# Finding ground through rhythm: Exploring music therapists' experiences of drumming, rhythm and movement-based practices in embodied therapeutic encounters in trauma work

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## ABSTRACT

Drumming has been used for centuries within communities as a tool for healing, with the use of chanting, rhythmical movements, and dance, to enable people to be attuned with their bodies. The aim of this study was to gain an understanding of how drumming, rhythm and movement is used in the treatment and rehabilitation of survivors of trauma. There is very little research in support of this, therefore this study looks to address this gap in the literature by conducting an online survey to explore the efficacy of drumming, rhythm and movement as a treatment for survivors of trauma. The approach chosen was a qualitative online survey, consisting of seven questions asked to music therapists, community musicians, psychotherapists and counsellors who have worked or are working with drumming and survivors of trauma. An experiential thematic analysis (Braun and Clarke, 2013) was used to collect the data from six participants, and three overarching themes were developed: 'Talking drums, start making sense: the drumming experience with trauma survivors'; 'I love it when clients do this spontaneously': drumming and emotional states'; and 'The rhythm is gonna get ya': Body and the beat'. Findings suggest most participants revealed that drumming, rhythm and movement paid a significant part in the treatment and rehabilitation of trauma survivors, and that drumming is used as grounding to help self-regulate when in hyperaroused states, and a form of communication to express emotions.

## KEYWORDS:

music therapy; drumming, rhythm, movement, rehabilitation, treatment, trauma

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## INTRODUCTION

As a drummer and also as a rock climber engaging in regular exercise, I have experienced the benefits of rhythm and movement in the well-being and self-regulation of emotional states. It is the interrelationship between these elements combined, being used as a potential regulatory tool in the management of emotional regulation, that motivates me to pursue this research project.

Research has shown that physical exercise can help relieve stress, due to the impact changes within the brain during exercise (Gomez-Piniella et el, 2011). Social prescribing physical exercise has become part of the recovery and rehabilitation for patients suffering from depression and stress (De Bruin et al), and medical science taking in a more holistic approach to people's health and well-being, through proven research of the benefits of movement (Pedersen et al, 2015). Research shows that moving your body is important to your brain, and that the brain seems to benefit most from being in motion (Sleiman et al, 2016). Not only does it make the body feel better physically when a person is moving, it helps with your concentration, memory, creativity and resistance to stress (Hansen, 2017).

From an evolutionary perspective, there is an argument that humans are fundamentally adapted to be physically active as in the hunter-gatherer period, but that in contemporary society people are generally much less active (Harari, 2015). Throughout history, rhythm, movement, and dance has been used for traditional healing within tribal communities (Alvin, 1991) incorporating rhythmical drumming patterns (Blacking, 1974). Drumming has been used to communicate meaning through messages, behavioural expressions of movement, dance and emotions (Randall, 2001). In music, listeners experience time as a regulated flow of sensory events, evoking associated emotions and thoughts in a time-ordered process and structuring coordinated movements in synchronised time to physically express music or create music (Thaut, 2005).

The rationale for this study is based on expressive body movement through drumming and rhythmical patterns, which have been used for centuries in traditional healing (Harmon, 2021), and there appears to be little research into the use of rhythmical drumming within music therapy for trauma survivors. The impact of drumming, rhythm, and movement, used as a form of treatment rehabilitation and therapy for mental health and well-being is increasingly being shown to improve emotional states (Spak et al, 2020; Rojiani et al, 2018). Whether it be the rhythmical breathing and flowing motions of yoga (Vergeer et al, 2021), to the Brazilian martial arts of Capoeira (Viola, 2017) which involves, drumming, rhythmic beats, movement and dance, all have a profound agency and sense of community, showing that art, music and dance can be implemented as an effective expressive form of therapy (Van Der Kolk, 2014).

### What is Trauma?

Trauma can be described as the emotional response to a horrendous experience, the impact of events that resurface over time (Sar et al, 2006), and that the event becomes traumatic if its impact

remains unresolved (Levine, 2008). Music therapist Sutton (2002) states that trauma is not one single external factor but an internal processing of how the event has affected the person's emotional state.

The memory of the traumatic event is stored in the limbic system and the amygdala as implicit memories and these brain structures are important in emotional control (Sutton, 2002). Fragmented narratives of memories present as visual images, smells, sounds, taste and touches (Grey et al, 2001), altering the way we process memories, with our physical body reliving the past as if it was the present (Van Der Kolk, 2014). The traumatic energy of these fragments is stored in the body and can be triggered by physical or sensory input in some way reminiscent of the trauma (Ruden, 2010).

## Drumming

Drumming has been a medium used to communicate messages and announcements and has been described as a 'language of emotion', that can reach beyond the power of words (Faulkner, 2017). Drumming is a modality of nonverbal communication and has been used as a form of expression of emotions for centuries (Rojiani et al, 2018). Tribal communities have used drumming for traditional ritual healing ceremonies (Longhofer et al, 1993). In West Africa there is a tribal drum called 'the talking drum' (Ong, 1977) that mimics the tone and prosody of human speech (Maclean, 2019), and has been used for dance and ceremonies (Alvin, 1991). Soldiers marched to battle to the repetitive pattern of a beat in warfare, evoking emotions to inspire morale, and changes in rhythm would signal a different stance for the battle (Bensimon et al, 2008).

Research suggest that drumming holds not only semantic information but also emotional information, and can be used for various functions such as motivation or fear (Venkit et al, 2020). Drumming also is given to a social aspect, creating synchronicity within group activities such as drumming circles, building on social cohesion and well-being (Rojiani et al, 2018).

