GENDER
OPEN
REPOSITORIUM

Bodily experiences of patients diagnosed with anorexia nervosa during treatment with the body monochord : A modified grounded theory approach

Fendel, Uta; Sandler, Hubertus; Papachristou, Christina; Voigt, Barbara; Rose, Matthias et al.

2018

https://doi.org/10.25595/2265

Veröffentlichungsversion / published version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Fendel, Uta; Sandler, Hubertus; Papachristou, Christina; Voigt, Barbara; Rose, Matthias et al.: *Bodily experiences of patients diagnosed with anorexia nervosa during treatment with the body monochord : A modified grounded theory approach*, in: The Arts in Psychotherapy, Jg. 59 (2018), 7-16. DOI: https://doi.org/10.25595/2265.

Erstmalig hier erschienen / Initial publication here: doi.org/10.1016/j.aip.2018.03.003

Nutzungsbedingungen:

Dieser Text wird unter einer CC BY NC ND 4.0 Lizenz (Namensnennung - Nicht kommerziell - Keine Bearbeitung) zur Verfügung gestellt. Nähere Auskünfte zu dieser Lizenz finden Sie hier:

https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode.de

Terms of use:

This document is made available under a CC BY NC ND 4.0 License (Attribution - NonCommercial - NoDerivates). For more information see:

https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode

GenderOpen – Repositorium für die Geschlechterforschung: www.genderopen.de

FREIE UNIVERSITÄT BERLIN

HUMBOLDT-UNIVERSITÄT ZU BERLIN

The Arts in Psychotherapy 59 (2018) 7–16

Contents lists available at ScienceDirect

The Arts in Psychotherapy

journal homepage: www.elsevier.com/locate/artspsycho

Research Article

Bodily experiences of patients diagnosed with anorexia nervosa during treatment with the body monochord—A modified grounded theory approach

Uta Fendel*, Hubertus Sandler, Christina Papachristou, Barbara Voigt, Matthias Rose, Burghard Friedrich Klapp[1]

Department for General Internal and Psychosomatic Medicine, Charité Universitätsmedizin Berlin, Berlin, Germany

ARTICLE INFO

Keywords:
Body monochord
Anorexia nervosa
Body perception
Body-image treatment
Qualitative study

ABSTRACT

This study explored the subjective bodily experiences of patients with a diagnosis of anorexia nervosa (AN) during vibro-acoustic stimulation sessions with the Body Monochord (BoMo), a body sound treatment instrument. A total of 20 female patients diagnosed with AN received two BoMo treatments. Subsequent to the treatments, semi-structured interviews were conducted. Analysis was conducted using Grounded Theory.

The following main categories were identified: *differentiated perception, focussed attention, emergence of body-related feelings, emergence of emotions, emergence of thoughts, emergence of inner images, relaxation, spatial and temporal experience, new bodily experiences* and *self-reflection.* The subjective experiences during the BoMo treatment were independent of patient body shape and weight, were not exclusively focussed on usual illness-related body problem areas like the belly and the thighs and had both positive and negative connotations. New therapeutic approaches that are suited to handling and integrating new bodily experiences in patients diagnosed with AN may develop from these observations. Due to the variety of issues that emerge during the treatments BoMo might present a meaningful extension to verbal psychotherapy.

Introduction

According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013), self-evaluation of patients diagnosed with anorexia nervosa (AN) is unduly influenced by body shape and weight. There is a disturbance in the way one's body weight or shape is experienced. In patients diagnosed with AN, body shape and weight have an undue influence on self-evaluation, and there is a persistent lack of recognition of the seriousness of the current low body weight. It was shown that body-image disturbance in terms of an overestimation of the own body weight plays a central role in the onset (Killen et al., 1996; Stice & Shaw, 2002), maintenance (Fairburn et al., 2003; Stice & Shaw, 2002) and relapse of eating disorders (Fairburn, Peveler, Jones, Hope, & Doll, 1993; Freeman, Beach, Davis, & Solyom, 1985), and residual body-image disturbance has been documented in post-treatment follow-up of weight recovered patients overcoming AN (Windauer, Lennerts, Talbot, Touyz, & Beumont, 1993). Therefore, analysing, understanding and treating body-image disturbances should be a central focus of therapy and research for this population.

Currently, there are several mostly cognitive-behavioural therapeutic approaches aiming at the improvement of body image (Cash & Hrabosky, 2004; Hildebrandt, Loeb, Troupe, & Delinsky, 2012; Key et al., 2002; Rosen, 1998; Salbach-Andrae et al., 2010; Smolak & Thompson, 2009; Tuschen-Caffier & Florin, 2012; Vocks & Legenbauer, 2010). These treatments comprise cognitive and behavioural methods such as disputation techniques and body exposures. The disputation techniques aim to change dysfunctional body-related cognitions. The body-exposure exercises are typically conducted in front of a mirror, with the goal of producing habituation to the cognitive and affective issues that may arise when confronted with the sight of onés own body (Delinsky & Wilson, 2006; Trentowska, Bender, & Tuschen-Caffier, 2013). In most of these studies, patients diagnosed with AN were eligible for the body exposure exercises once they achieved their target weight, body mass index (BMI) > 18,5.

Established body-exposure exercises described in the literature used the visual system for body confrontation. However, it is well known that the visual perception of the body shape is often influenced by social

* Corresponding author at: Charité Universitätsmedizin Berlin, Charitéplatz 1, 10117 Berlin, Germany.
E-mail addresses: uta.fendel@charite.de (U. Fendel), hubertus.sandler@charite.de (H. Sandler), christina.papachristou@charite.de (C. Papachristou), barbara.voigt@charite.de (B. Voigt), matthias.rose@charite.de (M. Rose).
[1] Eremitus status.

https://doi.org/10.1016/j.aip.2018.03.003
Received 5 March 2017; Received in revised form 20 December 2017; Accepted 8 March 2018
Available online 09 March 2018
0197-4556/ © 2018 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/BY-NC-ND/4.0/).

norms. For example, research links exposure to different kinds of media with girls' concerns about their bodies. Children who made a significant effort to look like same-sex figures on television, in movies and magazines reported increased weight and/or body concern. In addition, these children knew more about dieting than their peers (Clark & Tiggemann, 2007; Dohnt & Tiggemann, 2006; Field et al., 1999). Furthermore, it has been shown that body dissatisfaction was directly influenced by appearance comparison (McLean, Paxton, & Wertheim, 2013).

Unlike the sense of sight, the sense of touch is not influenced by social norms and expectations. Moreover, tactile sensory experiences are important for the social aspect of early infantile development (Feldman, Rosenthal, & Eidelman, 2014; Flacking et al., 2012; Ramachandran & Dutta, 2013) incldluing the *holding function* Winnicott, 1949, 1960). The sense of touch is essential within the first social interactions. On the basis of these considerations we were interested in the subjective experiences of patients diagnosed with AN during acoustical or tactile stimulation by the BoMo.

