

## ARTICLE

# The multimodal vibroacoustic music therapy for functional neurological disorder: The MTFUND clinical protocol and initial impressions from multiple perspectives

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## ABSTRACT

Functional Neurological Disorder (FND) is a neuropsychiatric condition caused by problems with the functioning of the nervous system, in which patients experience neurological symptoms, resulting in significant functional impairment and distress. The various subtypes of FND categorise the wide range of diverse symptoms common with the disorder, from motoric to sensory and cognitive. The diverse symptom experience, coupled with common comorbidities and risk factors such as anxiety and mood disorders, make it especially difficult to determine suitable individualised treatment plans for FND patients. Literature suggests that multimodal treatment options would have implications for success with this population, due to the ability to integrate the physiological care and psychological needs of patients. The MTFUND clinical protocol utilises multimodal vibroacoustic music therapy, in which the elements (vibroacoustic therapy and active music therapy) meet the need for individualised care due to their inherent flexibility as interventions, while providing a consistent structured treatment protocol. The MTFUND protocol is presented and details regarding the ongoing research study are outlined. To evaluate the protocol, we conducted semi-structured discussions with patients and therapists. Two separate inductive reflexive thematic analyses were conducted to examine their experiences. The themes contribute to a comprehensive understanding of the patients' experiences with FND, and the therapists' perspectives on implementing the protocol, ultimately contributing towards evaluating the efficacy of the protocol

## KEYWORDS

vibroacoustic therapy,  
music therapy,  
multimodal,  
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## INTRODUCTION

Functional Neurological Disorder (FND) is a neuropsychiatric condition in which patients experience motor and sensory symptoms. However, the pathophysiological experience of symptoms are not due to abnormalities of structures in the brain, but rather changes in the functioning of brain networks, resulting in significant functional impairment and distress (Bennett et al., 2021; Espay et al., 2018; Hallett et al., 2022; Voon et al., 2016). FND is also known as conversion disorder and while both terms are used in the DSM-5, the term “conversion” is thought to be outdated due to the revised diagnostic criterion in the DSM-5, eliminating the requirement of association with psychological stressors to “convert” to symptoms and including positive physical diagnostic features rather than relying on a diagnosis of exclusion (Voon et al., 2016). People with FND can experience a range of diverse symptoms with a wide scope of comorbid diagnoses including depression, anxiety disorders, and dissociation (Butler et al., 2021; Hallett et al., 2022; Pick et al., 2019). FND patients experience comparable levels of disability and physical-health related quality of life as patients with Parkinson’s Disease, but further experience poorer mental-health related quality of life (Voon et al., 2016), and are the second most common reason for a neurological consultation behind a headache (Bennett et al., 2021). FND affects more women than men (around 3:1) and can occur across all ages, but is rare in children under 10 years of age (Bennett et al., 2021; Espay et al., 2018). On a global level, the disorder is as prevalent as multiple sclerosis, with a prevalence of 50-100 cases in 100,000 (Espay et al., 2018).

The most common presentations of FND, or subtypes, are that of functional seizures (also dissociative or psychogenic non-epileptic seizures) and functional movement disorders including tremors, dystonia, limb weakness, or gait disorders. Patients may also experience functional cognitive disorders including symptoms such as chronic dizziness or other cognitive dysfunction (Espay et al., 2018; Hallett et al., 2022). Common treatments for patients with FND include psychotherapy, physical therapy, occupational therapy, speech and language therapy, and hypnosis (Bennett et al., 2021; Espay et al., 2018).

Patients often endure multiple referrals and appointments with a number of different specialists and therapists, hoping for answers to, and relief for, their symptoms. Approaching FND from a biopsychosocial framework allows for the acknowledgement of predisposing, precipitating, and perpetuating factors from biological, psychological, and social viewpoints. Multiple factors within this framework constantly interact with one another at all times, which can trigger FND and/or perpetuate the experience of symptoms (Hallett et al., 2022; Pick et al., 2019; Voon et al., 2016). From this framework, FND presents a clear overlap between the disciplines of psychiatry and neurology. This multifactorial approach to predisposing, precipitating, and perpetuating factors unique to each patient, combined with the diverse range of symptom experience, makes it difficult for professionals to determine treatment plans individualised to their patients’ needs.

Literature specifically regarding conversion disorder/FND and music therapy is limited. However, principles of music therapy literature from psychiatric and neurological contexts allow us to see its implications for use for many symptomatic and/or mechanistic features of FND (Hallett et al., 2022), such as emotional processing (Moore, 2013), anxiety/stress reduction (De Witte et al., 2022; Lu et al., 2021), sensorimotor stimulation (Kogutec et al., 2016; Ruotsalainen et al., 2022; Sihvonen et al., 2017), and cognitive functioning (Thaut, 2010).

There are current recommendations for multidisciplinary approaches to consultation, diagnosis, and treatment within FND literature, with some studies suggesting that a multimodal approach to therapy has strong implications for success in integrating both the care of physiological symptoms and psychological needs of patients with FND (Demartini et al., 2014; M. J. Edwards, 2019; Ezra et al., 2019; Jimenez et al., 2019; Lidstone et al., 2020). Thus, this present research has proposed the use of a treatment protocol consisting of a multimodal approach to music therapy utilising vibroacoustic therapy (VAT) and active music therapy methods. In order to further develop and refine this interdisciplinary and multimodal clinical protocol, the present research consists of multiple individual case studies. This paper, specifically, looks to patient and therapist experience of the clinical protocol. The resulting outcomes may contribute to the conceptualisation of clinical results in future publications.

The term multimodality, in reference to treatment, typically refers to the simultaneous application or implementation of multiple therapeutic/treatment modalities to treat a diagnosis. With roots in psychotherapy, the term multimodal therapy (Lazarus, 1976) ensures that multiple areas of concern, are addressed in a treatment plan encompassing methods or techniques from a range of theoretical approaches or disciplines, in order to address the needs of the individual on all system levels (Kozłowska et al., 2012; Lazarus, 1976, 2006). Extending to medicine, the term multimodality tends to emphasise a multidisciplinary aspect, often referred to as combination therapy, indicating the use of more than one method to treat a disease (Combination Therapy, n.d.). Ultimately, both views aim for multiple modalities to assist one another in their outcomes, whether in regard to prognosis, treatment productivity, and/or efficiency (duration) of the treatment plan, contributing to an efficient and effective model of care. For a complex and multifaceted disorder such as FND, the multimodal approach to treatment is naturally complimentary to the biopsychosocial framework, as it acknowledges multiple aspects of a person, looking to the interactions between these factors and how it relates to the disorder. To add an additional layer, we can also consider multimodal interventions as addressing multiple facets of FND simultaneously. Therefore, multimodality, in the context of this protocol, exists in the multiple modes of intervention (how FND is treated) as well as in multiple needs/symptoms being treated simultaneously within that intervention (what elements of FND are being treated).

The treatment modalities within this protocol were selected based on compatibility with current FND treatment recommendations, an inherent element of flexibility or adaptability to allow for individualised care, and being conducive to a multimodal approach to intervention and treatment, as recommended in current literature. In our proposed protocol, we use the terminology “multimodal vibroacoustic music therapy” in order to capture the multiple intervention modalities present within the clinical protocol, those being vibroacoustic therapy (VAT) and active music therapy. When considered as music experiences (Bruscia, 2014), it has been previously suggested that VAT can

contribute to, or inform, active music making, and encourages the therapeutic relationship (Hooper, 2001).

Vibroacoustic therapy (VAT) is a multimodal approach to music therapy, and combines the use of pulsed sinusoidal low-frequency sound, music listening, and therapeutic interaction to treat a patient's physiological and psychological needs simultaneously (Grocke & Wigram, 2007; Hooper, 2001; Punkanen & Ala-Ruona, 2012). Literature outlining the use of vibroacoustic therapy for people with FND is scarce. However, anecdotal clinical evidence suggests that VAT has proven effective for many concerns, symptoms, and comorbidities that are prevalent in patients with FND including muscle tone and range of movement (Katušić & Mejaški-Bošnjak, 2011; Wigram, 1997a, 1997b), stress, anxiety and mood disorders (Campbell et al., 2017; Kantor, Vilímek, et al., 2022; Rüütel, 2002), and chronic pain (Campbell et al., 2017; Kantor, Campbell, et al., 2022; Naghdi et al., 2015).