Rhythm-based activities may be beneficial for people who have had adverse experiences, as they bypass higher cognitive functioning and allow connections to form via more primitive, undamaged regions of the brain (McFerran et al, 2020). Music can also affect cognition and related behaviours and can induce mood changes (Thaut, 2014). When engaging with rhythmic patterns through drumming, positive changes can occur which can increase self-esteem and social competencies (Wood et al, 2021). Drumming has been known to be used in regulation of traumatic memories and used as a tool to stimulate a calm and steady heart rate (Bensimon, 2021).

In addition, music has the ability to retrieve implicit memories that have been dissociated from conscious experiences (Christine and Heyde, 2012). It is also known to affect emotional states (Porges, 2011) and brain function with regard to self-regulation and modifying arousal (Thaut & Hoemberg, 2014). The communication of emotion is a bidirectional process, which includes both sensitivity to the emotional cues of others as well as the expression of internal emotional states to

others (Rojiani et al, 2018).

## Rhythm as phenomenon and embodiment

Rhythm is multimodal and everywhere in the biological world, such as; innate rhythms (Timmons et al, 2020), the rhythm of the heartbeat, breathing, walking and our natural circadian rhythms of life (Baxter et al, 2019). Rhythms can also be described as patterns of sound and movement through time, organised in relation to pulse (Bunt, Stige 2014). Rhythm consists of several complex variables fused together; sound, time, pulse, pacing, tempo, pattern, duration, flow and movement (Deutsch, 1982).

Rhythm can be regarded as the most primitive and strongest element in music, and also an important element of movement (Bruscia, 1987), where pulse and metre are fixed points which can provide musicians with cues of synchrony, adjusting musical behaviour (Pavlicevic, 1997). Rhythm can be repetitive, or not, the perceptions of a rhythm's sound can physically change a person's emotional state, and many of the body's systems have an organisation that can be seen as rhythmical (Ansdell, 1995). Rhythm can have a sense of control and then again, a sense of being out of control, chaotic or irregular rhythmic patterns. Rhythm can stimulate muscular action and induce bodily actions (Alvin, 1991).

## Drumming and rhythm for treatment of emotional regulation

Traditions from around the world use mindfulness, movement, drumming and rhythms for treatment of emotional regulation and healing (Van Der Kolk, 2014). Rhythmic Auditory Stimulation (RAS) is a technique used to control movement in rehabilitation and therapy (Thaut, 2005). Arousal is a measure of the intensity or activating capacity of an emotion, ranging from calm to excited; low arousal, calm emotions may include sadness or contentedness, while high arousal, excited emotions may include excitement or anger (Mikutta, 2012). Hyperarousal is when a person's body moves into heightened state of alert, putting them into the fight or flight mode (Knight, 2021). The traumatised brain acts as if the person's life is continuously threatened and constantly in a state of hyperarousal (Perry, 2009). For a trauma survivor to stay within the window of tolerance, creating low arousal emotions, the hyperactivity of the brain needs to be regulated.

By using repetitive somatosensory input such as rhythm and drumming, it is possible that the brain regions that are affected during hyperarousal might be calmed when supported with patterned neural activation. Impulsivity and hyperarousal will decrease when these brain regions are calm and regulated, resulting in the possibility of increased self-regulation and attention (Perry, 2009). This shows how it might be possible for drumming and rhythm to be used to regulate emotions (Hakvoort et al, 2020).

Rhythmical music has shown to impact areas of the brain associated with movement, the lateral cerebellum, motor and sensory cortex activates change when you play music, and requires

coordination of motor control, auditory information and somatosensory touch (Thaut et al, 199). Rhythm is not just what a person hears, it is also what can be felt in the body. For example, children with dyspraxia who have motor problems will also often have language problems like dyslexia (Goswami et al, 2011). Research suggests there might be underlying connections between rhythm in the motor system as well as the auditory system in the development of speech (Goswami et al, 2016). There is a level of synchronisation between these areas that can benefit the rehabilitation of movement disorders (Faulkner, 2017).

## Entrainment in music therapy practice

Rhythm has the ability to drive movement through connecting the auditory neural systems with the motor system, influencing the brain through patterned sensory input. This automatic response is called rhythmic entrainment (Thaut & Hoemberg, 2014). Entrainment is the synchronisation of different rhythms, and musical interpersonal entrainment can be used within music therapy to synchronise two or more people, in supporting of well-being, emotional response and social relationships (Thaut et al, 2015). Entrainment can be expressed through drumming, rhythm and movement forming a musical companionship, synchronising feelings and intentions, resulting in the ability to respond and communicate in musical ways, developing a sense of communicative musicality (Malloch and Trevarthen, 2009).

This sense of sharing natural rhythms from movement of the body in communication, with drumming, rhythm and sounds, also creates a sense of affect attunement (Stern, 1985). Mirroring movement of one person to another stimulates emotional responses that allows us to interpret body language, and has been used to increase emotional understanding, social bonding, communication skills and empathy between therapist and client (McGarry, Russo, 2011).

## Transference and affect attunement

Transference and countertransference are the projection of feelings from one person to another (Klein, 1993). Affect attunement can be described as the external behaviour that expresses the quality of feeling of a shared state, one-person projecting another's inner state (Stern, 1985). It is likely these cross-modals of drumming, movement and rhythm play a significant part in the musical relations of emotional states and regulation.

## Movement

Using movement as a therapeutic modality has been a tool consistently used with body-based practices such as yoga, dance and movement therapy (Hagen et al, 2014), attuning awareness of both internal states and external environment in support of treatment and recovery (Strassel et al, 2011). Movement can be perceived as rhythm, and not just from a musical aspect, our daily routines that define us as individuals, internal and external rhythmic movements of our body, the rhythmical movement of time through the natural cycles of the planet are all made up of

rhythmical patterns (Mulicek et al, 2015).