The original monochord was an ancient acoustic instrument used to demonstrate theorems about the mathematical relationships of musical intervals (Creese, 2010). The BoMo is a modern development that was designed for therapeutic purposes. In recent times, treatment with the BoMo as part of a music therapy approach has been adopted in therapeutic practice in German speaking countries (Moser, 1997; Rittner, 1997). Previous research investigating treatment with the BoMo was mainly conducted on non-clinical subjects (Harthog, 2001; Jungaberle, Altieri, Gerloff, Kurze, & Verres, 2003; Sandler, Tamm, Klapp, & Bösel, 2008). During sound exposition via BoMo, feelings of deep relaxation, well-being and altered body perceptions were described (Harthog, 2001; Jungaberle, Altieri, Gerloff, Kurze, & Verres, 2003; Rose & Wies, 2008; Sandler et al., 2008; Zeuch, 1999). For inpatients diagnosed with anxiety, depression, distress or somatoform disorders, a range of influences on patients' emotional experience were recorded in response to the BoMo (Sandler et al., 2017b). Psychophysiological research revealed, that positive emotional experience during BoMo treatment in patients with psychosomatic disorders is associated with EEG-changes (Sandler et al., 2016). Relaxation induced by vibroacoustic stimulation via BoMo was associated with a decrease in electrodermal activity and an increase of salivary cortisol level in patients with psychosomatic disorders (Sandler et al., 2017a). The increase of salivary cortisol during a relaxation state is unexpected and is contrary to previous findings. A possible explanation for the increase could be, that the relaxation state was experienced as an emotional challenge, due to inner images and intensive sensations that might have occurred (Sandler et al., 2017a). Studies investigating the therapeutic use of monochord sounds in oncological patients demonstrated a reduction in the experience of anxiety and an increase in the reporting of feelings of well-being (Lee, Bhattacharya, Sohn, & Verres, 2012; Rose & Wies, 2008). Besides these described positive or even beneficial aspects, unpleasant or even frightening experiences as feelings of fear, sadness or anger may occur during the BoMo treatment sessions. Some healthy subjects have experienced the BoMo treatment also as disquieting or upsetting or had the feeling to be at the mercy of someone (Moser 1997; Sandler et al., 2008, 2017b; Warth, Kessler, Kotz, Hillecke, & Bardenheuer, 2015).

In contrast to the BoMo, Vibroacoustic Therapy (VAT) is a better known music therapy treatment which employs the use of music listening sessions combined with pulsating low-frequency sound vibrations (20–100 Hz), which are presented on specially designed chairs or beds with built-in loudspeakers (Punkanen & Ala-Ruona, 2012; Rogers, Ei, Rogers, & Cross, 2007). The music is selected according to therapeutic aims and needs of clients. Dependent on the therapeutic aim of relaxation or activation, slow or fast pulsation is used. In the therapeutical process, the therapist works with the clienťs experiences of memories, emotions and bodily sensations. Studies on various client groups have shown relaxation effects and symptom reduction (e.g. anxiety, depression, pain, fatigue) (Lukasiak, Krystosiak, Widlak, & Woldanska-Okonska, 2013; Mariaozouls, Michel, & Schiftan, 1999; Patrick, 1999; Punkanen & Ala-Ruona, 2012). These effects seem to be especially promoted by simulation with low frequencies (Boyd-Breweser & McCaffrey, 2004; Punkanen & Ala-Ruona, 2012; Sandler et al., 2017b; Spitzer, Rath, & Groen, 2005). The frequency spectrum of the two BoMos used in this study also covers the low-frequency region, as there are strings tuned to the tone pitches of A1 (55 Hz) and D1 (36.7 Hz).

In summary, there is a lack of studies investigating whether or not the BoMo is suitable as a body-image treatment. So far, no studies that examine non-verbal, acoustic and tactile body-exposure exercises exist. During the treatment with the BoMo, the recipient is exposed to acoustical and tactile stimuli: Vibrations caused by the BoMo are directly transmitted to the recipienťs body and, therefore, cause intense stimulation. So far, it is unclear how the acoustic perception, tactile sensitivity and depth perception (proprioception) interact, and how the recipient will perceive that complex stimulation is also unclear. Thus, the treatment with the BoMo is under-investigated, but it may be for the reasons described above a beneficial treatment for patients with very low BMI. A particular value for patients with a diagnosis of AN may be the absence of confrontation with the sight of their own body shape.

In these terms the main aim of this study was to acquire a more detailed knowledge of the subjective experiences of inpatients diagnosed with AN undergoing treatment with the BoMo. To obtain an in-depth insight into the subjective perceptions and experiences during treatment with the BoMo, we performed individual interviews with inpatients using a semi-structured interview guide. On this basis, the guiding question of this study was: "How do patients diagnosed with AN experience the BoMo treatment?" Further explorative questions were: "Does the BoMo treatment enable patients with very low body weight to experience new bodily perceptions and body-related feelings, which are independent from body shape and weight?" "Are the subjective experiences influenced by a sitting or lying body position during the treatment?" "Does the treatment with the BoMo reveal new supporting therapeutic opportunities for patients with a very low BMI?"

Methods

Participants

All participants were inpatients at the Department for General Internal and Psychosomatic Medicine at Charité - Universitätsmedizin Berlin. The sample recruitment started in April 2012 and ended in May 2013. Participants were selected by convenient, criterion and reality sampling, meaning that we included as many patients as possible with the diagnosis AN or atypical AN treated in our department. The patients were approached by a member of the research team. They were informed about the study in both verbal and written form and written consent was obtained from each participant. The exclusion criteria were: pregnancy, acute infection, acute psychosis, cerebral seizure disorder, drug usage, alcohol consumption on day of intervention, deafness, abstinence phenomenon symptoms and acute or latent suicidal tendencies.

The number of inpatients approached was 26. Out of these three women refused to participate. One of them indicated that she didn't like music at all. Two women felt it would be too great a time commitment in addition to the regular treatment programme. In total, 23 inpatients (22 women and one man) were included. Three patients had to be excluded: two women who did not fulfil the inclusion criteria of anorexia and one man in order to avoid a bias from the inclusion of a single male participant. During the recruitment period, only one man with a diagnosis of AN was available. Finally, according to the diagnostic criteria of the International Classification of Diseases (ICD-10) (Dilling, Mombour, & Schmidt, 2013), a total of 20 females diagnosed with AN or atypical AN (F 50.0, F 50.1) were enrolled in the study (Table 1). At admission, the mean BMI of the patients was 13,9 kg/m^2 (SD 2,3 kg/m^2; range 8,8–17,6 kg/m^2).

Table 1
Demographic and Clinical Characteristics of Patients diagnosed with AN.

	AN (n = 20)
Age (yr)	
19–25	7
26–30	7
31–40	5
41–50	1
> 50	1
Mean age	28,3 (± 9,0)
BMI (kg/m^2)	
≤10	1
10,1–12,0	4
12,1–14,0	6
14,1–16,0	4
16,1–17,6	5
Mean BMI	13,9 (± 2,3)
Number of secondary mental and behavioural disorders (ICD-10 classification chapter V)	
None	15
1	3
> 1	2
Number of somatic secondary diagnoses	
None	2
1–5	13
> 5	5
Graduation	
University entrance qualification	14
Other school-leaving qualification	6
No school-leaving qualification	–

Setting and treatment instrument

Setting

All BoMo treatments and interviews were carried out during hospital treatment at the Department for General Internal and Psychosomatic Medicine at Charité - Universitätsmedizin Berlin.

Treatment instrument

The instrument used is the BoMo and it belongs to the group of the body sound treatment instruments. A Monochord consists of a corpus fitted with strings. The BoMo can have different shapes, like a chair or a table. There are 64 strings, tuned in octaves and quints, which are fitted on the back of the Monochord Chair (MoC) and on the bottom side of the Monochord Table (MoT). The strings are played by the therapist, who sits behind the Chair or beside the Table. The recommended playing technique is a very even, confluent touching of the strings with the fingertips of both hands and in an alternating sequence. While playing, percussive sounds, background noise and mechanical vibrations and shocks caused by playing too hard should be avoided. In our study, we used a MoC and a MoT. Both instruments were constructed by Bernhard Deutz of Berlin, Germany (http://www.deutz-klangwerkstatt.de), a manufacturer of musical instruments. The recipient was sitting on the MoC or lying on the MoT. The vibrations were directly transmitted via the recipient's body contact with the instrument.