Active music therapy methods involve the patient by participating in music interactively with the music therapist, for example, through clinical improvisation (Bruscia, 1987; Erkkilä et al., 2012). Clinical improvisation is a well-established music therapy method, used in many contexts for various needs. Not only does active music-making require a physical component to play different instruments, it allows a symbolic distance at which emotional or latent material can be expressed and explored further. The use of clinical improvisation has been documented in many clinical contexts as improving both psychological and physiological outcomes. Many of these outcomes overlap with symptoms, concerns, and comorbidities related to FND including anxiety and mood disorders (Erkkilä et al., 2011; Lu et al., 2021), and personality disorders (Foubert et al., 2021; Haslam et al., 2022). Additionally, the use of music interventions for physical and rehabilitative purposes, specifically for neurological conditions and related physical symptoms, has been well reported (Katlen da Silva et al., 2021; Kogutec et al., 2016; Sihvonen et al., 2017).

## THE CURRENT PAPER: IN TWO PARTS

The following paper is divided into two parts: (1) the Music Therapy for FUnctional Neurological Disorder (MTFUND) clinical protocol, and (2) results from the thematic analyses exploring the phenomenological experiences of, and implications from, the implementation of the protocol from the perspectives of patients and therapists involved. First, the MTFUND clinical protocol is outlined in detail, including descriptions of subprotocols, roles of therapeutic intervention, process timeline, and session outline. The second part explores experiences within the MTFUND protocol from the perspectives of patients and therapists, based on data collected from semi-structured interviews following the conclusion of therapy.

The aim of this paper is to better understand experiences within the MTFUND protocol from multiple perspectives, in effort to provide valuable context for subsequent publications of clinical outcomes. Thus, this paper focuses on the establishment, implementation, and general experiences of participants within the MTFUND protocol during the initially completed pilot studies, and not on the clinical outcomes of individual cases. The themes presented will contribute to a comprehensive understanding of patients' experiences with FND, as well as towards evaluating the efficacy of the presented protocol.

## Part 1: MTFUND protocol

The MTFUND protocol was developed and refined from the preliminary clinical protocol, as a result of a pilot case study conducted in 2017-2018, and published in 2021 (Leandertz et al., 2021). In addition to existing anecdotal observations from clinical practice, the results of this pilot study yielded positive implications for use and further development in subsequent studies. The preliminary treatment protocol was further refined and organised into four sub-protocols: Recruitment/Referral, Assessment/Evaluation, Treatment, and Follow-up. The resulting MTFUND protocol encourages multidisciplinary collaborative involvement throughout, includes a comprehensive and multimodal assessment and evaluation sub-protocol, defines interventions which can be consistent (structurally) across multiple cases yet be flexible to meet individual needs, and includes a post-treatment follow-up module. The current protocol has been established for use in a series of individual pilot case studies, in order to build the necessary foundation to warrant future large-scale studies.

The protocol, as implemented in the present research, takes place over a six-month time period. The assessment (4 sessions) and active treatment (12 sessions) span eight weeks, comprising sixteen one-hour long sessions biweekly. The interventions offered within the protocol are consistent across all cases and across all sessions. However, the intention of the intervention may vary, a point which will be elaborated on in Subprotocol 3. A follow-up appointment is scheduled six months from the starting point, in order to monitor any long-term impact on symptoms and/or functioning, as well as to allow the patient space to share any reflections about the therapy process with the therapist.

An overview of the protocol, including schedule and outcome measures can be seen in Table 1, followed by a description of the subprotocols (1-4). Outcome measures are further defined and described in the outline of Subprotocol 2a.

	<b>ASSESSMENT</b> Week 1-2 Sessions 1-4		<b>TREATMENT</b> Week 3-8 Sessions 5-16	<b>EVALUATION</b>		<b>FOLLOW-UP</b> Week 26 (6 months)
<b>RECRUITMENT/REFERRAL</b>	<i>Test Point 1:</i> HADS-A MADRS DES RAND-36 CORE-OM WHODAS 2.0  MT Assessment, Treatment Plan  VAS 1, 2	<b>MD CONSULTATION I</b>		<i>Test Point 2:</i> HADS-A MADRS DES RAND-36 CORE-OM WHODAS 2.0  MT Clinical Report	<b>MD CONSULTATION II</b>	<i>Test Point 3:</i> HADS-A MADRS DES RAND-36 CORE-OM WHODAS 2.0  Reflective Discussion
			VAS 3, 4, 5			

**Table 1:** MTFUND protocol overview

### *Subprotocol 1. Recruitment and referral*

Procedurally, the recruitment and referral subprotocol aims to utilise as many naturalistic elements as possible, in order to compliment the study's interest in multimodal approaches, as well as allow for easier "translation" from a research context to clinical practice applications. Thus, the "recruitment" for the current research project is intended to resemble a treatment referral to music therapy. For the purpose of this research, a collaborative relationship has been established between the researcher's affiliate university and a local hospital. Two medical doctors (MDs) from the neurology department and psychiatry department of the healthcare district, are named as Research MDs in the current protocol. The hospital has a standard procedure already set in place for assessing and diagnosing patients with FND, which is followed as usual. The Research MD is responsible for determining patients' suitability for the study. Suitability is determined based on age (18-67), a positive diagnosis or likely case of FND, and absence of contraindicators for treatment. It is currently suggested that vibroacoustic therapy is contraindicated for patients with acute inflammatory conditions, pacemakers, psychosis, pregnancy, or low blood pressure (Grocke & Wigram, 2007). Once suitability has been confirmed, the Research MD will approach the patient with information about the study and invite them to participate.

After the patient has consented to participate in the study, the referral is made to music therapy. The referral contains a brief epicrisis, containing information about the patient's FND diagnosis, relevant medical history, symptoms, comorbid diagnoses/symptoms, and concurrent treatments (including medications). Standard care proceeds as normal during the study. Any additional therapies or treatments continue parallel with music therapy. This is reflective of a naturalistic procedure, with the patient possibly receiving multiple referrals and/or prescriptions following diagnosis, as well as the principles of a multimodal approach to treatment – that each mode may compliment or contribute to another.

### *Subprotocol 2. Multimodal assessment and evaluation*

The assessment protocol for the study is also multimodal in nature, in that it consists of both qualitative and quantitative perspectives. These are meant to work together during the assessment phase, to aid in the formulation of a comprehensive patient profile from a biopsychosocial framework, thus ensuring a highly individualised treatment plan. By using already established clinical music therapy assessment tools in combination with commonly used standardised psychological inventories, the aim is to produce a treatment plan using a 'common language' which all collaborating physicians and therapists may comprehend and utilise throughout the work together.

#### *a. Standardised inventories*

Standardised inventories were completed by participants with the primary supervisor of the project. The inventories were completed at three time points: prior to the first assessment session, during the week following the final treatment session, and during the six-month follow-up appointment. The inventories used include the Hospital Anxiety and Depression Rating Scale – Anxiety Subscale (HADS-A; Zigmond & Snaith, 1983), Montgomery Åsberg Depression Rating Scale (MADRS; Montgomery & Åsberg, 1979), RAND-36 Quality of Life Inventory (Hays et al., 1993), Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986), Clinical Outcomes Routine Evaluation – Outcome



Measure (CORE-OM; Evans et al., 2002), and the World Health Organisation Disability Assessment Schedule (WHODAS 2.0; Ustun et al., 2010). The selected standardised inventories are commonly used in FND clinical research (Pick et al., 2020) and would monitor patients' levels of anxiety, depression, health-related quality of life, dissociative tendencies, general psychological distress, and general functioning levels.

### b. Music therapy assessment

The music therapist completes the clinical music therapy assessment during the first four sessions. It is a masked procedure, meaning that the music therapist is not made aware of the initial standardised inventory outcomes. This is so that the standardised outcomes will not influence the outcomes of the clinical assessment.

The music therapy clinical assessment used in the current research comprise a synthesis of existing music therapy assessment tools: The Music Psychotherapy Assessment (Loewy, 2000) and the Analytical Music Therapy Assessment (Scheiby, 2002). These assessment tools have common or complimentary areas of inquiry. In order to synthesise the tools, the researchers combined the common areas of inquiry based on their descriptions/defined parameters. It was found that most areas of inquiry were common, with some complimentary qualitative means of assessing them. Researchers included the kinaesthetic area of inquiry from the Analytical Music Therapy Assessment (Scheiby, 2002) in order to fulfill a physical (body-focused) area of inquiry for the assessment.