Movement has been used as a tool in the contemporary practice of EMDR, typically the use of bilateral eye movement, recreating connections of right side and left side brain (Danylchuk, 2015). The use of movement stimulates parts of the brain which is associated with a reduction in emotional response to traumatic memories (Spak et al, 2020).

## Cultural practices incorporating music and movement

In most cultures there has been some form of music with a beat, a perceived patterned pulse that is used to guide movements and coordinate action (Faulkner, 2016). Capoeira, the Brazilian martial arts that combines music elements of traditional songs, dance, specific instruments, body expression and particular ways of moving, was originally practised by enslaved Africans in Brazil (Marcelo Rocha et al, 2019). Capoeira promotes and creates both physical and mental strength and confidence (Levin, 2016). This art form is now used all over the world for social integration, improved cognitive functioning and empowerment, creating physical and emotional bonds between communities and being used in supporting emotional, social and psychological development (Burt et al, 2011; Viola, 2017).

In New Zealand, Māori practices facilitate healing from trauma, and view well-being as a holistic process, emphasising the interconnected nature of spirt, body, society and natural environment (Wirihana and Smith, 2014). Māori have effectively used haka (dance), kapa haka (war dance) and poi spinning methods within their communities in supporting healing from psychological trauma, grief and loss when expressing emotional distress (Johnston, 2007).

The use of these movement modalities is used by The Māori as a vehicle to express and explore connecting bodily sensations, emotional expressions and their relationship with the external world. It would seem that there are therapeutic benefits associated with using whole body movement to music and rhythm, the ability to perceive emotions through feeling sensations in our bodies (Van der Kolk, 2014).

## Music therapy and movement

Models of improvisational music therapy have various expressive modalities and media. Movement being one, and the body as one of the main media in music, used by clients and therapists relating to the expressive or communicative roles within a therapeutic session (Grocke et al, 2006).

Movement can be identified in the form of rocking, swaying, and other gross repetitive motions; this can be referred to as rhythmic motor manoeuvres and can be used to meet a variety of needs and goals, within a therapeutic session (Wigram, 2004), such as; reinforced feelings expressed, release of energy and tension, gaining control over excessive body activity and relieving feelings of anxiety (Vetter et al, 2011). We can identify movement as four elements, space, time, weight and

flow to observe the direction and quality of the client's nonverbal responses and behaviours (Bruscia, 1987).

In summary, the use of drumming could be clinically relevant in the treatment of trauma for the following reasons: 1) as rhythmical sensory patterns have the ability to either reduce or increase hyperarousal, 2) provoking stress responses by changes in pulse tempo, which might be used as a sense of containment (Sutton, 2002), 3) using the functionality of rhythm and drumming as a tool for self-regulating and managing emotional distress, 4) containing people into a more optimal window of tolerance (Siegel, 1999), 5) potential in decreasing the fight or flight responses (Bion, 2004) of a traumatised person with rhythmical intervention, 6) using external rhythms to synchronise with internal rhythm processes and by-passing areas of the brain, 7) giving access to primary emotions and the capacity to self-regulate emotional states.

There are few specific research studies focused on the use of drumming in the rehabilitation and treatment of trauma survivors, despite other supporting literature reviewed here. It would seem that there is a gap in the literature which provides a rationale for undertaking this exploratory study.

## RESEARCH QUESTION

The aim of this study is to explore the use of drumming, rhythm, and movement in music therapy through the perceptions of those who use this professionally with trauma survivors. The research will focus on the question 'How do music therapists, community musicians, psychotherapists and counsellors working with drumming, rhythm and movement help survivors of trauma?

## METHODOLOGY

This research took place between 2021-2022 as part of the first author's MA Music Therapy degree. Paul Tatler is author and the primary investigator.

### Research design

A qualitative research online survey approach using Qualtrics was employed for this study, asking questions of music therapists, community musicians, psychotherapists and counsellors who have worked, or are working with drumming and survivors of trauma. An Experiential Thematic Analysis (TA) approach was used to capture participants' experiences and perspectives to collect and analyse the data (Braun and Clarke, 2013). TA is a method for identifying and analysing data, it was chosen as it offers the process of identifying themes and interpret patterns of meaning within the qualitative data in relation to the research question (Braun and Clarke, 2013). An experiential TA approach was the preferred choice rather than critical qualitative research, which puts the importance more on the analyst's interpretation rather than the participants. Critical qualitative

research focuses on how the language is used and gives shape to certain social realities, and the impact of that in the real world (Braun and Clarke, 2013).

The study uses an experiential approach (Reicher, 2000) as it prioritises participants' own perspectives and interpretations, whilst validating their meaning and experiences. A purposive sampling approach was applied within the qualitative research to recruit participants that can provide rich data and detail information of their own experiences in relation to the phenomenon being researched (Guba & Lincoln, 1982). My own experience, research and assumptions suggest there is limited research data on the phenomenon and that music therapists use drumming and rhythmical methods as tools to assist within their practices when working with survivor of trauma.

The first section of the online survey questionnaire was designed to give participants information, collect demographic data and also included a consent form. The second section of the online survey was focused on the questions, asking participants their experiences of using drumming, rhythm and movement within their practice. The questions were related to emotional changes, recall of traumatic memories, treatment and rehabilitation, efficacy and empowerment from drumming and emotional regulation when engaging in drumming.

## Participants

Music therapy is a small profession with diverse approaches and, therefore international recruitment was more likely to yield a sufficient number and range of participants. The selection criteria originally required participants to be qualified music therapists who had experience of working with trauma. Due to low uptake the author opened the field up to community musicians, psychotherapists and counsellors who also fit the experience criteria of drumming and trauma. The aim was to collect a minimum of 20 respondents, with the potential to maximise it at 50 as suggested for a small-scale study of this kind (Braun and Clarke 2021).