Data collection and related aspects

Research team

The research group consisted of four investigators: two psychologists (one female and one male) and two physicians (one female and one male). All members of the research group have professional experience in the domain of psychosomatic medicine. The male psychologist is also trained as a music therapist, and three members of the research team have training in qualitative research. Sound expositions and interviews were carried out by the main author (a physician) who, at the time, had two years of professional experience.

Study protocol

The study protocol included three sessions in one-to-one therapeutic settings: All participants received an introduction and then two sessions of treatment with the BoMo. During the introduction, the MoC and MoT were demonstrated and the dates for the following two sessions were arranged. All BoMo treatments were scheduled between the hours of 2:00 pm and 8:00 pm, because of a psychophysiological investigation conducted at the same time (data unpublished). In preparation for the BoMo treatments, participants were asked to wear loose-fitting and comfortable clothing. The first BoMo treatment was performed within one week of the introductory session, and the second treatment was performed approximately one week after the first. The MoC and MoT were used in a random order. All participants had a session using the MoC and a session using the MoT. Prior to treatment, the participants were not informed which instrument they would receive first. Each BoMo treatment began with a short instruction, and the participants did not need to sit or lie completely immobile during the sound exposition. They were allowed to change their positions because body position on the instrument should be as comfortable as possible. The participants were informed that the duration of the sound exposition would be 20 min and that they were allowed to interrupt the treatment, at any time. To obtain in-depth information about the subjective experiences, bodily perceptions and feelings during treatment with the BoMo, subsequent to each sound exposition the main investigator conducted semi-structured interviews. The sound expositions and semi-structured interviews were carried out by the main author.

Duration of the sound exposition

One patient (the patient with the lowest BMI) stopped both BoMo treatments after 8 or 9 min. The reason she gave was an intense prickling in the region of her stomach. She said that the prickling was relaxing at the beginning but, after a few minutes, it became too strong and unpleasant. No other patients interrupted the BoMo treatments.

Interview structure

Each in-depth, one-to-one interview was conducted using a semi-structured interview guide. As no validated interview guide existed in the literature for the area of interest, the research team developed a new interview guideline. The concept for the interview design was discussed and modified three times within the clinićs staff meetings, which included at least 30 members. Besides psychologists and physicians, art therapists and nursing staff took part in the clinic's staff meetings. The interview guide developed was pilot-tested by members of the study group after 10 BoMo treatments with inpatients who had differing diagnoses. During the pilot-test phase, the research team guided the continued development and improvement of the interview guide, e.g. individual questions were added or modified. The interview started with an open question: "How was it for you?" This was followed by open questions on subjective experiences (bodily, spatial and temporal), sensations, feelings, cognitions and potential interferences with other events. These questions were only asked if the participants' initial comments about the experience did not cover those areas. The interviews had an average duration of 9.8 min, varying between 4.2 min and 16.0 min. Following the interviews, the main author kept a reflective log of her thoughts, feelings and observations and memos were kept in pencil and paper version.

Data analysis

The interviews were audio recorded and the files were transcribed verbatim by a professional service. The transcripts were not returned to the participants for comments or corrections. At regular intervals during data collection, meetings of the research group took place and the following subjects were discussed: collected interviews, data saturation, patients' well-being and risks factors. Analysis of the individual interviews was conducted using the techniques of Grounded

Theory (Glaser & Strauss, 1967). In order to develop a preliminary codebook, three of the four investigators independently performed open coding on four interviews done with two patients who had two interviews (a pair) each. They had one interview each after a MoC treatment and then another after a MoT treatment. As part of the development process of the codebook, the preliminary codebook was discussed in the research group and repeatedly improved. The interview analysis was not primarily directed towards quantifiable aspects of communication behaviour but towards subjective experience. In the first step we applied "open-coding" on the interviews text (Strauss & Corbin, 1990). A code is a designation or label assigned to an analysis unit in order to conceptualise data and phenomena. Codes indicating similar phenomena were used to create categories which are more abstract. On the basis of the categories we created, superordinate categories were developed. The superordinate categories could be brought into an interconnected relationship to reveal the intrapersonal process during the BoMo treatment (Fig. 1). That process step resembles the "axial-coding" (Strauss & Corbin, 1990). The data analysis and further development of categories that followed were mostly conducted by the first author, in close cooperation with other research-team members. The list of categories was expanded due to new topics of interest that surfaced during interview analysis. The research team agreed that saturation was reached for the core categories after approximately 12 pairs of interviews. That data saturation was further confirmed during the analysis of the remaining 8 pairs of interviews. In contrast to the Grounded theory we did not perform a theoretical sampling. This had different reasons: We wanted to include at least 20 patients because a psychophysiological investigation was conducted at the same time (measurement of cortisol levels; data unpublished) and we considered it unnecessary to exclude single interviews later on. Furthermore almost all patients on our ward treated for AN in that period of time were included in the BoMo treatments, so we considered it ethically not acceptable to exclude somebody who wished to participate. Nevertheless, during the analysis of the interviews we realised that about the 12th interview we had reached data saturation, but continued analysing anyway even though our category system hardly changed any further.

Data analysis was performed with Max QDA (version 2007), which is a computer software designed for the analysis of qualitative research data. The participants were not given feedback on the analysed interviews. For describing our qualitative study we followed the consolidated criteria for reporting qualitative research (Tong, Sainsbury, & Craig, 2007). The study was approved by the ethical review board of the Charité - Universitätsmedizin Berlin (EA1/290/12).

Short statement on the personal position of the main author

My personal relationship with the topic as a person and a physician, as well as my own assumptions on the effect of treatment with the BoMo and on potential bodily experiences during BoMo treatment have been an inseparable part of the study and thus need to be integrative in the reflective and research process. Before I became a physician, I studied fine arts and in my leisure time I liked to play cello and to hear music. So, fine arts and music are an important resource for me and helped me in difficult stages of my life. As physician I had the desire to pass my experience on the patients. In our clinic I got to know the BoMo and I felt attracted to it, because I thought that with help of these instruments it would be possible to give the patients a new experience. As music vibrations are perceived physical, I wished to give patients who had difficulty accepting their bodies a new bodily experience. My assumptions for this study therefore are: BoMo treatment can enable patients with difficulties to accept their bodies to make a new (bodily) experience. Furthermore BoMo treatment can evoke feelings and can help patients and therapists to focus on individual resources.

Process of reflexivity

FfunAfter each treatment session with the following interview, the main author kept a reflective log on her thoughts, feelings and observations for the purpose of keeping her stance as researcher in check. Also, the main author used these logs that were written by pencil and paper comparable with a diary to further inform the data analysis process. During analysing the interviews with Max QDA (version 2007), short memos were made directly in the computer software. As the main author worked as physician, it was very difficult to fill out the two roles, as physician and as researcher who does qualitative research. The peer review with the other members of the research group was very helpful for the main author, in particular because among them were two psychologists and one of the psychologists was a music therapist too. So the main author could reflect her different perspectives as a physician and as a researcher. By doing the presented study, the main author discovered new facets about her patients. Doing the presented work was a completely new and enriching experience and the main author learned about the diversity, the authenticity and the honesty of her patients. In everyday life the main author in her role as physician has often to react quickly and temporarily is forced to focus on illness rather than on personality. Unfortunately there is often a lack of time in the daily routine of a big hospital. The lack of time can influence the study, in the sense that it hinders reflexion. To remain engaged with the topic of the study the main author kept a reflective log after each interview as described above.