For the purpose of this research, these assessment tools were selected based on their congruency with a psychotherapeutic orientation, as well as their areas of inquiry that are compatible with a biopsychosocial framework of assessment. In addition, the two assessment tools are descriptive assessments, allowing the therapist to concretely describe their assessed observations of the patient, making connections between different areas of inquiry and the qualitative means of assessing. This type of descriptive assessment is conducive to the study's overarching aim of gathering information about FND and the various associated interacting factors on an individualised level. The intention is that by completing a descriptive assessment and allowing the therapist the time needed to write rich descriptions of their assessed observations, it will aid the therapist in formulating a comprehensive patient profile and an individualised treatment plan. The therapist is encouraged to use language in the descriptions (and in the treatment plan) that are conducive to multidisciplinary work as much as possible, approaching this assessment from a biopsychosocial perspective. This approach to writing will complement the interdisciplinary nature of the study, and positively impact the consultation module of the protocol.

### c. Visual analog scales (VAS)

A set of visual analog scales from the VIBRAC Skille-Lehikoinen Centre for Vibroacoustic Therapy and Research are administered pre- and post-vibroacoustic treatment during sessions 1 and 4 of the assessment period, and completed by the patient. These outcomes aid the therapist in assessing the patient's experience of VAT, in order to suggest a suitable treatment program duration and volume (intensity) in the treatment plan. The visual analog scales measure general arousal (restless-calm), vitality (tired-alert), mood (depressed-happy), relaxation (tense-relaxed), pain (unbearable-no pain),

quality of sleep (poor-good), range of movement (spastic-flexible), quality of life (poor-good), and limb temperature (cold-warm).

#### d. Patient profile and treatment plan

The completed assessment and outcomes from the standardised inventories will be used to formulate a patient profile in order to form individualised clinical aims and objectives within the treatment plan. Using the information gathered from both the assessment methods and a comprehensive patient profile, the therapist may use this information to formulate individualised clinical aims and objectives, as well as outline other important components of the therapeutic process including interventions to be used, recommended VAT treatment program and duration, and follow-up plan/procedure. This document, consisting of the patient profile (brief statement summarising information included in the epicrisis and outcomes of the mixed assessment methods), and relevant treatment plan information, will be reviewed with the referring physician during MD Consultation I.

#### e. Clinical report

After treatment has concluded, the therapeutic process will be evaluated, and the therapist will compose a clinical report as a means of following up and evaluating the original patient profile and therapeutic aims and objectives. Similar to the patient profile and treatment plan, outcomes of standardised inventories conducted during Test Point 2 are available to the therapist to further contribute to their evaluation documented in the clinical report. The clinical report additionally allows the therapist to recommend further treatment or referrals based on their clinical judgment. Once completed, the clinical report is forwarded to the referring physician for review during the second consultation.

### *Subprotocol 3. Treatment*

The basic session structure will remain consistent for all patients participating in the study (Table 2), as will the number of sessions (16 total). Elements within Table 2 are further explained in subsections 3 a-e. However, taking into account the fact that a) the current study is a series of pilot case studies, b) that only anecdotal clinical evidence exists for this clinical population with this approach to treatment, and c) that the study's overarching aim is to further refine and develop the treatment protocol, it is imperative that the therapist use their own knowledge of the patient and clinical expertise to determine if/how the basic session structure provided can be made ideally suitable for each patient they see.

<i>Verbal check-in</i>	Assess patient's current state and needs
<i>Vibroacoustic treatment</i>	40 Hz; Monitor and adjust duration, volume
<i>Verbal processing</i>	Cognitive, symbolic, emotional, sensorimotor levels of processing
<i>Active music therapy</i>	Active music intervention in collaboration with the therapist
<i>Verbal processing/close</i>	Recap the session, reorient (if needed)

**Table 2:** Basic session structure

The session structure itself has intentionally been established with relatively loose terminology and broad purpose descriptions to describe why interventions have been placed in the structure, while



leaving flexibility within that structure to enable the implementation of an individualised treatment plan. The flexibility is an imperative component of the MTFUND protocol, as that is what lends to the true ability to ensure individualised care for each patient. Though the common factor of patients participating in this study is their FND diagnosis, it is likely that no two experiences will be the same. Similarly, though interventions (structurally) remain consistent for all patients, internal elements of those interventions and the intent supporting their use will likely vary for each patient. Description of interventions and therapeutic reasoning for each can be found below:

#### a. Verbal check-in

The verbal check-in takes place at the beginning of the session and lasts approximately five minutes, depending on the needs of the patient. The purpose of the check-in is for the therapist to briefly assess the patient's current state as they enter the session, ensuring that the patient is settled, oriented, and comfortable in the clinic space before beginning with any active treatment interventions.

#### b. Vibroacoustic treatment

For the purpose of these pilot studies, and in aiming to accommodate the possibility of differing needs of patients and intentions of the VAT intervention, the Red Multivib program has been selected for use in the MTFUND protocol. The program provides the basic frequency of 40 Hz, which follows the principle for common practice in VAT, where it has been suggested that sound vibrations of 40 Hz would be a starting point for basic research (Ala-Ruona et al., 2015). The treatment program is played through a vibroacoustic bed, with 4 built-in low frequency transducers.

An underlying factor of inquiry for this research is to better understand individual experiences of an FND diagnosis. This includes understanding how the dynamic variables of such a diagnosis change and interact over time, from a biopsychosocial perspective and from the patient's own perspective. Because these individual experiences of the diagnosis can be quite diverse due to the broad range of symptoms, in addition to the comorbidities and risk factors that all have an influence on experience (Drane et al., 2021; Pick et al., 2019), it is necessary to assume that each patient will also have diverse experiences and outcomes from the VAT intervention. The VAT intervention may directly impact the patient's current experience of FND symptoms, a secondary symptom, and/or induce a relaxed state of mind and body. The many possible experiences will determine the intervention's role and emphasis within the session. Essentially, the therapist has the flexibility within the treatment plan to adjust the session structure as needed to best address the clinical aims for each patient. Ongoing assessment procedures and monitoring through visual analog scales allow the therapist to monitor patient responses to the VAT intervention and adjust program duration as per the patient's needs.

Patient-preferred music for relaxation should be played during the vibroacoustic treatment through mounted speakers in the therapy space. The therapist should familiarise themselves with the types of music that the patient typically listens to in order to relax, so that the therapist can choose music based on their preferences and suitability to the therapy itself. Music should be fairly predictable in nature, with no sudden changes in dynamics or tempi.

#### c. Verbal processing

As mentioned, each individual's experience of the VAT intervention will be unique, which is why it is crucial to process the experience on multiple levels. The discussion immediately following VAT is

meant to bring awareness through multiple levels (cognitive, symbolic, emotional, sensorimotor), by encouraging the patient to reflect on any thoughts, images, memories, emotions, and bodily sensations that occurred during the VAT intervention (Punkanen & Ala-Ruona, 2012). By breaking the experience down into different levels of processing, this not only helps the patient isolate certain significant moments of the intervention, but may also aid in the processing itself, by integrating several separate pieces of cognitive, symbolic, emotional, and sensorimotor awareness to a larger complete picture of the experience, and perhaps even of other aspects of the patient's life outside of the therapeutic setting.

Keeping in mind this holistic, biopsychosocial approach to discussion (and as emphasised throughout this protocol), the opportunity exists for the patient to learn how to integrate multiple levels of an experience, with encouragement and support from the therapist. By encouraging this integrative approach to therapy, not only does this reinforce the biopsychosocial approach to the clinical protocol through a more holistic understanding of the patient and their experiences, but it may also help the patient in forming a better understanding of their diagnosis.