A total of six participants were included in the survey questionnaire, two male and four females. One of the participants was from New Zealand, the other five did not specify their geographical locations. The purposive sampling inclusion criteria applied to the particular phenomenon that it was necessary for the participants to be qualified music therapists, community musicians, psychotherapists and counsellors and have experience using drumming, rhythms and movement with survivors of trauma, within their practice.

Participants were recruited from the British Association for Music Therapy, Research Gate, Australian Music Therapy Association, New Zealand Music Therapy Association and Twitter. Other potential participants were contacted directly via email with a link to the online survey through a snowballing technique of recruitment.

## Table 1: Participant Demographic Summary

| PARTICIPANT 01 | PARTICIPANT 02 | PARTICIPANT 03 |
|---|---|---|
| 40 years | 62 years | 55 years |
| Female | Male | Female |
| Ethnicity: Eurasian (Malay-Chinese/Pākehā (European)) | Ethnicity: White | Ethnicity: White |
| Social class: Working | Social class: Middle | Social class: Middle |
| Disabled: Yes – PTSD/ADHD | Disabled: No | Disabled: No |

| PARTICIPANT 04 | PARTICIPANT 05 | PARTICIPANT 06 |
|---|---|---|
| 58 years | 58 years | 56 years |
| Male | Female | Female |
| Ethnicity: White | Ethnicity: White | Ethnicity: White |
| Social class: Middle | Social class: Middle | Social class: Working |
| Disabled: No | Disabled: No | Disabled: No |

Most participants identified as white (See Table 1), one identifying as Eurasian (Malay-Chinese/Pakeha (European), this participant also revealed their geographical location as New Zealand. Four of the participants identified themselves as middle class and two as working class. It is also noticeable that all participants are in a similar age bracket. The number of participants was much lower than expected; this may be indicative of a very small number of practitioners using drumming for trauma. It's also possible people weren't able to access the survey, and two participants started the survey but never completed. Limitations of the study might be the small sample size, age and geographical locations, perhaps this would affect participants work depending on experience.

## Data Collection

Data was collected from an online survey questionnaire, with a total of seven questions used to collect data from the participants, no email or paper hard copy survey was made available. Survey design guidance was followed by Braun and Clarke (2013), asking relevant questions to the

participant, keeping the questions as short as possible, and not too many, keeping the language simple and appropriate, and avoiding closed and multiple questions. Open-ended questions were used to explore participants' methods of working with drumming, rhythm and movement with survivors of trauma. Each question was followed by instructions for explanation or clarification, in the format of an empty text field for participants to give further examples to the question.

The questions were made up of 'yes'/ 'no' answers, which included a text field for the 'yes' answer so that participants can give examples for their answer thus providing qualitative data. At the end of the seven questions there was an empty text field asking, 'Is there anything else you would like to add in relation to drumming, rhythm, and movement that you have experienced in your practice with trauma survivors? Here participants could provide any other information in relation to the research.

A pilot survey was conducted before the live online survey was published to gather information of participants' responses to questions, and the user interface design functionality of the survey. Using the feedback from the participants a few minor revisions were made to the questions to make them more relevant. The online survey was estimated to take up to 30 minutes to complete. Informed consent was obtained via the participant information at the start of the survey, along with demographic information.

## Data Analysis

The participants' data was collected from the Qualtrics survey and exported to a Microsoft® Excel file. An Experiential Thematic Analysis approach was used to decipher the collected data, which is a method used to validate meaning, views and perspectives of the participants. TA interprets patterns and identifies themes in relation to the research question, focusing the analysis around the participants own experiences and understandings of the phenomenon (Braun and Clarke, 2013). The analysis followed the six-stage approach consisting of the familiarisation process; assigning codes to the data and identifying patterns and themes within the code, reviewing, defining and naming themes, then finally producing the report (Braun & Clarke, 2012).

## Reflexivity

The author has experience working with drumming, rhythm, and movement, and holds the view that these practices can support well-being and mental health. Having previously worked with trauma and trauma survivors, the author approached this research with an awareness that personal preconceptions might influence the development of the final argument. Although such experiences could shape the subjectivity of data interpretation, the author remained mindful of adopting an objective stance, setting aside personal feelings or opinions and engaging with the raw data to present the findings without expectation.

Limited literature exists on the use of drumming, rhythm, and movement in relation to trauma treatment and rehabilitation, which motivated the author to explore this area further. A reflexive