Results

Through the analysis of the semi-structured interviews ten superordinate categories were developed including *differentiated perception (informed by 527 codes), focussed attention (61 codes), emergence of body-related feelings (223 codes), emergence of emotions (168 codes), emergence of thoughts (144 codes), emergence of inner images (69 codes), relaxation (131 codes), spatial and temporal experience (77 codes), new bodily experiences (109 codes)* and *self-reflection (92 codes)* (Fig. 1). These superordinate categories were divided into several categories and subcategories (Table 2). The superordinate categories, with examples of text and codes can be found in Table 3. In summary, all patients reported differentiated bodily and/or acoustical perceptions. Some of them spoke about phases of focussed attention on these perceptions. Patients reported the emergence of changing body-related feelings, emotions, thoughts and inner images during the course of the treatment. Furthermore, the patients reported phases of deep relaxation in which they experienced changes in their space and/or temporal perception. After the treatment, patients volunteered reflections upon their bodily experiences during the treatment. These cognitions triggered further reflections upon how they deal with their bodies in everyday life and their general reflections upon themselves. Since our aim was to investigate whether and how treatment with the BoMo enables patients diagnosed with AN to experience new bodily perceptions and body-related feelings, this paper focuses on body-related categories such as *body perception, emergence of body-related feelings, relaxation, new bodily experiences* and *self-reflection*.

Body perception

Two different domains of body perception were found, which we categorised into the subcategories *tactile body perception* and *perception of physiological processes* (Table 4).

Tactile body perception

By analysing the interviews, we realised that tactile perception and body perception could not be separated from each other. Patients noted that when they felt the vibrations, they perceived their bodies, as well. For example, one patient said after the treatment with the MoC: *"Normally, you dońt really feel your feet, but through the vibration that goes right to the toes, you can feel body parts more than usual."* Thus, the category was called *tactile body perception*. Interestingly, all patients reported that they felt the vibrations in single bodily parts either on the

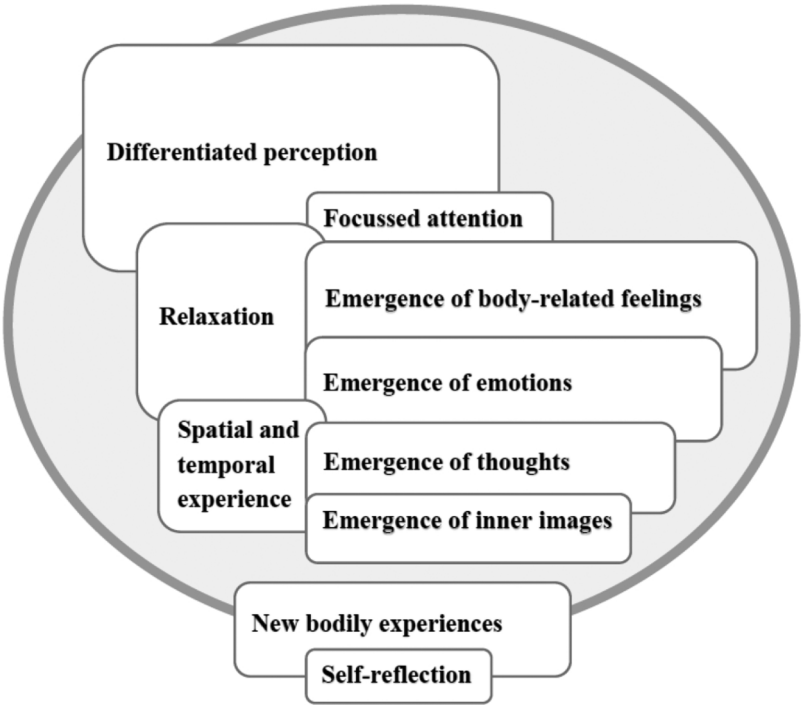

Fig. 1. Ten Superordinate Categories.
The round shape that is set behind the categories reflects the treatment duration, and the rectangles illustrate the superordinate categories. The size of the rectangles approximately represents the frequency of codes. During the treatment sessions, the categories tended to appear in the chronological order represented in Fig. 1. Patients mostly reported about differentiated perceptions and focussed attention first. Further into the treatment, they spoke about phases of deep relaxation and/or about the emergence of body-related feelings, emotions, thoughts and inner images. After the treatment, they tended to speak of new bodily experiences and to reflect upon themselves.

Table 2
Superordinate Categories (in Italics) and Categories Depicting Subjective Experiences of Inpatients diagnosed with AN during Treatment with the BoMo.

differentiated perception
1. Body perception
   a) tactile body perception
   b) perception of physiological processes
2. Acoustic perception
focussed attention
1. On body perception
2. On acoustic perception
emergence of body-related feelings
1. bodily well-being
2. feeling of lightness
3. feeling of heaviness
4. unpleasant body-related feelings
5. other diverse body-related feelings
emergence of emotions
1. Changes of feelings
2. Emotional state
emergence of thoughts
1. Changes of thoughts
2. Thought-content
emergence of inner images
1. Image content
2. Image content linked to the present
relaxation
spatial and temporal experience
1. Spatial experience
2. Temporal experience
new bodily experiences
1. experiences are considered to be novel
2. experiencing the body more consciously
3. positive evaluation of new experiences
4. negative evaluation of new experiences
self-reflection
1. self-description
2. reflection upon the current life-situation

MoC or the MoT. The parts of the body that were noticed most frequently included the back, belly, buttocks and feet.

In addition 14 patients reported that they noticed the vibrations all over their bodies on both instruments (Table 4). Out of this group, 11 patients reported that they also felt the vibrations in single bodily parts on both Monochords. In most cases, patients spoke first about feeling the vibrations in single bodily parts. Afterwards, the vibrations spread over their entire bodies. There was no significant difference between MoC and MoT (Table 4). The following quote shall illustrate this: *"The vibration that I felt went through my whole body. However, the vibration went from bottom to top, not from top to bottom; it began in my feet."* (MoC)

Perception of physiological processes

(Table 4) Six patients noticed physiological processes during treatment with the MoC and MoT. In most cases, there was an impact on breathing, heartbeat and/or blood circulation, with the effect of hands and/or feet becoming warm. For example one patient told after the treatment with the MoC *"My hands are not as cold as before. I have the feeling that blood circulation was stimulated."*

Emergence of body-related feelings

All patients reported on both instruments the emergence of body-related feelings. These feelings were very diverse and were allocated to five subcategories, namely *bodily well-being, feeling of lightness, feeling of heaviness, unpleasant body-related feelings* and *other diverse body-related feelings* (Table 5). Fourteen patients reported feelings of well-being from the use of both instruments. They mostly described their feelings as inner calmness, inner warmth, freshness and security. Patients supposed that feelings of well-being may be due to the comfortable and comforting feeling of the vibrations. Vibrations were often compared to "a little massage," "a waterfall," "a river" or "little waves." Nine patients referred to a feeling of lightness or feeling as though they were "floating" or "flying in the air" on one or both instruments. In contrast to that 4 participants reported feeling heavier than usual either on the MoC or the MoT. Nine patients reported unpleasant feelings during treatment with the MoC or MoT. These feelings were in all cases transient. Three participants felt inner restlessness and inner tension. The music made one patient feel cramped and another patient felt exhausted. Pain (mostly dorsal) was felt by 2 participants. One patient said that her tinnitus became louder. Lastly, another patient said that a cold shiver ran down her spine. These unpleasant feelings were not ongoing for the duration of the treatment and did not stop patients from reporting pleasant body-related feelings, too. Furthermore, most

Table 3
Quotes and Coding to Inform Categories and Superordinate Categories (in Italics) Depicting Subjective Experiences of Inpatients diagnosed with AN during Treatment with the BoMo.