#### d. Active music therapy

The active music therapy intervention, specifically clinical improvisation, has been included in the clinical protocol as a means to further process previously verbalised material on a non-verbal level, or as a medium to uncover new material related or unrelated to the verbal processing (Erkkilä et al., 2012). It is important to remember that the music created during the clinical improvisation can have varying purposes, depending on the therapeutic aims, the patient's current needs, and the progression of therapy. The music itself can be therapeutic, the physical aspect of playing instruments can be emphasised, the music can work as an intermediary object or symbolic means, or the music can work as a catalyst that prompts deeper work. Just as patients will have different experiences of the VAT intervention, the intent for incorporating clinical improvisation into the treatment plan will also vary. Further verbal reflection following the active music therapy intervention allows the opportunity to process once more on cognitive, symbolic, emotional, and sensorimotor levels (Punkanen & Ala-Ruona, 2012), bringing continuity to the experience between interventions, and integrating the entire session as a whole.

Similar to the flexibility of the VAT intervention, the intent behind engaging in clinical improvisation with the patient, and the prominence of this intervention in relation to the session as a whole, will depend on the outcomes of the assessment, the established treatment plan, and ongoing assessment/clinical observation.

There are three instrument configurations included in this protocol for the purposes of this research. The first includes two melodic percussion instruments (with mallets); the second consists of two djembes; and the third is two keyboard instruments. Each pair of instruments are set up so that the therapist and patient are facing one another, each playing their own instrument. Between the three possible options there are opportunities for a range of experiences within clinical improvisations. The instruments provide opportunity for melodic or percussive playing, different timbres, as well as differing practical levels of accessibility in terms of grip strength, finger dexterity, and sensory sensitivity.

#### e. Verbal check-in (close)

Like the opening verbal check-in, the closing check-in allows the therapist to briefly assess the patient's current state and ensure that the patient is leaving in a safe state. This final check-in should summarise the content of the session, provide an overview of any over-arching themes from session to session, and leave the patient looking towards the next session.

#### *Subprotocol 4. Follow-up*

A follow-up appointment with each patient will occur approximately six months after the initial appointment. During this appointment, the final set of standardised inventories will be administered to monitor any long-term effects of the treatment. In addition, a reflective discussion between the patient, therapist, and supervisor will be recorded. Discussion will cover themes from the individual therapeutic process itself, the patient's current experience of their diagnosis and symptoms, the diagnosis' impact on their lives, as well as the therapeutic process' impact on their individual experiences of their diagnosis and their everyday lives.

#### MTFUND training and supervision

Therapists working for the current phase of the MTFUND project were trained in the protocol through interactive lectures, demonstrations, and experiential-based training across ten meetings, totalling approximately twenty hours.

Regular group supervision sessions were scheduled every second week with the music therapists, led by the research supervisor/clinical supervisor. Therapists were able to seek additional supervision with the clinical supervisor or seek peer supervision with other therapists of the project, as needed. The format of group supervision was chosen as the preferred method of supervision for this research because of the opportunities it offers for the therapists to actively contribute to and learn from other therapists' experiences in similar therapeutic contexts. Regular supervision also contributed to the maintenance of treatment fidelity throughout the study, ensuring that all therapists execute the clinical protocol consistently and effectively, and completing the documentation as required.

## Part 2: Experiences within the MTFUND protocol

### *Methodology*

#### Design

In order to contribute to a more comprehensive understanding of patients' experiences with FND and to evaluate aspects of the efficacy of the presented MTFUND Protocol, this study explores the experiences of both the patients and therapists who participated in the initial case studies of the MTFUND Protocol case series. The study focuses on the qualitative material collected during the follow-up subprotocol (see subprotocol 4, above), in which patients provided subjective accounts of their experience in music therapy and relevant reflective material regarding their symptom experience, daily functioning, and access to care. The follow-up discussion took the form of a semi-structured

thematic interview with predetermined guiding questions, ensuring topical consistency across all interviews in the study (Kelly, 2012). Furthermore, a semi-structured discussion took place between the music therapists and supervisor of the study in order to contribute an additional perspective in evaluating the execution of the MTFUND Protocol. Pre-determined topics included in the discussion were protocol training, assessment, multidisciplinary collaboration, interventions, supervision, and patient follow-up.

### Participants

Patients were all adults ( $n = 6$ ; age range 18-65) diagnosed with FND and were referred from either the neurology department or psychiatry department of the local hospital. The two therapists are both qualified music therapists with additional training in vibroacoustic therapy. The clinical supervisor is a music therapist, psychotherapist, and trainer/supervisor of vibroacoustic practitioners.

### Ethical considerations

The current study was approved by the Regional Medical Research Ethics Committee of the Central Finland Healthcare District. Patient information has been anonymized by codes and sensitive data kept confidential throughout the research.

### Data sources

Audio recordings of the follow-up discussions were transcribed to text for analysis. Two follow-up discussions were in the Finnish language, two discussions were bilingual (Finnish/English), and two discussions were in English. Finnish audio was transcribed to Finnish text, prior to being translated using DeepL Translator. The translated text was then verified for accuracy prior to the analysis of the text. The audio recording of the discussion between therapists and supervisor, in English, was transcribed to text for analysis.

### Analysis

This study seeks to explore the experience of individuals within the MTFUND protocol, therefore it is appropriate to approach the thematic analysis from a constructivist paradigm, in which ideas or perceptions are considered as individually constructed in various ways (Hoskyns, 2016). This allows us to view the data as comprehensive and with multiple, complex perspectives and values (including the researcher's), from within a common context.

Two separate thematic analysis processes took place to allow for themes from the patient perspective and themes from the clinician perspective to be presented separately. Multiple perspectives will aid in the analysis of clinical data and refinement of the protocol for future study. The researcher conducted an inductive reflexive thematic analysis (Braun & Clarke, 2021), which can be conceptualised as the nonpositivist, constructionist end of the 'spectrum' of thematic analysis and emphasizes the "inevitable subjectivity of data coding and analysis, and the researcher's active role in coding and theme generation" (Braun & Clarke, 2021, p. 8). The researcher's active role, in this case, extending also as music therapist, thus bringing additional viewpoints, values, and knowledge to the analysis process (Ghetti & Keith, 2016; Hoskyns, 2016). As Braun and Clarke (2021) point out, this position on the spectrum of thematic analysis makes a 'pure' inductive process impossible because

of the assumptions a researcher naturally brings with themselves to the analysis. Therefore, the inductive orientation in this research is to be considered as grounded in data. The intention is to use researcher subjectivity as a tool to strengthen, or deepen, the analysis and interpretation of the data, following an intentional, reflexive engagement with the data (Braun & Clarke, 2021). Specific to the current research, the authors were both active participants in patient follow-up interviews as well as in the therapist discussion, as indicated by their roles as either music therapist or clinical supervisor.

The process of transcribing, translating, and verifying naturally allowed the researcher to engage and become familiar with the interview data prior to the analysis. The following analytic process as described occurred two times for two separate sets of themes; first, to analyse the follow-up discussions with patients, and second, to analyse the discussion between therapists and supervisor working for the project. Analysis proceeded by working line by line through each transcript and applying codes to anything identified as meaningful. Consistent with a reflexive approach, the researcher noted her own experience of the data, reflecting on its impact on the analysis. This was especially relevant when analysing discussions in which the researcher was an active participant as therapist. Codes were then organised in a way that reflected similarities in what was expressed among the participants. Each patient's and therapist's experience within the therapeutic setting was undoubtedly unique and there were multiple important perspectives that the researcher was further able to engage with in the process of generating themes from the coded data. Thematic maps were used to further develop conceptualisation and these maps were changed as the researcher returned to and from the raw data, ensuring the analysis was grounded in the data. The development of thematic maps provided clarity regarding differences and overlap between ideas, allowing the researcher to refine the ideas and generate representative themes to be reported.

## RESULTS

### Patient follow-up

The analysis of the patient follow-up interviews generated five themes, one of which had two subthemes. These are defined and described further below:

#### *1. Difference in symptom experience*

Patients noticed a difference in their symptoms during music therapy sessions, whether in regard to symptom frequency, intensity, or their experience around the symptoms (for example, precipitating events or behaviours). For most, responses indicated an improvement or even elimination of symptoms outside of music therapy sessions, which had a lasting effect post music therapy. It should be noted that this was evident across FND subtypes/symptom presentations.

At the 6-month follow-up appointment, Patient 0121, whose primary FND symptom was functional tremor, stated that she, "can't remember the last time [she] had shaking." Patient 2102 stated that her dissociative seizures had stopped since the conclusion of music therapy. Patient 2104, whose primary symptoms were limb weakness and accompanying pain, also reported an elimination of her symptoms since music therapy. She says, "Legs and hands are working normally, but I think

that's the best thing here. No pain or just a little pain [in the leg]. Most days I don't have any pain at all."

