sample size and alternative methods of communication to more fully capture the participants' experiences. Despite these limitations, the findings suggest that TBs and MC sound meditation may be a useful tool in the treatment of individuals with mental health conditions and intellectual disabilities.

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APPENDIX A

Semi-structured interview schedule

A qualitative pilot study examining Tibetan bowls and monochord sound meditation with adults who have mental health conditions and intellectual disabilities

1. What was your overall experience of the sessions?
   After reminding the participant about the different parts of each session:
2. Did you feel more connected to, or prefer a specific part of the sessions?
   a. Could you elaborate on that? What did you particularly like about this part or instrument?
3. Was there any part or instrumental sounds that you felt you wanted more of?
4. Were there any parts you didn't like?
   a. Could you elaborate more on why?
5. What can you share about your experience from listening to the sounds of the TBs?
   In case he/she had a physical sensation:
   a. Where in your body did you feel that?
   b. Was it a pleasant or unpleasant sensation?
   If an emotion emerged:
   a. How long did it last?
   b. Do you remember whether you experienced it once, twice, or more during the sessions?
6. What can you share about your experience from listening to the sounds of the MC?
   In case he/she had a physical sensation:
   a. Where in your body did you feel that?
   b. Was it a pleasant or unpleasant sensation?
   If an emotion emerged:
   a. How long did it last?
   b. Do you remember whether you experienced it once, twice, or more during the sessions?
7. Did you experience any physical sensations during the sessions?
   If yes:
   a. Where in your body did you feel that?
   b. Was it a pleasant or unpleasant sensation?
8. Were there any instances where you felt pain or discomfort during the sessions?
   If pain was felt:
   a. Where?
   b. How long did it last?
   c. Was it something that you recognised from the past?
9. How did you feel after the sessions?
   a. Did this feeling continue for a certain period afterward?
10. Can you remember one experience from the session which was more meaningful to you?

11. Was there a specific emotion that you felt more present during the sessions?
    a. Did you have any experience of that emotion being present after a session?
12. Did you feel any effect on your state of mind/mood after each session?
13. Do you remember if there were sessions where you fell asleep?
    In case the participant reflected on imagery during the sessions, after reminding them a specific imagery they had:
    a. Do you recall that?
    b. Could you elaborate regarding that experience?
    c. Could you recall if there was any emotion attached to this imagery?
    d. Could you recall if there was any physical sensation attached to this experience?
14. Did you have any negative or unpleasant experience during the sessions?
    a. How long did it last?
    b. Was it something that you recognised from the past?
    c. Did you feel that in your body? Where?
15. Is there anything else you wish to share with me regarding your experience with the sounds and being present in the sessions?

Ελληνική περίληψη | Greek abstract

Μια ποιοτική πιλοτική μελέτη που εξετάζει τον ηχητικό διαλογισμό με Θιβετιανά μπολ και μονόχορδο με ενήλικες με παθήσεις ψυχικής υγείας και διανοητικές αναπηρίες

Harel Gal | Cochavit Elefant

ΠΕΡΙΛΗΨΗ

Τα Θιβετιανά μπολ και τα μονόχορδο είναι όργανα χιλιετιών που χρησιμοποιούνται για πνευματικούς και θεραπευτικούς σκοπούς. Τις τελευταίες δεκαετίες, υπάρχει ολοένα και περισσότερο ενδιαφέρον για τη χρήση αυτών των οργάνων στον διαλογισμό και σε θεραπευτικά πλαίσια. Παρόλα αυτά, εξακολουθούν να χρησιμοποιούνται σπάνια στη μουσικοθεραπεία στον Δυτικό κόσμο, είτε εξαιτίας τεχνικών δυσκολιών είτε λόγω μουσικών ή πολιτισμικών προκαταλήψεων. Ο σκοπός αυτής της πιλοτικής μελέτης ήταν να διερευνηθούν οι εμπειρίες ενηλίκων με παθήσεις ψυχικής υγείας και διανοητικές αναπηρίες κατά τη διάρκεια συνεδριών ηχητικού διαλογισμού που χρησιμοποιούνταν Θιβετιανά μπολ και ένα μονόχορδο. Σε αυτή την ποιοτική πιλοτική μελέτη, μια ομάδα έξι νοσηλευομένων ασθενών σε ψυχιατρική κλινική συμμετείχε σε επτά εβδομαδιαίες συνεδρίες ηχητικού διαλογισμού για οκτώ εβδομάδες κατά τις οποίες εφαρμόστηκαν τα Θιβετιανά μπολ και το μονόχορδο σε συνδυασμό με διαλογισμό. Μετά από κάθε συνεδρία πραγματοποιήθηκαν ημιδομημένες συνεντεύξεις για να καταγραφούν οι αναστοχασμοί των συμμετεχόντων σχετικά με τις εμπειρίες τους. Για την ανάλυση των δεδομένων από τις συνεντεύξεις χρησιμοποιήθηκε θεματική ανάλυση. Τρεις κύριες θεματικές αναδύθηκαν: σωματικές αισθήσεις, οι εμπειρίες των συναισθημάτων, και οι οπτικές εμπειρίες. Οι ήχοι των Θιβετιανών μπολ και του μονόχορδου βοήθησαν τους συμμετέχοντες να χαλαρώσουν, και ανακίνησαν πληθώρα συναισθημάτων και νοερών απεικονίσεων. Από αυτά τα ευρήματα προτείνεται ότι η χρήση αυτών των οργάνων με ενήλικες με παθήσεις ψυχικής υγείας και διανοητικές αναπηρίες μπορεί να συμβάλει στη χαλάρωση, καθώς και στην διεύρυνση της επίγνωσης των σωματικών αισθήσεων, των συναισθημάτων, και παρελθοντικών γεγονότων της ζωής. Ως εκ τούτου, οι μουσικοθεραπευτές μπορούν να ενσωματώσουν τα Θιβετιανά μπολ και το μονόχορδο στις πρακτικές τους και να τα χρησιμοποιήσουν κατά τη διάρκεια των θεραπευτικών συνεδριών.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

Θιβετιανά μπολ, ηχογαβάθες, μονόχορδο, ηχητικός διαλογισμός, ηχοθεραπεία, δονούμενος ήχος, ηχολουτρό, ψυχική υγεία, αναπτυξιακές αναπηρίες