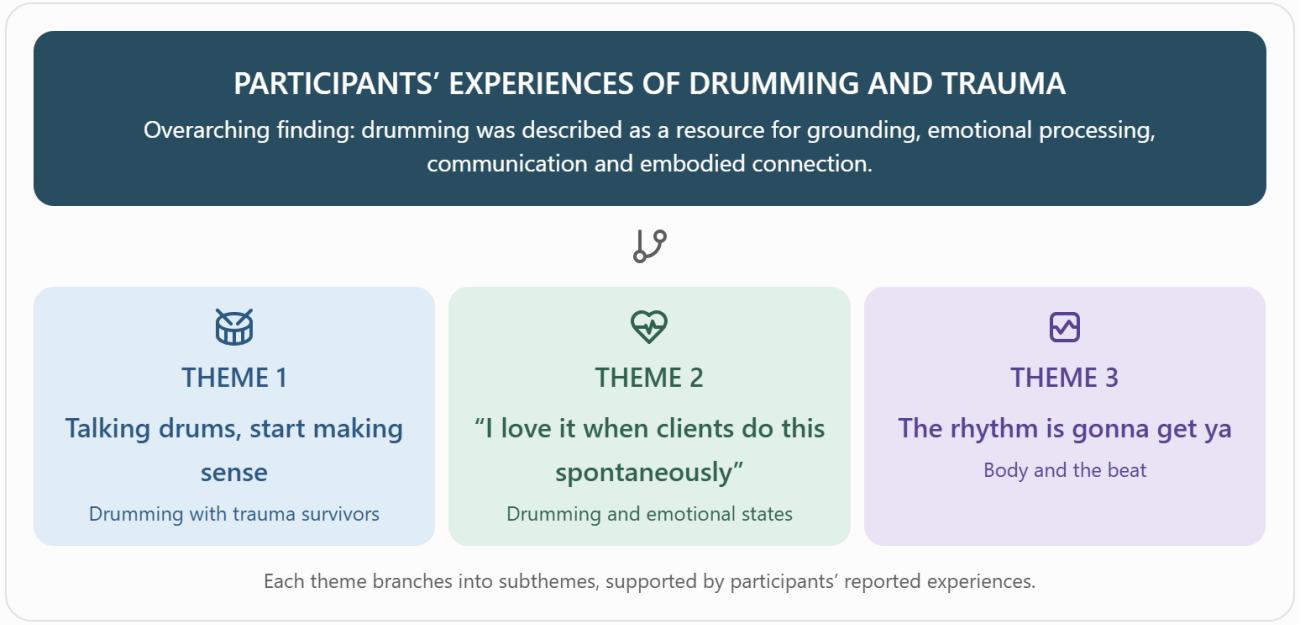
approach was considered essential during data analysis to ensure that responses were authentically represented and that the data was presented as given by the participants.

## Ethics

A low risk ethics approval was obtained from the University of the West of England Ethics Committee. At the start of the online survey participants were provided with information outlining the aims of the study, what the study involved and how to withdraw from the study. A low-level risk assessment was carried out by the researcher and supervisor and participants were provided with support information before and after the survey. Participants were asked to complete a consent and demographics form at the start of the online Qualtrics survey.

## Findings

Each participant reported using drumming as a tool to regulate and ground their clients when processing trauma. Results from the survey provided rich data demonstrating participants' experiences of drumming and trauma. Three overarching themes emerged from the data:




### THEME 1: Talking drums, start making sense

*The drumming experience with trauma survivors*

Participants described how using drumming created resilience, confidence and empowerment. Some used it as a grounding tool. The notion of 'safe space' for exploration was important. Drumming in groups was discussed, and how drumming was a form of communication. There were interesting thoughts about how drumming in music therapy was difficult to quantify as quality of experience and applications varied.

## Therapeutic benefits of drumming

Participants discussed therapeutic benefits, notably improving social and emotional health, social cohesion and emotional expression and wellbeing. Participants also suggest drumming reduces levels of anxiety, increases energy levels, and helps to build confidence and trust within a safe environment. One participant mentions that some clients verbally communicate that drumming is fun and that they enjoy the creative activity, noticeably becoming more physical in their body gestures.

One participant mentions the pace of drumming.

> *"I have found slow and steady drumming to be very therapeutic, grounding and comforting for people recovering from trauma."*
>
> **Participant 2**

> *"Conversely, drumming can animate on some occasions I have noticed people becoming more animated and lively while drumming."*
>
> **Participant 3**

The physicality of drumming was emphasised.

> *"It also provides opportunities for more physical forms of active music making than some other forms (e.g., singing)."*
>
> **Participant 4**

## Impact on trauma from drumming

Some participants were interested in a sense of wholeness that could be created through the reconnection of the traumatised parts of mind and body. Participants suggest that drumming creates a sense of wholeness for survivors of trauma and can reconnect the traumatised parts of the mind and body.

> *"One man who had long-term severe mental health problems and had also lost a leg in a traumatic accident used the conga for very continuous playing in group improvisations, often playing 15–20 minutes at a time. His playing was intricate and seemed to come in dynamic waves."*
>
> **Participant 6**

One participant involved explanations for survivors.

> *"I also studied how sound is vibrational energy and explain for clients how the different sounds we create on the percussion instruments can help them."*
>
> **Participant 1**

Social and emotional confidence has been regained through the impact of drumming with trauma survivors and findings indicate that certain tempos of drumming within a clinical setting help to contain and assist as treatment during the rehabilitation processes of trauma. Several participants felt that group drumming helps within the treatment process by acting as a container for the clients, creating a safe space, and it would suggest that vibrating percussion can also be used for the treatment of trauma survivors, acting as sensory input for the client's well-being.

## Drumming and communication

Participants suggested that improvisational group drumming has a positive effect on helping clients verbally express language and communication, rhythmical patterns help to form language and that singing patterns helps to increase the retrieval of words and speech during rehabilitation of aphasia. Drumming and rhythm encouraged vocal participation when singing and promoting empowerment and self-esteem.

> *"Using the drum has enabled them to 'talk' about the emotion they are experiencing without having to name it and give it context. They are able to hold that emotion to express on the drum."*
>
> **Participant 1**

> *"She chose to play a drum kit each week, quite delicately, but after playing this in each group improvisation she began to talk about herself — before that she barely contributed anything verbally."*
>
> **Participant 6**

One participant played song rhythms on the drum. Another came from words initially.

> *"I also utilize other talking and creative therapies with the drumming as needed. I am a narrative therapist so am able to adapt that modality to the drums to help clients explore their narrative and work towards a strength-based narrative of survival."*
>
> **Participant 1**

> *"Through singing in a choir for people who are rehabilitating from head trauma, the use of tightly articulated rhythmic singing and playing at a specific tempo has been very useful to help with word retrieval of familiar songs for people with aphasia."*
>
> **Participant 6**

The use of drumming as talking is something that has been used in traditional cultural practices to send messages of communication, in particular, the talking drum. Participant 1 works in New Zealand with Māori clients, who traditionally use drumming within their communities to communicate.