For others, learning about their own experience of their symptoms gave them a sense of awareness and understanding around the experience, reducing their fears and/or anxieties. Patient 2205 described her dissociative symptoms as less extreme since concluding music therapy and that her attitude towards her dissociative experiences has changed:

I'm more aware of the dissociation and I'm able to think differently ... When you realise that your mind and body are in completely different places again, it somehow doesn't bother you so much anymore. Before, it used to bother me, like that fact that it happened again, thinking 'what was wrong with me?' So, it doesn't feel so scary anymore, maybe, now that we have talked about it and I have never really talked about my dissociation issues before. (Patient 2205)

Recognising parts of the symptom experience seems to desensitise the patient to the symptom, in a way, halting any anxiety/fear-provoked perpetuation or worsening of the symptom. Similarly, Patient 2207 also described a sense of awareness of her symptom experiences, stating that she still experienced her cognitive symptoms regularly, but they were less severe, and for shorter periods of time.

## *2. Attitude toward patients' own care*

General dissatisfaction, confusion and/or frustration with previous care led to some patients expressing a sense of skepticism when beginning music therapy. However, patients' attitudes changed, demonstrating an improved attitude toward their own care by the end of music therapy. This was expressed in various ways, either by expressing a sense of independence in their own care, and/or describing a newfound sense of agency, enabling the patient to describe the type of care that would suit their needs best. In regard to care, the follow-up interview had an overarching forward-looking sense and tone of optimism. Patient 2102 describes her change in attitude:

I went to therapy for many years and it didn't do me any good and then I went to music therapy a couple of times, and it seems like it changed everything, because I was really skeptical, so to speak, 'how can something like this work?' (Patient 2102)

With multiple treatments and referrals to various specialists over time, many patients also described a sense of confusion and even neglect. Some pointed to the need for more education at the time of diagnosis and throughout treatments which would have aided this confusion, and others have tried so many different treatments that it's unclear what actually helps.

By the end of music therapy, and through the follow-up point, there appears to be a shift in patients' attitudes towards their own care. Many expressed feeling independent in their current care, at the time of follow-up, citing specific coping tools, and their ability to employ the coping tools in everyday life situations. Patient 2205 spoke about learning about her inner resources and learning how to use them to cope:



Maybe you noticed that you have more resources in yourself than you imagined ... I don't think so negatively about myself anymore. I used to think that I was no good, but then... I realised that I still [have] some resources left. So I don't think so badly of myself. (Patient 2205)

Patient 0121 had a similar realisation, in terms of learning emotional coping and processing skills, stating, "I have been so many years in therapy, I feel like I will now try on my own. I think I cope well enough. I got a lot of tools to survive." Patient 2207 described what felt like "freeing her mind", by learning how to compartmentalise, which was a prevalent coping tool in her process:

In the past it was that you were constantly thinking about what you should do, and what you have done, but now I can push things aside more, and then when it's time to think about them again, [bring it back] from the side. (Patient 2207)

Patients who saw an elimination of their functional symptoms entirely, such as patient 2104, were confident in their recovery, stating, "I don't think I need anything. [...] I think I'm going to be fine, so that's it."

For some patients, further treatment was recommended by their therapist in the final clinical report. During the follow-up interview, some patients shared that they have had ongoing care from therapies including rehabilitation psychotherapy, psychophysical physiotherapy, and psychology with a focus on psychoeducation, and/or regular follow-ups with neurology or psychiatry. Though recommendations for further treatment in these cases were made by the music therapist in the final clinical report, it's important to note the patients' attitudes towards this ongoing care, which were evident during the follow-up interviews. Patients seemed motivated to continue the work they had uncovered in music therapy. There was a sense of agency over their own care, with patients able to describe the kind of focus they would need in further care. Patient 2102 said that at the conclusion of music therapy, she acknowledged that she would need further support processing material that she hadn't been able to access, as well as more coping skills for everyday life. At the time of follow-up, 2102 had been seeing an adolescent rehabilitation psychotherapist as continued support. Patient 2205 stated that at the conclusion of therapy, she had wanted to learn more about her FND diagnosis, her symptoms, and possibilities for further treatment. At the time of follow-up, 2205 had been receiving continued support with psychophysical physiotherapy.

### *3. Therapeutic interventions were multimodal, multisensorial, and multipurpose*

a. VAT as a multimodal intervention provides tactile sensory input, allows the body to relax, and/or enables the patient to uncover suppressed/previously inaccessible content.

VAT provides a multisensorial experience, with unique, individual experiences of those sensory stimuli, prompting an individualised, integrative processing across multiple cognitive levels with the therapist in order to progress the therapeutic work. Patients spoke of VAT removing some kind of "block" and allowing them to uncover material or themes to process further with the therapist. Patient 0121 and Patient 2205 spoke of this block being released with the vibrations.

It's like opening a bottle, [but] I wasn't opening the bottle, the machine [vibroacoustic bed] was doing it and somehow... something was under the shakes [symptom], like what emotion was hiding there? ... I think it's just because I am holding some emotion and it kinda wanted to come out. (Patient 0121)

Physically it feels like that vibration somehow disconnected those things. From there, from somewhere, and then they helped so that they came from there. And I can't explain what I mean, but it's like I'm stuck there. And then when it vibrates, and then things come out of there that just came to mind. (Patient 2205)

The patients of MTFUND also indicated that VAT allowed the mind and body to relax, and that this was important to accomplish at the beginning of a session. Patient 0121 describes this process, "First I got to relax... then the body is not that tense. Kinda gave more opportunity to be more open. When the body is tense, it kind of starts affecting a little bit the emotions." Patient 2207 reflects a similar experience of getting out of her own mind and learning how to relax:

When you're kind of forced to relax, in a way it's a good break from your own stress. And of course, we also dealt with the thoughts that are in your mind, that you are thinking about at the time and can't relax. (Patient 2207)

Patient 2206 found that VAT allowed him to relax because it served as a distraction from his chronic pain. He says, "it takes my stress away for a while, so I can concentrate different things. I can put those pains behind and just relax and enjoy the moment."

Some patients refer specifically to the multisensory sensations experienced during VAT, specifically tactile sensation (feeling the vibrations) and auditory stimuli (listening to the background music). Patient 2205 describes difficulty in being able to experience both stimuli simultaneously and this reception to stimuli changing over time:

I either heard the music or felt the vibration, it was little one or the other, like the lights were flicking on and off. And then sometimes I felt both at the same time... Not the first few times I could not combine the sound and vibration, but then at the end there were some moments that there was both and it was really interesting. (Patient 2205)

Patient 2206 described in great detail how the VAT was able to resonate in his body and reach the "right points" where he experiences chronic pain. He elaborates on the experience, saying, "when I have that vibration, it's like at the start it feels like waves, like, coming through body parts when it's going... so it feels just like my whole body is vibrating."

#### **b. Active music making as an intervention can have multiple purposes**

Active music making as an intervention served different purposes within therapeutic processes: rehabilitative music making, music making as release (mental/physical), and the use of music making as a tool for processing. Patient 2104 recalled the active music making intervention as a rehabilitative exercise. She referred specifically to music making exercises designed to encourage crossing of the

midline to work on proprioceptive abilities, saying, “I think it was very good that you made those exercises happen across the line.”

Active music making also allowed for further processing or exploring of emotional content using a nonverbal medium. Patient 0121 reflected on her experience of learning new perspectives about what was in her mind. She was able to use music to try and describe a feeling, to move the processing deeper, or to approach the processing from a different perspective:

If there is a situation, when a person is not able to talk about feelings or talk about something, going there and playing piano or some kind of instrument, because music also tells things. So that's kind of some sort of way to communicate. (Patient 0121)

This kind of emotional release through music making allowed patients to learn about their emotional processing abilities, and structure those experiences non-verbally and verbally. In the follow-up interview, Patient 2205 described how music making allowed her to structure and organise her thoughts in different ways in order to easily process them further. Patient 2207 found that improvisation complimented the VAT intervention well, reflecting that improvising music contributed to her practice of relaxing the mind and “letting go.”