Quotes	Codes	Subcategories	Superordinate categories
"That was going right upwards and as far as ahead to the forehead, I have really noticed it and also in the legs and then finally it occurred to me, I had then like a – well sometimes you get goose pimples that runs down the back, but that were so pleasant goose pimples and that is in my mind as a memory to former times, because formerly when I couldńt sleep my mother had caressed my back."	Vibrations as far as to the forehead and in the legs	Body perception	*Differentiated perception*
	Perception of pleasant goose pimples that run down the back	Tactile body perception	*Emergence of thoughts*
	Triggered by the perception of goose pimples emergence of a childhood memory	Perception of physiological processes	
	Memory of mother caressing the back	Emergence of childhood memories	
"Pleasant, relaxing, and that sound or I dońt know what it was, that was really very pleasant in my belly, well I really noticed it."	Relaxing, pleasant experience	Pleasant body-related feeling	*Relaxation*
	Pleasant feeling in the belly	Focussed attention on body perception	*Emergence of body-related feelings*
	Attention on the perception in the belly		*Focussed attention*
"I felt totally secure."	Sense of security	Emotional state	*Emergence of emotions*
"I really saw myself lying in my bed, the pyjamas I wore and how mum stroked me. That was like a photo in my head."	Inner Image of oneself together with the mother	Image content	*Emergence of inner images*
"I didńt have a sense of time. It seemed eternal."	Lost sense of time. Sense of eternity	Temporal experience	*Spatial and temporal experience*
"(…) a more conscious concentration on the body than usual, because I tried to feel where I noticed the sounds, and for that I was forced to concentrate on my own body."	Conscious concentration on the body	Focussed attention on body perception	Focussed attention
	A more conscious concentration on the body than usual	Experiencing the body more consciously	New bodily experiences
	Being forced to concentrate on the own body		
"(…) I would not say that I am a loner and often alone, but when I am alone, I can enjoy it."	Self-description not to be a loner, Statement to enjoy being alone, when being alone	Self-description	*Self-reflection*

patients reported body-related feelings on one or both instruments that could not be assigned to the subcategories mentioned above, e.g. 2 patients talked about an undefined body-feeling and felt as though they were connected to and merged with the instrument and therefore couldn't move. That description could indicate an experience of de-personalization. The following direct quote is exemplifying that feeling *"That was all so strange somehow because I had such an undefined body-feeling, like I was merged with the instrument and I couldn't feel the room around me anymore."* (MoT) Another patient felt the sounds were similar to that of a full beehive. Furthermore she told about feelings of derealisation and dysmorphia. She said *"(…) as though I would be filled up by this vibration of sounds, like a beehive. (…) I was only a torso, my limbs wereńt there anymore."* (MoC) Another participant also talked about feelings of dysmorphia. She said that her limbs felt distorted: *"When I tried to feel my arm, I couldńt estimate the size. For example, sometimes I felt as though my upper-arm was three times longer than my forearm."* (MoC)

Table 4
Category Body Perception: Number of Patients that Perceived Their Body Physically on Both Instruments or on only MoC or MoT.

	AN (n = 20)	AN (n = 20)	AN (n = 20)	AN (n = 20)
	Monochord-Modes			
	MoC and MoT	*MoC only*	*MoT only*	*Not at all*
Body perception	**20**	–	–	–
●Tactile body perception	**20**	–	–	–
○ Tactile perception of single bodily parts	16	4	–	–
○ Tactile perception of the whole body	14	1	4	1
●Perception of physiological processes	**6**	**4**	**5**	**5**
○ Changes of muscle tension	–	2	2	16
○ Activation of blood circulation	–	3	1	16
○ Activation of the gastrointestinal tract	1	–	2	17
○ Changes in heartbeat	1	1	–	18
○ Changes in breathing	–	–	–	20
○ Changes to the skin	1	1	–	18
○ Other physiological processes	–	2	7	11

Table 5
Category Emergence of Body-related Feelings: Number of Patients that Reported about the Emergence of Body-related Feelings on Both Instruments or on only MoC or MoT.

	AN (n = 20)	AN (n = 20)	AN (n = 20)	AN (n = 20)
	Monochord-Modes			
	MoC and MoT	*MoC only*	*MoT only*	*Not at all*
Emergence of body-related feelings	**20**	–	–	–
●Bodily well-being	**14**	**1**	**4**	**1**
●Feeling of lightness	**1**	**4**	**4**	**11**
●Feeling of heaviness	–	**3**	**4**	**13**
●Unpleasant body-related feelings	–	**3**	**6**	**11**
○ Pain	–	2	–	18
○ Inner tension	–	1	1	18
○ Inner restlessness	–	–	1	19
○ Other unpleasant body-related feelings	–	1	4	15
●Other diverse body-related feelings	**7**	**5**	**6**	**2**

Relaxation

Relaxation was a very commonly reported experience. With the exception of one participant, all patients reported feeling relaxed on one or both Monochords (Table 6). They described how being relaxed influenced their thoughts, attention, perception, physiological processes, emotions and feelings towards the body. Almost all patients who felt relaxed also reported feelings of well-being.

New bodily experiences

After the treatment, patients reported new bodily experiences and evaluated them voluntarily. Only one patient did not discover new aspects of their subjective body experience during treatment with either the MoC or the MoT (Table 6). As the new bodily experiences varied widely, the following four subcategories were created: *experiences are considered to be novel*, *experiencing the body more consciously*, *positive evaluation of new experiences* and *negative evaluation of new experiences* (Table 6). Thirteen patients considered the experiences to be novel during both treatments. For example one of these patients said after the treatment with the MoC: *"This is the first time that I have something that helps me to get really relaxed."* That quote illustrates, that the cited patient could make a new experience of relaxation. Five patients reported a new or more conscious form of body perception during treatment with the MoC or MoT. For instance one of them expressed after the treatment with the MoT that by the sounds in her body she was forced to concentrate on her own body: *"(…) a more conscious concentration on the body, because I tried to feel where I noticed the sounds, and for that I was forced to concentrate on my own body."*

After treatment with the MoC 14 patients considered her experiences to be positive and equally 14 patients considered the experiences to be positive after the treatment with the MoT. They said that the new experiences were interesting, surprising, fascinating, unexpected, curious or pleasant. For illustrating that, one patient after the treatment with the MoC told: *"I find it surprising how quiet I became because I was very excited before. I have to say, it really helped me, even though I'm so unmusical. It surprised me."*

Four patients reported that their experiences were hard or uncomfortable during treatment with the MoC or MoT. Those patients also described having unpleasant body-related feelings (see above, category *Unpleasant body-related feelings*). As the unpleasant feelings, the uncomfortable experiences too were not ongoing for the duration of the treatment. The following quotation shall illustrate, that the experiences had a temporal sequence *"At the beginning, it was totally relaxing, but then a tingling began in my arms and then in my belly, and then it got worse in my belly. Because it was getting worse, it then became too much and uncomfortable."* (MoT)

Self-reflection

(Table 6) Four patients did not reflect upon themselves after treatment with the MoC and/or MoT. The other 16 patients began describing themselves by their character traits (*self-description*) or reflecting upon their current life-situations and the routines of everyday life (*reflection upon the current life-situation*). For example one patient described herself after the treatment with the MoC: *"(…) I would not say that I am a loner and often alone, but when I am alone, I can enjoy it."* (MoC) Another patient reflected upon her current life situation as follows: *"Well, yeah, it's clear that much lies ahead, and it's depressing. Ím not doing well today. It seems to me that things get worse every day and then more stuff happens and then more and more."* (MoT)

Preference for monochord chair versus monochord table

Most patients had a preference for one of the two instruments, and

Table 6
Categories Relaxation, New Bodily Experiences and Self-reflection: Number of Patients that Reported about Relaxation, New Bodily Experiences and Self-Reflection on Both Instruments or on only MoC or MoT.