## Uncertainty and contraindication

Some possible countereffects within a music therapy setting were discussed. Participants demonstrated that loud and fast drumming can be too overpowering and have a significant negative effect on a person's well-being.

> *"I have experienced instances where loud, fast drumming has led to an increase in anxiety and a recurrence of psychosis."*
>
> **Participant 2**

> *"I have also had clients who have found the deep bass of the djembe too overwhelming sensory and haven't been able to engage in the (beginning) process."*
>
> **Participant 6**

This suggests that drumming can act as a trigger, causing possible relapse. It suggests that agitated mental states can manifest through aggressive drum playing, causing severe discomfort to a person's mental health and well-being, making it difficult to stay within the window of tolerance. From this, it would seem that therapists using drumming within clinical practice might need to act on the side of caution, assessing the impact of a particular drumming style to avoid the risk of triggering aroused states.

## THEME 2: I love it when clients do this spontaneously

*Drumming and emotional states*

The second theme describes the connection between drumming and emotions. Participants spoke of their experiences of using drumming and rhythm patterns for emotional regulation, and how drumming has acted as a container to ground clients through the use of a rhythmic pulse. They explained how clients engaging in drumming have used the drum as a tool to express, improve, and communicate their emotional states, also suggesting that drumming and rhythm has be noticed to change clients' current moods.

### Promoting emotional work as a carry over

Participants reported that the use of drumming within a clinical setting has been carried over to real life situations to manage and support arousal states and the use of drumming techniques in real life situations to regulate emotions.

> *"Clients have been able to take the 'heartbeat' rhythm and use it outside of session as a grounding activity."*
>
> *"One of my clients was able to use it during their court appearance to provide an anchor and grounding as they werre[sic] cross-examined - they tapped the rhythm on their thigh and was able to stay present during the trial."*
>
> **Participant 1**

Participant 2 reported clients using drumming to improve their physical balance outside therapy.

The techniques of drumming and the rhythmical patterns created can be used within a therapeutic session to contain and hold clients, making them feel safe within the surrounding environment. It is interesting to see that these techniques can be implemented within real world situations to help ground and regulate emotional states.

> *"Specific exercises can be used to assist people practice regulation, impulse control and maintaining calm in the face of arousing stimuli. These skills can then transfer to real life situations outside the therapy room."*
>
> **Participant 2**

## Emotional regulation

Participants demonstrated how drumming can hold a client's emotional state and support them in processing emotions, focusing particularly on self-regulation, and several participants mentioned how mood was affected.

> *"Through use of drumming practice, I have helped clients down-regulate and ground themself[sic] when in hyperarousal state. This has allowed them the space to engage with and process emotion."*
>
> **Participant 1**

> *"I observed a young woman (aged 17) who had been expelled from many schools as a direct consequence of her early childhood trauma, regulate her emotions through drumming in a classroom group, with others improvising with her."*
>
> **Participant 6**

One therapist asks clients to communicate their feeling.

> *"I offer[sic] will often grab the little drum and use it to show me 'how fast' they are feeling during session, and use it to regulate themselves. I love it when clients do this spontaneously."*
>
> **Participant 1**

This demonstrates how hyperaroused states can be supported by drumming and help clients in the process of self-regulating their emotions, assisting to keep inside the window of tolerance (Perry, 2009). There are benefits of group drumming in support of regulating one's emotions, using the tempo and loudness to communicate how one feels within a certain moment, letting the drum express the emotions (Hakvoort et al, 2020).

## THEME 3: The rhythm is gonna get ya

*Body and the Beat*

The final theme relates to rhythm and movement and how it may be used with the treatment and rehabilitation of trauma survivors, helping to stimulate motor responses. Participants spoke in relation to analysing movement within the rhythm of drumming and the benefit this might have in

the rehabilitation process, and how drumming maybe used as a cognitive tool in the process of retrieving memories. They explored the use of drumming as a tool for assisting in movement and mobility, developing a sense of harmony between body and mind of trauma survivors.

## Rhythm and movement used in rehabilitation

Participants comment that rhythmical structures of drumming can contribute to the movement and stimulation of the motor responses, and that coordination in drumming is used to connect with clients. Participants referred to innate rhythms that can be used to self-regulate emotions, improving body postures and mobility, helping create a sense of calmness and relaxation. Participants suggest that rhythm can assist in improving overall coordination and timing of body movements.

> *"The shared rhythm and coordination of movement within drumming in music making has often been a way to build moments of connection with a client."*
>
> **Participant 3**

> *"Physical relaxation, sometimes getting quite tired, improved posture."*
>
> **Participant 6**

> *"I worked with a young person (trauma survivor) who was severely depressed. They had curled up into themself[sic] (hunched shoulders, head down). We worked on the drums and within a few sessions, they were sitting upright on the seat and engaged."*
>
> **Participant 1**

## Emotions and cognition states of drumming

Participants spoke of drumming for cognitive functions, with the ability to recall childhood, past events, and traumatic memories. Participants also say that through the drumming activity, it creates the opportunity to make choices and has retrieved cultural memories of childhood, which helped regulate present behavioural emotional states.