#### *4. Integration as a therapeutic agent*

According to patients' reflections, the process(es) of integration – of body and mind, and/or of fragmented parts of the self – served as a major working element within sessions, which had direct and prolonged effects outside of the therapy context. Mind-body awareness and the related integration process was a focus across many of the therapeutic processes. Patient 0121 described this learning experience and how she gained more autonomy over her body and emotions. The patient learned that when her body felt tense, it meant that there was a buildup of emotions within that physical tension. Typically, her body would “release” that emotion and tension by shaking (FND symptom), but she learned that she could also independently process that emotional content, reducing the need to shake. Patient 2205 described her experience of integration, and how it felt surprising to have the mind and body connected, even if just for a moment of time:

When you're used to being completely detached from yourself... it feels very strange when you're not used to it. Somehow it feels liberating, free. Now there have been more of them [connected moments], and it's like you notice that your body and mind are together and then you get a little bit of a startle. (Patient 2205)

Patients also described learning more about themselves, discovering new sides of themselves making connections, and integrating the experience. Patient 2205 spoke about understanding herself better and on a more serious level:

...how much it has affected like, my experience of myself, which I think is probably the best thing. The fact that I am not what has happened to me. Like all the ways I see myself more now and how I experience things. So that's probably the most important thing. (Patient 2205)

Patient 2207 described learning more about herself by allowing her mind to relax, which prompted therapeutic work with the therapist. She says, "and then the relaxation thing happened, and all kinds of really strange images came up, and we dealt with them. It was quite good to get out of the mind that where they really come from."

### 5. *Everyday life impact*

Music therapy seems to have been a positive experience with noticeable effects that translated to overall functioning capabilities and sense of wellbeing in everyday life, which have been maintained since its conclusion. As mentioned before, the overall tone of the follow-up discussions thus far have been optimistic and forward-looking. This tone translated into discussions of the patients' everyday lives. In terms of overall functioning in society, many patients had a positive outlook when planning for the future. This includes making career plans post-graduation, applying to university studies, and pursuing weekly volunteer work. Patient 2102 reflected that music therapy "helped – to get on with life; planning for the future."

Patients also commented on an overall better mental state, improved mood, increased stamina and energy, and improved confidence. It was important to many of the patients that they were able to participate in hobbies or activities that they enjoy, because this also contributes to their mental health positively. When their symptoms prevent them from being able to participate in activities that they enjoy, it's disappointing. Prior to music therapy, Patient 2104 was only able to walk a few kilometers on a "good day," and some days half a kilometre was too long. At her follow-up appointment, she reported a significant change:

I have had few days that I have walked over 20 km and no problem... so legs are working well. I walk faster than before, so that saves time to do something else. I can do things which I enjoy and love, and get more relaxed because I don't have to use so much time going from one place to another. (Patient 2104)

Patient 2206 explains that his mental health has been very positive because he is able to participate in activities outside that he enjoys such as hiking, fishing, and hunting, and being with friends. He continually tries to improve his fine motor stamina by playing his guitar daily for short periods of time.

### Therapist discussion

The discussion between therapists and supervisor was held with the aim of providing an additional perspective of the protocol. At the time of discussion, both therapists had utilised the protocol in multiple cases, thus enabling an in-depth critical discussion. The analysis of the therapists' discussion generated five themes, which are defined and described further below:

### *1. MTFUND training was comprehensive, and balanced the theoretical background information with practical elements of the protocol*

MTFUND training ensured that therapists were prepared and equipped with the necessary information without having any expectations or bias regarding working with this clinical population. Therapist TL stated that he was “very happy for the theoretical background” provided, and that it allowed a certain level of preparation, “to kind of look more carefully what is going to be in this group [...] because it’s not common, and quite complex.” Therapists felt that there was a certain balance that needed to be achieved within the training, to provide the necessary theoretical background for understanding a complex phenomenon and to provide effective therapy. This allowed the therapists to enter into the clinical application of the protocol with an open mind to avoid expectations of outcomes or preconceived notions about working with the diagnosis. Therapist ML described this balance as having “enough knowledge and background, but also going into it with an open mind.” Therapists agreed that regular group supervision contributed to the training process, offering a means of on-going training by learning from each other.

### *2. The MTFUND protocol places an emphasis on a holistic approach to viewing the patient, thus encouraging an individualised, flexible approach to interventions within a reliable structured therapy framework*

Therapists indicated that interventions within the MTFUND protocol are implemented in a way that is tailored to the individual, with the purpose objectively defined in the treatment plan. A holistic, biopsychosocial approach to the protocol, including both assessment procedures and treatment, highlights the need for more than just a symptom-focused response.

FND itself, yes, it’s an experience of some kind of symptom or a series of symptoms. Yes, you’re experiencing those symptoms, but it’s a lot bigger than that for the person because they might not understand why, because there’s nothing broken. Next, their dealings with the system and other healthcare professionals could be very weak or damaged, so that’s another layer. And then also how their symptom experience impacts their everyday life and functioning. Are they able to work? Are they able to go for walks with their kids? It’s so much of a bigger picture than just dealing with the symptom. These are things that fulfill [their] life, that now they can’t do, because [they] don’t understand what’s going on with their body. So, it’s multilayered. (Therapist ML)

This reflection also brings focus to the necessity of an individualised treatment, and the balance required in design of the MTFUND protocol, between individualised care to meet the complexity of the diagnosis through a certain degree of clinical freedom available to the therapist, and the frame of a consistent protocol

The therapists agreed that the structure of the protocol provided stability for the therapist to lean on, but also provided a sense of familiarity for the patients, aiding the establishment of safety and trust. The structure allowed therapists to switch modalities in order to build momentum within a session – to build on a current theme using a different modality, and this offered a way to optimise

the care with a compounding effect. It was also discussed that it is the therapist's responsibility to recognise the moments of transition, in order to integrate all of these possible experiences within a session, on multiple levels and modalities of processing and uncovering material.

Sometimes it's easy to recognise some theme being evoked from the vibroacoustic part and you can clearly take that with you and then move on towards the more active part and when you're investigating that, you are exploring that what was already evoked there and then that continuum is rather seamless. (Supervisor EAR)

Therapists disclosed some struggles when it came to balancing decisions made within sessions that would be consistent with their everyday practice and decisions made to fulfill requirements of the protocol. Along with the supervisor, the discussion questioned the degree of flexibility available to the therapist within a research context and the difficulty in finding the ideal balance. Though the interventions included in the protocol are intended to be flexible enough to address different needs and have varying purposes depending on the needs, the therapist needs to ensure that the execution of interventions is ultimately grounded in the clinical aims. The roles of interventions should be objectively defined within the treatment plan, so that the therapist may concretely rely on this throughout the implementation of the treatment plan. Though this poses a potential challenge when evaluating the interventions to include in future studies, ML points out that, "the treatment itself, the protocol, the tools, the interventions offered within that, we've been able to modify and be flexible enough within that and have successful outcomes, which is generally good."

### *3. The assessment subprotocol is an organised process of condensing, connecting, and evaluating relevance of assessment information from multiple sources in order to effectively compose a treatment plan*

The assessment sub-protocol is an organised, but time-consuming process, offering a wealth of information about the patient from different perspectives. The process of determining relevant and pertinent information, and condensing the assessment outcomes to a profile statement is valuable, integrative, translative process, and highlights the important differences between treatment-planning assessment and diagnostic assessment. Regarding organisation in the procedure, TL pointed out that the templates provided for use during the assessment offered an organised way to manage a lot of information and to gradually condense the information to the necessary information required for building the treatment plan. ML commented that though a lot of information result from the multimodal assessment, it allows for therapists to make conclusions based on information from multiple sources that complement each other, helping to determine the relevant information to include in the patient profile statement.

What items are connected between what I have assessed versus what we see in the questionnaires? Taking the time to look at the sets of information and determine what it actually means about the person... what it tells us about the person and what we should be concerned with in the therapy. (Therapist ML)



Though it was time consuming, therapists agreed that it was a valuable process to look at all of the information from different sources and determine what is pertinent to include in the profile statement to the referring physician, what information is relevant to the case and to the formulation of a treatment plan, and finally how to translate the therapist's output to a common language in order to effectively collaborate and communicate with the referring physician.