	AN (n = 20)	AN (n = 20)	AN (n = 20)	AN (n = 20)
	Monochord-Modes			
	MoC and MoT	*MoC only*	*MoT only*	*Not at all*
Perception of relaxation	**14**	**2**	**3**	**1**
New bodily experiences	**13**	**1**	**5**	**1**
●Experiences are considered to be novel	13	1	4	2
●Experiencing the body more consciously	–	3	2	15
●Positive evaluation of new bodily experiences	11	3	3	3
●Negative evaluation of new bodily experiences	–	1	3	16
Self-reflection	**7**	**1**	**8**	**4**
●Self-description	6	2	8	4
●Reflection upon the current life-situation	–	–	4	16

Table 7
Preference for MoC versus MoT.

	AN (n = 20)
Preference for MoC	5
Preference for MoT	11
Preference for the first instrument	9
Preference for the second instrument	7
No distinct preference	4

the MoT was more frequently favoured than the MoC (Table 7). The reason that most patients gave was that the reclining position required for the MoT encouraged relaxation more effectively. Also, there was a slight tendency to prefer the instrument that was applied during the first intervention in most cases. There were 11 patients who had their first treatment on the MoC.

Discussion

After the treatments with the Monochord devices, and through the analysis of the interviews of the treatment participants, we found ten superordinate categories: *differentiated perception, focussed attention, emergence of body-related feelings, emergence of emotions, emergence of thoughts, emergence of inner images, relaxation, spatial and temporal experience, new bodily experiences* and *self-reflection*.

These categories could be clearly coded and summarised based on the patients' reports. All patients reported differentiated bodily perceptions and body-related feelings. Therefore, we conclude that treatment with the BoMo enables patients with a diagnosis of AN to experience body perceptions and body-related feelings, although clinical experience tells us that some of these patients have difficulties perceiving signals from their bodies. The body perceptions and body-related feelings that occurred during BoMo treatment were, in most cases, independent of body shape and weight. That is to say, there was no focus on the usual problem areas, i.e. belly, buttocks or thighs. Experiences of new body perceptions and body-related feelings were experienced both positively and negatively. Following the BoMo treatments, most patients volunteered feedback about their positive feelings and experiences and stated that they were surprised about these feelings and experiences. The number of patients who considered their experiences to be positive during treatment with the MoC or MoT was 17. The number of patients who considered their experiences during both treatments to be novel was 13. On the other hand, 9 patients reported unpleasant feelings during the treatment with the MoC or MoT, but the unpleasant feelings were mostly transient. Of these patients, 4 patients reported that their experiences during treatment with the BoMo were temporarily hard or uncomfortable.

Subjective experiences as characterised by the ten superordinate categories that we found in our investigation are similar to those described in previously published case reports (e.g. Moser, 1997; Rittner, 1997; Rittner & Fachner, 2004) and in studies with healthy subjects (Jungaberle et al., 2003; Sandler et al., 2008). The categories described were "body perception," "sense of time," "sense of space," "emotions" and "visual imagination" (Sandler et al., 2008). The feelings described by the healthy subjects were particularly positive in terms of feelings of relaxation and wellbeing. In addition, unpleasant feelings were also reported (Sandler et al., 2008). In a further study, that examined the subjective experiences of psychosomatic inpatients during treatment with the BoMo, 6 patients out of a total of 85 discontinued the treatment session with the BoMo because of unpleasant feelings and sensations (Sandler et al., 2017b). Likewise, in the study presented here, one patient terminated both treatments early. That patient with a very low BMI (BMI < 10) stopped both treatments after about ten minutes because of an intense, increasing tingling sensation. During the semi-structured interviews, patients were invited to reflect upon their experiences and feelings and – in the case of unpleasant experiences – to discuss and clarify their impressions. Throughout this process of following the treatment, patients were able to quickly regain stability. When patients were asked which feelings they noticed during the BoMo treatment, some patients answered that they had no feelings at all. Interestingly, these patients spoke of various feelings in other parts of the interviews, feelings that were very often body-related, which means that patients could get in touch with their feelings by means of the bodily experiences and then talk about them.

We were expecting that patients would prefer the sitting position because it doesn't force regression so powerfully and, therefore, provokes emotional activation and loss of control to a lesser degree. Surprisingly, more patients preferred the MoT, probably because of the more relaxing horizontal body position. In addition, most patients closed their eyes for the duration of the treatment with the MoT. Thus, it seems as though the horizontal position with closed eyes is preferred, and patients were less anxious to lose control than expected. However, unpleasant body-related feelings were slightly more frequent during treatment with the MoT compared to the MoC. This observation seems to be important and may imply that psychological defence mechanisms protecting the unconscious mind are more easily lowered during treatment with the MoT than in sitting position of the Chair. Therefore, it might be easier for unconscious or preconscious contents to appear throughout the treatment or thereafter. Interestingly, most patients had a clear preference for one instrument. Furthermore, there was a slight tendency to prefer the instrument that was applied during the first intervention. In line with that observation, Sandler et al. (2017b) found that the treatment method used first (vibro-acoustic stimulation by a BoMo or CD music) was rated more positively than the second treatment method. A possible explanation could be a difficulty in mentally adjusting oneself to a new treatment method after some kind of familiarisation with a new method that was experienced shortly before. Therefore, it would be interesting to know what happens over the course of a treatment series. Possibly, negative feelings and experiences would arise more frequently as the stimulus of a new and exciting situation would not persist.

Limitations

A limitation is the fact that the investigation is not representative of both genders, as we did not examine male subjects. Furthermore, the treatments and semi-structured interviews were carried out by the main author. Therefore, the subjective view and expectations of the investigator could have influenced the interviews. As described above, the main author wished to give patients facing difficulties to like their bodies the chance to have a new bodily experience and wanted to know, if a BoMo treatment can enable patients to have new bodily experiences. That desire could have influenced the results. In general the findings generalizability to music therapy programs in different settings is subject to the music therapists style of practice and other wider sociocultural factors (ÓCallaghan & Magill, 2009). For example a "therapist effect" has been observed in paediatrics (Kain et al., 2004) and throughout the oncology setting (Magill, 2005). Further analysis of the "therapist effect" in creative therapies also in psychosomatic treatment settings is warranted. In the presented study, it was important that the investigator and the study participants were familiar with one other. During the treatment, there is an inevitable physical intimacy. Furthermore, the treatment and the subsequent interview form a therapeutic unit that may help to establish a therapeutic relationship. For that reason, it might be assumed, that the "therapist effect" during BoMo treatment is relatively prominent. Another limitation is the sampling process. As mentioned above we did not use a theoretical sampling, because we wanted to include at least 20 patients and we did not want to exclude patients who wished to participate at the study. So the sampling procedures used in the presented study were guided by our criteria for sample selection and influenced by situational constraints and convenience. On the other hand the research team

agreed that saturation was reached for the core categories after approximately 12 pairs of interviews and data saturation was further confirmed during the analysis of the remaining 8 pairs of interviews. So, data saturation was reached at least in our study population. Furthermore, our study population is only a small part of inward patients diagnosed with AN and we have not examined patients in a rehabilitation clinic or in an ambulatory setting.