> *"I have had instances where drumming has elicited memories of combat from war veterans."*
>
> **Participant 2**

> *"He explained that he was from the Gambia and had grown up by the ocean. His playing reminded him of the sea and his childhood. He often showed an increase in mood after playing, and certainly during it."*
>
> **Participant 6**

Past experiences and events have been known to resurface through the act of drumming, where the drum has been used as a trigger for the retrieval of memories. This then allows for the conscious processing of previous traumatic events, acquiring new information and skills to help treat underlying developmental changes. Drum patterns and rhythms can offer the ability to learn and consciously reason with triggered memories, creating a sense of awareness of emotional states, with the ability to enable moments in time to feel in the here and now, forming fragmented images into a narrative of images within the mind (Christine and Heyde, 2012; Thaut & Hoemberg, 2014).

## Empowerment and cultural aspects of drumming

Participants spoke about empowerment, control, and the cultural aspects that rhythm and drumming might offer, suggesting that rhythm is used to empower and focus individuals through various rhythmical exercises. Participants say the musical experiences that were derived from drumming and singing helped to develop a sense of efficacy explored from a cultural perspective.

> *"Often, drumming is also accompanied by singing songs, for example. My hope is that ALL experiences I offer my clients result in a greater sense of efficacy and empowerment."*
>
> **Participant 4**

> *"We teach a range of exercises using rhythmic affirmations to allow people to assert their power in relation to governing their own lives. I have also people regain social and emotional confidence through the success they have had on this instrument working with others in a group treatment (music) setting."*
>
> **Participant 2**

The experiences of clients connecting with their original cultures, rhythms and drumming exercises can develop a sense of efficacy and empowerment through a cultural perspective, helping to reconnect past events and emotional states. Group drumming invites a sense of emotional confidence and control of one's own emotional states and behaviour, whilst also creating a sense of safety and cohesion within a group. Engaging in drumming within a therapy practice can enhance the overall therapy experience for a client, thus promoting a sense of empowerment.

## DISCUSSION

The findings raise a number of important questions. It was interesting that participants in this project had a strong overall sense that the use of drumming, rhythm and movement within clinical practice can make significant changes either emotionally or on a physical level to survivors of trauma. Participants' experiences working with these modalities indicated that drumming has many facets and can be implemented within many areas of creative therapeutic environments. The use of drumming as a tool can provide clients with grounding stability to be able to explore aspects of their trauma in a safe secure environment. Therapeutically, drumming is used to regain confidence and improve social and emotional wellbeing, giving the ability to be expressive through the act of playing the drum.

Group drumming has been said to develop feelings of belonging, creating a sense of connectedness through transference and countertransference, from one person to another (Klein, 1993). Furthermore, drumming can be a mechanism to reconnect traumatised parts of the body and mind, creating a sense of wholeness and cohesion. The physical act of drumming and the movement of the body it creates when playing, has the ability to raise the heartbeat, and help increase the feel-good factor. Rather like when a person engages in physical exercise, drumming can trigger a release of endorphins in the brain, and can be considered an equivalent to exercising. The rhythmical structures that are derived from the act of drumming combined with the innate rhythms (Timmons et al, 2020), of two or more people can be synchronised, which is commonly referred to as entrainment (Thaut & Hoemberg, 2014), and support a sense of well-being, develop productive emotional responses, and create positive social relationships (Thaut et al, 2015).

Participants have described that the shared rhythms and coordination of movements within the group drumming exercises is a way for clients to develop moments of connectedness, building confidence enough to allow clients to verbally communicate about themselves. The interconnectedness created through the drumming can help stimulate emotional responses enabling us to interpret body language, social bonding, empathy, communication skills and emotional understanding (McGarry, Russo, 2011). This demonstrates that aspects of drumming can provide a sense of empowerment for individuals. Promoting drumming as wholeness provides a sense of increased confidence and the feeling of belonging, developing trust and acceptance. Group drumming offers a shared sense of purpose and wholeness, and efficacy may grow through this collective experience, with more meaningful reflections made possible, in turn creating a sense of empowerment.

The findings within clinical practice support a combination of therapeutic approaches with drumming and the expression of movement that can be used successfully to deliver a range of social and emotional outcomes, increase social skills, self-regulation, and create the feeling of self-worth. Recommendation for further practice in this area for qualified music therapists and psychotherapist to explore the effectiveness of group drumming with reflections and self-disclosure, might yield a positive response from clients and be beneficial to clinical practice. Sustained periods of group drumming have been known to help trauma survivors during the rehabilitation process, combined with therapeutic approaches to create a secure base (Bowlby, 1988).

Evidence shows that slow and steady drumming has been said to help contain and assist the rehabilitation process supporting the opportunity to explore disenfranchised fragments of traumatised lives. The use of the drum to talk and express emotions has shown to help communicate feelings without having to verbally speak the emotions, creating opportunities to encourage talking using the sounds and patterns as communicative musicality to express narrative

(Trevarthen & Malloch, 2009). The research study didn't always yield positive results, one participant suggests that the use of drumming within music therapy is difficult to quantify, as experiences and quality of the music therapists as a drummer can vary. Loud and fast drumming has, on occasion, led to an increase in anxiety and been a recurring trigger for psychosis states, it is also said to be too overpowering, causing clients to be more agitated emotionally.

It seems that certain participants felt that it was unclear whether traumatic memories were recalled, and whether or not efficacy and empowerment is obtained, or whether drumming has helped regulate arousal states and assisting in keeping clients within the window of tolerance (Siegel, 1999). In order to successfully implement drumming as therapy, a certain level of expertise, qualification and understanding of rhythms and the dynamics might be beneficial before practitioners engage in this area of work, to understand the possible risks of the loud drumming being a trigger. It may well be that music therapists who are skilled in playing the drums might have a better understanding and awareness of the impact that drumming can have on emotional responses.