I think it all contributed to the other...I don't think we could get a full comprehensive look of the patient with just the music therapy assessment, and I don't think we could have a comprehensive look of the patient just from the questionnaires. I think we gained perspectives of the patient from each, and they kind of answered to each other. (Therapist ML)

Once more, attention is brought to the crucial difference between diagnostic (symptom-focused) assessment and treatment planning assessment. The therapists point out the importance in moving past a symptom-focused assessment, and that when using this multimodal assessment, it provides a comprehensive view of the patient and their needs. Through this, therapists have the opportunity to integrate this information into an individualised treatment plan.

#### *4. The therapeutic effect of MTFUND*

In regards to the generalisable elements of the therapeutic effect, therapists described MTFUND as an intensive process which fosters a supportive, equal, and collaborative approach to care, contributing to the establishment of the therapeutic alliance early in the therapy process. Though each patient's experiences are unique, therapists recognise the process of integration as being a multifaceted process and crucial to the patient's sense of self and autonomy.

In a protocol which emphasises the importance of individualised care, the therapeutic alliance becomes a crucial aspect to the effect of therapy as a whole. The therapists point to an equal partnership between patient and therapist. ML referred to this as a "supportive and collaborative approach." EAR elaborated on the concept of "not knowing as an approach":

So that you are there at the same level with the person and you are not offering anything like answers to someone's problems, but instead of that, you are expressing your willingness to share things together and start to think about, okay, what we are having here and how could we understand that and where does it relate to? (Supervisor EAR)

This type of approach was fundamental, especially given that the protocol was being piloted, and there is limited evidence available for music therapists working with this clinical group. Although therapists cannot answer all the questions that these patients may have, they are willing to support and collaborate with patients throughout the therapy process. With patients actively involved in the process, therapist TL pointed out the sense of curiosity and enthusiasm many patients felt as they learned the possibilities within the protocol, "What's happening here? What else is possible?" Indeed, it was this sense of enthusiasm and motivation that therapists noted as impacting patients' everyday lives, and at the end of therapy, noticing an improved sense of agency in their own care needs. Actively

involving the patient in the therapy process provided a feeling of safety in care. Given that many patients had had a difficult and lengthy treatment history, this feeling of safety and involvement is a contrast to what patients are accustomed to, giving them a voice in their own care.

The therapists also discussed the role that VAT may have in establishing the therapeutic alliance quickly. With the use of VAT as an intervention, the therapist is trained to ensure the patient's sense of safety and comfort by providing a safe, caring, and nurturing. Physically, the therapist ensures that the patient is in a comfortable position, using pillows to support the neck, lower back, etc. as needed, and places a blanket over the patient, offering an additional nurturing element to the interaction. Additionally, care is expressed through the personalised elements of the intervention, such as the use of the patient's preferred relaxation music during VAT. Initially, VAT is an unknown situation and perhaps could be considered a vulnerable space, where the patient is quickly putting their trust into the therapeutic context and the therapist. It's important in this space that the therapist acknowledges and validates the patient's unique experience of VAT and providing care by listening to the patient's experience from multiple levels of reflection, which further contributes to a personalised, caring atmosphere to the session. The VAT itself, is a unique and individual experience for each patient, and provides them the opportunity to reflect on their experience on multiple levels in the moment with the therapist. TL points out that because of the fresh sense of the experience, it allows for the process to go deeper, faster:

The unique experience is there just in the moment there and... then you kind of rely on that more than if there wasn't that experience of vibroacoustic there, if you start to ask your patient like, 'how do you feel in your body now? Where do you feel?' (Therapist TL)

Another generalisable quality of the therapy across the therapists' cases was a focus on integrating different parts of the experience. Therapists spoke about many patients working to integrate a fragmented reality into a more integrated sense of self throughout the therapeutic process. This was not necessarily always a specifically defined goal, but a natural product of therapy progression. In line with the collaborative approach to therapy, the patients had an active role in the integration process, and this often resulted in moments of clarity and insight for the patient throughout the therapy. Naturally, as integration progressed, patients start to mend their relationship with their own body and mind, increasing a sense of agency and autonomy, ultimately having an impact outside of the therapy setting as well. Therapist ML states, "it's another layer of the integration, constantly relating from therapy to outside therapy, and encouraging that everyday functioning and participation." In fact, the therapists found that the levels of reflection (cognitive, symbolic, emotional, sensorimotor) that were prompted through therapist discussion related well to integration and guided the process for the patient. Therapist TL further mentions that at the end of most sessions, he would often ask patients what they will take with them. He reflected that this helped to contribute to the integration process outside of therapy, the patient's level of motivation, and their sense of agency in their own care.

### *5. Key qualities and values of MTFUND that should be maintained and/or expanded in further research studies, in order to ensure applicability in practical contexts*

The multidisciplinary woven through the protocol was a strength and the therapists agreed that this was especially important looking to future practical implementation outside of a research setting. Establishing a line of communication between the music therapist and the referring MD added value to the project, and allowed for MD input and/or consultation at different points during the therapy process. At times, the therapists felt some restriction that communication only took place digitally between the two different institutions, and this brought up questions regarding the implications for use within a common context. For example, what would the multidisciplinary aspect of MTFUND look like if it took place within one hospital or clinic? The therapists agreed that there was certainly added value and questioned how to expand this aspect of the protocol and develop it further for future phases of the research.

It opens up the opportunity for this protocol to be used as adjunct to physiotherapy or psychotherapy, or anything like that. If we have such a comprehensive assessment, and our treatment plan is able to say also, 'this patient would benefit from music therapy and physiotherapy'... You know, have that ability in a multidisciplinary team, I think that would just enhance it that much more. (Therapist ML)

Presently, there are other healthcare specialties working with patients with FND, and so when looking to potentials for practical use, music therapy should be included to expand the multidisciplinary of MTFUND to include other healthcare professionals.

When looking to the future of MTFUND research, the therapists discussed the importance of continuing to balance between practical clinical application development and systematic, methodologically grounded research in order to better understand the phenomena and gather detailed evidence.

We are working towards something... so that we can get more detailed evidence and information which is based on analysis of data that we have collected, but on the other hand, we would also need to start to create that clinical practice with those people in the medical community, and trying to build up something where all this knowledge could be easily applied. (Supervisor EAR)

It would be important to maintain as much of a naturalistic element as possible within future research of MTFUND, in order to ensure applicability and practicality of use outside of research settings. Simultaneously, the systematic delivery of therapy within a research context, is a valuable and unique aspect of the protocol that should be maintained, and even developed further in future phases of study. Naturally, as these pilot case studies are further analysed, the research in future stages will be increasingly grounded with better understanding of the phenomena, contributing further as the research progresses.

The therapists reflected on the study's exploratory nature in this pilot phase, agreeing that the outcomes are likely to provide a broad range of information, contributing to a better understanding of the phenomena. This will allow for future studies utilising MTFUND to have a narrower focus, ultimately making the protocol easier to deliver practically as a service. It's likely that the outcomes of the pilot phase of MTFUND will raise further questions, which is ultimately a positive outcome of an exploratory pilot phase. In looking at where to direct focus in future work, ML says, "Are we focusing on creating treatment plans, or are we focusing on the efficacy of the treatment that we're offering?" For future planning of research, it would be necessary to consider which aspect of MTFUND, or which sub-protocol, is being investigated further. Ultimately, narrowing the focus of subprotocols (MTFUND-Assessment, or MTFUND-Treatment, for example) would be beneficial in producing high quality research with a deep focus on a specific area of investigation. By narrowing down the focus, we also develop the clinical practice, making MTFUND more practical for delivery outside of a research context.

## CONCLUSION

Considering themes from the follow-up interviews with patients and the discussion between therapists provides us with a more complete picture of the experience within the MTFUND protocol from multiple perspectives. Though the themes came from different perspectives, it is possible to see certain common core elements of the protocol.

Interventions are an important element within a treatment protocol and this is evident across both sets of themes. The interventions within the MTFUND protocol, including vibroacoustic therapy (Grocke & Wigram, 2007; Hooper, 2001; Punkanen & Ala-Ruona, 2012) and clinical improvisation (Bruscia, 1987; Erkkilä et al., 2012), were selected because of their inherent flexibility and ability to be multimodal in effect by addressing the needs of an individual on all levels (Kozłowska et al., 2012; Lazarus, 1976, 2006). The results from this study seem to indicate that the selected interventions were successful in their original intention of integrating the care of physiological and psychological needs of patients with FND within a multimodal approach to therapy (Demartini et al., 2014; M. J. Edwards, 2019; Ezra et al., 2019; Jimenez et al., 2019; Lidstone et al., 2020). We can also define the interventions as multipurpose, as therapists have the opportunity to objectively define the purpose of interventions within the treatment plan.