Therapeutic implications

Inpatients diagnosed with AN that were treated with the BoMo reported differentiated body perceptions and various body-related feelings. They were able to perceive their bodies, describe their feelings and reflect upon their experiences. The subjective experiences were independent of shape and weight, were not focused on usual illness-related body problem areas and were experienced both positively and negatively. Based on the mild reactions in positive and negative directions, new therapeutic approaches that are suited to handling and integrating new bodily experiences may result in patients getting the help they need to achieve progressively more integrative mind-body experiences. Central to eating disorders is an individuaĺs relationship to his or her body, as evidenced by how the body is experienced. Therefore, construction of a positive body image plays an important role in the treatment of eating disorders (Cook-Cottone, 2015). One could imagine that treatment with the BoMo might help patients to experience their own body in a new way via work on body perceptions and body-related feelings. Positive bodily experiences could lead directly to a new and more positive body image. Even unpleasant feelings and experiences could lead to improved and differentiated body perception.

In summary, BoMo treatment might help patients with pathologic body relationships to change their attitude towards their body. Through an improvement of the perception of their own bodies and body-related feelings, self-acceptance and self-esteem could be established.

As body perception and the related emotional reactions induced by the vibrations of the BoMo were experienced both positively and negatively, treatment with the BoMo should be applied carefully. It is important to give patients the option to speak and reflect upon their experiences in a confidential, secure, therapeutic dialogue immediately following the treatment. Furthermore, the therapist should be trained to treat patients suffering from severe mental disorders and serious emotional disturbances. Due to the variety of issues that emerge during treatments with the BoMo, this might present a meaningful extension to verbal psychotherapy. Feelings, perceptions, thoughts and inner images were mostly independently of the mental disorder and could, therefore, help to focus the patients' attention on illness-independent issues. This may help patients to develop and find emotional resources within themselves.

For further research, qualitative studies to evaluate subjective experiences of patients with obesity or other disorders or conditions that possibly affect the body experience and body image would be interesting. Similar to patients diagnosed with AN, adolescents with overweight/obesity have an elevated risk for weight and shape concerns compared with their normal weight peers (Calzo et al., 2012) and are equally at risk for engaging in extreme weight control practices and disordered eating, such as purging, binge eating, and laxative diet pill use (Neumark-Sztainer, Wall, Story, & Sherwood, 2009). Finally, it has to be noted that there is little research on the benefits for patients of a prolonged course of BoMo treatments. The effect of several treatments over several sessions should be evaluated in future studies. Furthermore it would be interesting to evaluate what happens after a larger interval of time after BoMo treatment. It might be possible, that after one, two or three weeks after BoMo treatment further emotions or thoughts are emerging.

Acknowledgment

The author is grateful to late Prof. Dr. med. Burghard F. Klapp for his inspiration and personal support for this study.

References

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington.

Boyd-Breweser, C., & McCaffrey, R. (2004). Vibroacoustic sound therapy improves pain management and more. *Holistic Nursing Practice, 18*(3), 111–118.

Calzo, J. P., Sonneville, K. R., Haines, J., Blood, E. A., Field, A. E., & Austin, S. B. (2012). The development of associations among body mass index, body dissatisfaction, and weight and shape concern in adolescent boys and girls. *Journal of Adolescent Health, 51*, 517–523.

Cash, T. F., & Hrabosky, J. L. (2004). Treatment of body image disturbances. In J. K. Thompson (Ed.). *Handbook of eating disorders and obesity.* (pp. 515–541). New Jersey: John Wiley & Sons.

Clark, L., & Tiggemann, M. (2007). Sociocultural influences and body image in 9- to 12-year-old girls: The rolse of appearance schemas. *Journal of Clinical Child and Adolescent Psychology, 36*(1), 76–86.

Cook-Cottone, C. P. (2015). Incorporating positive body image into the treatment of eating disorders: A model for attunement and mindful self-care. *Body Image, 14*, 158–167.

Creese, D. (2010). *The monochord in ancient greek harmonic science.* Cambridge: Cambridge Unniversity Press.

Delinsky, S. S., & Wilson, G. T. (2006). Mirror exposure for the treatment of body image disturbance. *International Journal of Eating Disorders, 39*, 108–116.

Dilling, H., Mombour, W., & Schmidt, M. H. (2013). *Internationale Klassifikation psychischer Störungen: ICD-10 Kapitel V (F) Klinisch-diagnostische Leitlinien* (9. auflage). Bern: Huber.

Dohnt, H., & Tiggemann, M. (2006). The contribution of peer and media influences to the development of body satisfaction and self-esteem in young girls: A prospective study. *Developmental Psychology, 42*(5), 929–936.

Fairburn, C. G., Peveler, R. C., Jones, R., Hope, R. A., & Doll, H. A. (1993). Predictors of 12-month outcome in bulimia nervosa and the influence of attitudes to shape and weight. *Journal of Consulting and Clinical Psychology, 61*(4), 696–698.

Fairburn, C. G., Stice, E., Cooper, Z., Doll, H. A., Norman, P. A., & ÓConnor, M. E. (2003). Understanding persistence in bulimia nervosa: A 5-year naturalistic study. *Journal of Consulting and Clinical Psychology, 71*(1), 103–109.

Feldman, R., Rosenthal, Z., & Eidelman, A. I. (2014). Maternal-preterm skin-to-skin contact enhances child physiologic organization and cognitive control across the first 10 years of life. *Biological Psychiatry, 75*, 56–65.

Field, A. E., Cheung, L., Wolf, A. M., Herzog, D. B., Gortmaker, S. L., & Colditz, G. A. (1999). Exposure to the mass media and weight concerns among girls. *Pediatrics, 103*(3), 36.

Flacking, R., Lehtonen, L., Thomson, G., Axelin, A., Ahlqvist, S., Hall Moran, V., et al. (2012). Closeness and separation in neonatal intensive care. *Acta Paediatrica, 101*, 1032–1037.

Freeman, R. J., Beach, B., Davis, R., & Solyom, L. (1985). The prediction of relapse in bulimia nervosa? *Journal of Psychiatric Research, 19*(2–3), 349–353.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of Grounded Theory: Strategies for qualitative research.* New York: Aldine.

Harthog, T. (2001). The reception of monochord sounds. An empirical study of the perception of monochords. *Zeitschrift für Musik-, Tanz- und Kunsttherapie, 12*(3), 111–119.

Hildebrandt, T., Loeb, K., Troupe, S., & Delinsky, S. (2012). Adjunctive mirror exposure for eating disorders: A randomized controlled pilot study. *Behaviour Research and Therapy, 50*, 797–804.

Jungaberle, H., Altieri, P., Gerloff, E., Kurze, K., & Verres, R. (2003). Sounds streaming in–Contribution to the music psychology of monochords. *Musiktherapeutische Umschau, 24*(4), 319–332.

Kain, Z., Caldwell-Andrews, A., & Krivutza, D. M. (2004). Interactive music therapy as treatment for preoperative anxiety in children: A randomized control trial. *Anesthesia and Analgesia, 98*, 1260–1266.

Key, A., George, C. L., Beattie, D., Stammers, K., Lacey, H., & Waller, G. (2002). Body image treatment within an inpatient program for anorexia nervosa: The role of mirror exposure in the desensitization process. *International Journal of Eating Disorders, 31*, 185–190.

Killen, J. D., Taylor, C. B., Hayward, C., Haydel, K. F., Wilson, D. M., Hammer, L., et al. (1996). Weight concerns influence the developement of eating disorders: A 4-year prospective study. *Journal of Consulting and Clinical Psychology, 64*(5), 936–940.

Lee, E. J., Bhattacharya, J., Sohn, C., & Verres, R. (2012). Monochord sounds and progressive muscle relaxation reduce anxiety and improve relaxation during chemotherapy: A pilot study. *Complementary Therapies in Medicine, 20*(6), 409–416.