Participants have used a range of alternative grounding techniques with drumming, rhythm and body exercises, demonstrating their client's ability to self-regulate in the real world. I found this quite interesting and unique, that the heartbeat rhythm was used as a tool for grounding the client when being cross-examined in court, and tapping the rhythm on their thigh. This opens up the opportunity to explore drumming more widely, outside the constraints of clinical boundaries. How, as therapists, might we apply a more structured process, or develop a tool, a set of rhythmical protocols that can be used to help an individual self-regulate in the real world. Would it require further specific training, and is it outside the music therapy realm to connect mindfulness and rhythmical patterns of movement?

For drumming to be a significant therapeutic tool used by practitioners, I believe a knowledge of drumming and its capabilities would be useful when working with clients, and certain questions need to be considered here. Counterindications of drumming is something that needs to be taken into account by practitioners, having the ability to know when the drumming is becoming too much for their clients, so as to manage a possible relapse of psychosis. Practitioners need to be mindful of the negative connotation of loud and fast drumming, how this might be impacting clients' emotional states and triggering traumatic events. It should be considered whether music therapists or counsellors would be more suited to use drumming techniques, and does specific training need to be a requirement by counsellors before using such methods? Is there a risk to clients if appropriate education is not met by practitioners?

Although the drum is one of the most accessible instruments for practitioners to use with clients in a clinical environment, an understanding of the power of drumming needs to be respected, and guidelines followed on how to work with these exercise techniques. This research study shows that engaging in drumming activities has been explored for the treatment of depression, where it has said to help increase positive moods, and creating changes within emotional states of well-being. Drumming and rhythmical patterns are used within clinical settings as a treatment in the management of emotional states, by the use of repetitive rhythms and beats to help calm and decrease hyperaroused states, supporting the idea that drumming can be used for self-regulation (Perry, 2009).

Finally, rhythm is one of the most important elements of movement (Bruscia, 1987), and has shown to impact areas of the brain associated with movement (Thaut et al, 199). Participants demonstrated connections between mind and body, creating a sense of mindfulness when playing the drums and rhythmic patterns, not just with what you hear but also what you feel within the body. The sharing of natural rhythmical movements of the body to communicate, can enable affect attunement (Stern, 1985). Conclusions to be drawn from these findings would suggest that rhythm plays a pivotal role when connecting the mind and body as a whole, meaning the synchronicity of all modals create the ability to assist in the rehabilitation process, especially in support of motor responses.

Moreover, another finding within the research suggests through drumming and repetitive rhythmical patterns, participants suggest that cognitive functions can be triggered into the present. Firstly, cultural rhythms have said to help reconnect memories and places, recalling childhood experiences, where the client can picture themselves within a certain location and age, remembering the drumming, sounds and events. Secondly, loud and fast drumming has been implicated as a trigger for the retrieval of traumatic memories, leading to an increase in distress and anxiety, but also been used as a positive tool for engagement.

One of the connections between drumming is through cognitive function, recalling memories is not always easy. Drumming can be a strong tool to induce positive emotions therefore evoke memories, and has a way of saving a moment in time in a client's memory with the ability to recall. Drumming helps to unlock memories through the emotions, enabling childhood experiences to surface that otherwise might struggle to be recalled, opening up the possibilities to prompt communication. I believe efficacy and empowerment is ascertained through the rhythmic strength of drumming, enabling emotional growth, acting as a powerful means of improving mental health and well-being, displaying as personal development and improved communication.

This research study found that the experiences of using drumming within a music therapy practice can have a considerable positive impact when being used as a tool in processing of rehabilitation.

Drumming alone has certain qualities that allows for a positive experience that can be expressed in physical ways, as well as socially and emotionally. The research demonstrates how by the use of attunement of body and mind, and the interconnection of innate rhythms, drumming can provide an alternative holistic approach to therapy interventions in support for the treatment and rehabilitation of trauma.

## Limitations and future research

Six participants took part in the online survey, an estimated sample size of around 10 – 20 participants were expected. The study was originally aimed at music therapists and their experiences, due to the limited participants the survey was opened up to include community musicians, psychotherapist, and counsellors. Even though this widened the participants pool opportunity, unfortunately there was still a small sample size that completed the survey. It is not known for sure why this is the case, but perhaps the lack of experience and confidence could be a factor here for therapists. It might be that very few therapists use a drumming approach in their practice. It also maybe that people don't really understand the benefits of drumming in relations to therapy. If the aforementioned were to be the case then a program that might educate and increase knowledge in support of this subject area, and developing research papers like this one, might help increase the yield of participants in future research.

The rationale for originally undertaking this research was due to the limited data on this particular area of research, and with the limited participants that actually took part in the online survey would suggest that the relationship between drumming, rhythm and movement in the treatment and rehabilitation of trauma, might be considered quite a specific area of work for music therapists to have undertaken. I also acknowledge my status as a drummer might also be a limitation to whether the interpretation of the analysis reflected my own subjectivity, at the same time my experiences have helped enhance the understanding of the issues. Further research is needed which might yield additional insight, allowing for more knowledge and understanding of this potentially important area of music therapy practice.

## CONCLUSION

This study has shown the benefits of using drumming, rhythm and movement within a clinical practice whilst working with survivors of trauma. It has demonstrated multimodal approaches focused on rhythm, drumming and movement and provides an awareness of how they are implemented within working practice. Implications for clinical practice suggest the possibility that if incorporating all three elements, drumming, rhythm and movement, structured into a possible program of recovery, it could be a useful tool in the developmental process of trauma rehabilitation and recovery. I feel caution should be advised due to potential trauma recall in certain cases, and it's imperative that some training be given to understand drumming boundaries before embarking

on any exercises within clinical practice. I hope this research has opened up the opportunity to discuss these findings on a wider scale.

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