An important aspect to consider for future research will be how to maintain this multipurpose and flexible component of the interventions, while taking into consideration the differing sensorial experiences of patients. Further, consideration in this regard should be made in the training aspect of the MTFUND protocol, allowing for education and experiential training for potentials in multipurpose and flexible intervention use.

Responses from patients and reflections from therapists reveal that patients' symptoms and/or their experience surrounding those symptoms changed over the course of music therapy, and some experienced this as a long-term effect. These changes in symptom experience should be specified further in future publications of clinical results. Considering these changes, coupled with the intentional use of flexible interventions, it's possible to also view this change as a gradual change with how the patient and their symptoms interacted with the intervention over time. Therapists were

working within a structured protocol with consistent interventions, but the reception and interaction with the intervention changed as the interventions' interactions with the patient and their symptom(s) changed. It's also necessary to consider the range of symptoms we see represented in these initial cases. Functional symptoms related to dissociation, seizures, limb weakness, tremor, chronic pain, and cognitive symptoms are represented across these initial cases. The symptoms vary greatly, but each patient noticed a difference in their symptom experience during/after music therapy, perhaps highlighting the importance of the flexible intervention use and individualised treatment planning within MTFUND.

The concept of integration was a prominent source of discussion across the patient interviews and the therapist discussion. It is valuable to consider the concept from both of these perspectives, and how each patient and therapist experienced integration within their individual processes. Integration, whether it be between mind and body, parts of the self, aspects of the experience and interventions, or integrating therapy and outside of therapy, could perhaps be seen as an outcome of utilising a holistic (biopsychosocial) approach to assessment and treatment within MTFUND. Looking at FND from the biopsychosocial framework acknowledges the interactive relationship between predisposing, precipitating, and perpetuating factors from biological, psychological, and social viewpoints, and how these interactions influence the experience of functional symptoms, unique to the individual (Hallett et al., 2022; Pick et al., 2019; Voon et al., 2016). Integrating the biological, psychological, and social aspects of a whole person throughout sessions, as well as acknowledging these elements through assessment and treatment planning, naturally promotes internal and external integration, ultimately translating positively to everyday life through subjective feelings of wellbeing and functioning abilities in society. This was evident from the reflections of patients and therapists.

There seemed to be a positive shift in attitude toward healthcare indicated across the patients' follow-up interviews. It is an unfortunate reality that many patients with FND have negative experiences and negative associations with healthcare, whether in regard to systemic difficulties and/or with healthcare professionals (Begley et al., 2023; McLoughlin et al., 2023). Patient responses during the follow-up appointments took on an optimistic, independent, and confident tone, with many patients indicating an improved sense of agency over their own care. This was certainly a positive secondary effect of the therapy, but consideration needs to be paid as to why this effect took place in order to explore further implications. We could say that a major contributing factor to this change in attitude was the collaborative approach to care between therapist and patient. The therapists spoke about this "equal, collaborative, supportive" approach that was naturally adopted in MTFUND because of its exploratory nature. As a result, the patients within MTFUND had a voice within their own treatment. As the therapeutic alliance was strengthened, patients became more comfortable expressing their needs, their current state, changes, and questions. Patients weren't asking for answers necessarily. Rather, they were asking for support and collaboration in learning more together with the therapist. Perhaps this improved confidence in their own voices, coupled with affordances of agency through collaboration and transparency in music therapy, contributed to the resultant change in attitude toward patients' own care.

Looking to the future, there is no doubt that this core approach of equality, support, and collaboration in care between therapist and patient is key within the MTFUND protocol. It also brings forward the importance of further collaboration within this kind of multidisciplinary work, and

information sharing within that multidisciplinary team. The value in multidisciplinary lies in a diverse set of knowledge and specialties within a team, but also in what we can each gain from one another's experience within a common context. Moving forward, it will be important to strive for this balance among a diverse set of knowledge and specialties whilst maintaining a consistent and common approach to care.

The MTFUND protocol was designed as a multimodal, multidisciplinary protocol for assessment and treatment for patients with FND. The interventions within the protocol were intentionally selected for their multimodal qualities and ability to be implemented in a flexible manner, dependent on the individual needs of a patient. The use of flexible interventions within a consistently structured protocol allowed for individualised treatment for patients while maintaining the systematic delivery of therapy necessary within the current research context. The patient follow-up interviews, together with the information from the therapists' reflective discussion, provide valuable perspectives and insights regarding the experience within the MTFUND protocol, which will provide important context to future publication of clinical results from this phase of the research, as well as inform future phases of MTFUND research.

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## Ελληνική περίληψη | Greek abstract

# Πολυτροπική δονητική-ακουστική μουσικοθεραπεία για τη λειτουργική νευρολογική διαταραχή: Το κλινικό πρωτόκολλο MTFUND και αρχικές εκτιμήσεις από ποικίλες οπτικές

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## ΠΕΡΙΛΗΨΗ

Η Λειτουργική Νευρολογική Διαταραχή (ΛΝΔ) είναι μία νευροψυχιατρική νόσος που προκαλείται από προβλήματα στη λειτουργία του νευρικού συστήματος, κατά την οποία οι ασθενείς εμφανίζουν νευρολογικά συμπτώματα, με αποτέλεσμα σοβαρή λειτουργική δυσλειτουργία και δυσφορία. Οι διάφοροι υπότυποι της ΛΝΔ κατηγοριοποιούν το ευρύ φάσμα ποικίλων συμπτωμάτων που είναι κοινά της ασθένειας, από κινητικά σε αισθητηριακά και γνωστικά. Το εύρος των συμπτωμάτων που βιώνουν σε συνάρτηση με συννοσηρότητες και παράγοντες κινδύνου όπως το άγχος και οι διαταραχές διάθεσης, καθιστούν ιδιαίτερα δύσκολη την σχεδίαση κατάλληλων εξατομικευμένων θεραπευτικών προγραμμάτων για ασθενείς με ΛΝΔ. Η βιβλιογραφία υποδεικνύει ότι η επιλογή πολυτροπικών θεραπευτικών προσεγγίσεων φαίνεται να μπορούν να χρησιμοποιηθούν με επιτυχία σε αυτό τον πληθυσμό, λόγω της δυνατότητας να ενσωματώνουν την σωματική φροντίδα με τις ψυχολογικές ανάγκες των ασθενών. Το κλινικό πρωτόκολλο MTFUND χρησιμοποιεί πολυτροπική δονητική-ακουστική μουσικοθεραπεία, κατά την οποία τα στοιχεία (δονητική-ακουστική θεραπεία και ενεργητική μουσικοθεραπεία) ανταποκρίνονται στην ανάγκη για εξατομικευμένη φροντίδα εξαιτίας της ευέλικτης φύσης τους ως παρεμβάσεις παρέχοντας παράλληλα ένα συνεπές δομημένο πρωτόκολλο θεραπείας. Παρουσιάζεται το πρωτόκολλο MTFUND και σκιαγραφούνται λεπτομέρειες σχετικές με την τρέχουσα ερευνητική μελέτη. Για την αξιολόγηση του πρωτοκόλλου, πραγματοποιήσαμε ημιδομημένες συζητήσεις με ασθενείς και θεραπευτές. Διεξήχθησαν δύο ξεχωριστές επαγωγικές αναστοχαστικές θεματικές αναλύσεις για να εξεταστούν οι εμπειρίες τους. Οι θεματικές ενότητες που αναπτύσσονται συνεισφέρουν σε μία ολοκληρωμένη κατανόηση των εμπειριών των ασθενών

με ΑΝΔ και των απόψεων των θεραπευτών σχετικά με την εφαρμογή του πρωτοκόλλου, συμβάλλοντας ουσιαστικά στην αξιολόγηση της αποτελεσματικότητας του πρωτοκόλλου

## ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

δονητική-ακουστική θεραπεία, μουσικοθεραπεία, πολυτροπικότητα, λειτουργική νευρολογική διαταραχή, διεπιστημονικότητα, κλινικό πρωτόκολλο