Lukasiak, A., Krystosiak, M., Widlak, P., & Woldanska-Okonska, M. (2013). Evaluation of the effectiveness of vibroacoustic therapy treatment of patients with so-called heel spur. A preliminary report. *Ortopedia, Traumatologia, Rehabilitacja, 15*(1), 77–87.

Magill, L. (2005). Enhancing spirituality at the end-of-life. In D. Dileo, & L. Loewy (Eds.). *Music therapy at the end of life* (pp. 3–18). Cherry Hill, NJ: Jeffrey Books.

Mariaozouls, C., Michel, D., & Schiftan, Y. (1999). Vibration supported music therapy reduces pain and enhances relaxation in persons with paraplegia or tetraplegia–A pilot study of the psychological and autonomic effects of simultaneous acoustic and somatosensory music stimulation to manage pain. *Rehabilitation, 38*(4), 245–248.

McLean, S., Paxton, S. J., & Wertheim, E. H. (2013). Mediators of the relationship between media literacy and body dissatisfaction in early adolescent girls: Implications for prevention. *Body Image, 10*, 282–289.

Moser, J. (1997). Die Wirkung von Musikinstrumenten in psychotherapeutischen Prozessen. In L. Müller, & H. G. Petzold (Vol. Eds.), *Musiktherapie in der klinischen Arbeit: Vol. 16*, (pp. 186–207). Stuttgart: Gustav-Fischer.

Neumark-Sztainer, D., Wall, M., Story, M., & Sherwood, N. E. (2009). Five-year longitudinal predictive factors for disordered eating in a population-based sample of overweight adolescents: Implications fpr prevention and treatment. *International Journal of Eating Disorders, 42*, 664–672.

ÓCallaghan, C., & Magill, L. (2009). Effect of music therapy on oncologic staff bystanders: A substantive grounded theory. *Palliative and Supportive Care, 7*, 219–228.

Patrick, G. (1999). The effects of vibroacoustic music on symptom reduction. *IEEE Engineering in Medicine and Biology Magazine, 18*(2), 97–100.

Punkanen, M., & Ala-Ruona, E. (2012). Contemporary vibroacoustic therapy: Perspectives on clinical practice, research, and training. *Music and Medicine, 4*(3), 128–135.

Ramachandran, S., & Dutta, S. (2013). Early developmental care interventions of preterm very low birth weight infants. *Indian Pediatrics, 50*, 765–770.

Rittner, S., & Fachner, J. (2004). Klang und trance im EEG–Brainmapping mit dem Ganzkörpermonochord im therapeutischen setting. *Musiktherapeutische Umschau, 25*(1), 70–80.

Rittner, S. (1997). Die Arbeit mit dem Ganzkörpermonochord in der Psychotherapie. In L. Berger (Vol. Ed.), *Musik, Magie und Medizin: Vol. 1*, (pp. 110–117). Paderborn: Junfermann.

Rogers, D. R. B., Ei, S., Rogers, K. R., & Cross, C. L. (2007). Evaluation of a multicomponent approach to cognitive-behavioral therapy (CBT) using guided visualizations, cranial electrotherapy stimulation, and vibroacoustic sound. *Complementary Therapies in Clinical Practice, 13*(2), 95–101.

Rose, J. P., & Wies, J. (2008). Sound meditation in oncological rehabilitation–A pilot study of a receptive music therapy group using the monochord. *Forschende Komplementärmedizin, 16*(6), 33–343.

Rosen, J. C. (1998). Cognitive-behavioral body-image therapy. In D. M. Garner, & P. E. Garfinkel (Eds.). *Handbook of treatment for eating disorders*(2nd ed.). New York: Guilford; 188–201.

Salbach-Andrae, H., Jacobi, C., & Jaite, C. (2010). *Anorexia und Bulimia nervosa im Jugendalter*. Weinheim: Beltz.

Sandler, H., Tamm, S., Klapp, B., & Bösel, R. (2008). The body monochord–Effects on EEG and subjective experience. *Zeitschrift für Musik-, Tanz- und Kunsttherapie, 19*(3), 110–120.

Sandler, H., Tamm, S., Fendel, U., Rose, M., Klapp, B. F., & Bösel, R. (2016). Positive emotional experience: Induced by vibroacoustic stimulation using a Body Monochord in patients with psychosomatic disorders: Is associated with an increase in EEG-theta and a decrease in EEG-alpha power. *Brain Topography, 29*(4), 524–538. http://dx.doi.org/10.1007/s10548-016-0480-8.

Sandler, H., Fendel, U., Bußе, P., Rose, M., Bösel, R., & Klapp, B. F. (2017a). Relaxation–Induced by vibroacoustic stimulation via Body Monochord and via Relaxation Music–Is associated with a decrease in tonic electrodermal activity and an increase of salivary cortisol level in patients with psychosomatic disorders. *PLoS One, 12*(1), e0170411. http://dx.doi.org/10.1371/journal.pone.0170411.

Sandler, H., Fendel, U., Peters, E., Rose, M., Bösel, R., & Klapp, B. (2017b). Subjective experience of relaxation–induced by vibroacoustic stimulation by a Body Monochord or CD music–A randomised, controlled study in patients with psychosomatic disorders. *Nordic Journal of Music Therapy, 26*(1), 79–98. http://dx.doi.org/10.1080/08098131.2015.1089312.

Smolak, L., & Thompson, J. K. (2009). *Body image, eating disorders and obesity in youth: Assessment, prevention, and treatment.* Washington, DC: American Psychological Association.

Spitzer, M., Rath, F., & Groen, G. (2005). Music and subjective well-being–Prelimanary results on use of a sound bed in depressive patients. *Nervenheilkund, 24*(3), 198–202.

Stice, E., & Shaw, H. E. (2002). Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *Journal of Psychosomatic Research, 53*, 985–993.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded Theory procedures and techniques.* Sage Publications, Inc.

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*(6), 349–357.

Trentowska, M., Bender, C., & Tuschen-Caffier, B. (2013). Mirror exposure in women with bulimic symptoms: How do thoughts and emotions change in body image treatment? *Behaviour Research and Therapy, 51*(1), 1–6.

Tuschen-Caffier, B., & Florin, I. (2012). *Teufelskreis Bulimie. Ein Manual zur psychologischen Therapie* (2. aufl.). Göttingen: Hogrefe.

Vocks, S., & Legenbauer, T. (2010). *Körperbildtherapie bei Anorexia und Bulimia nervosa. Ein kognitiv-verhaltenstherapeutisches Behandlungsprogramm* (2. Überarb. aufl.). Göttingen: Hogrefes1.

Warth, M., Kessler, J., Kotz, S., Hillecke, T. K., & Bardenheuer, H. J. (2015). Effects of vibroacoustic stimulation in music therapy for palliative care patients: A feasibility study. *BMC Complementary and Alternative Medicine, 15*, 436.

Windauer, U., Lennerts, W., Talbot, P., Touyz, S. W., & Beumont, P. J. (1993). How well are, “cured” anorexia nervosa patients? An investigation of 16 weight-recovered anorexic patients. *British Journal of Psychiatry, 163*, 195–200.

Winnicott, D. W. (1949). *Birth memories, birth trauma, and anxiety. The collected works of D.W. Winnicott, Vol. 3*, 1946–1951.

Winnicott, D. W. (1960). The theory of the parent-infant relationship. *International Journal of Psycho-Analysis, 41*, 585–595.

Zeuch, A. (1999). Creator of own realities, the sound meditation with the Monochord. *Zeitschrift für Musik-, Tanz- und Kunsttherapie, 10*(4), 175–185.