

REPORT | PEER REVIEWED

The Art and Craft of Music Therapy for Stroke Rehabilitation in a Remote North Indian Community: A Case Study

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Abstract

This case study describes how a music therapist (Stephen) and a music therapy intern (Sahitya) worked conjointly with a client and her granddaughter in a remote part of North India. The description provides a unique insight into conditions, culture, and lifestyle in this location, and how these two clinicians were able to merge broader arts-based and holistic approaches, on a journey towards client-centered and functional neurologic music therapy exercises to help the client regain more independence. The background to initial work undertaken by the music therapist, which lasted for one year and eleven months, is followed by a summary of five weekly conjoint sessions with the intern, including the evolution of exercises, rationale, and client responses, illustrated with embedded video excerpts. The communication, relationship, and trust-building with the client and her granddaughter, together with the intern joining the dynamic, paved the way for assimilating music therapy theoretical models that were new to them, and adapting neurologic music therapy approaches using an electronic keyboard that incorporated preferred facilitating music. This resulted in greater client engagement with higher levels of motivation and adherence and increased hand use in daily activities.

Keywords: neurologic music therapy; community music therapy; ecological practices; integral thinking; jugaad

Alex Street: An Introduction from the West

Work began on writing this case study shortly after Sahitya emailed me at the university where I work with an enquiry about conducting music therapy research. She sent a draft article and some video clips of her and Stephen's work using the portable electric keyboard with Saroj¹ – the subject of this case study. Having worked for about 18 years in neurorehabilitation, at every stage from acute to chronic, I have broad experience of the different needs that stroke survivors and their families have, the heterogeneity of stroke effects and the lack of rehabilitation provision that many experience. It has been reported that music therapy brings added value to multidisciplinary team (MDT) rehabilitation (Sihvonen et al., 2017) and that this is due to the holistic brain and nervous system stimulation of music (Magee, 2019) and the creative ways in which therapists can adapt musical structures, equipment and other creative materials to meet patient needs and goals (Silveira et al., 2018; Thaut & Hoemberg, 2014). There is an ever-expanding wealth of literature published in scientific journals reporting on the motor, cognitive, emotional and psychosocial benefits of music therapy in neurorehabilitation (Grau-Sánchez et al., 2020; Magee et al., 2017; Wilson, 2013). There has been some progress in developing and integrating technology to support home-based practice (Sanchez-Pinsach et al., 2019; Street et al., 2019). Interventions and theoretical models are selected based on the training and clinical reasoning of music therapists and their MDT colleagues. Interventions can be selected from the branch of neurologic music therapy (Thaut & Hoemberg, 2014) or other techniques developed for neurorehabilitation (Baker & Tamplin, 2006). To be truly person-centered, these can be combined with other techniques such as songwriting (Baker & Wigram, 2005) or using music technology (Magee & Ramsey, 2013), or blended with psychodynamic and social science models (Street, 2012) – it depends on the tools in the inventory that can answer the question “what can music do to help this person?”

What is striking is the lack of reporting on stroke rehabilitation in the community – in terms of all disciplines (Fens et al., 2013), not just music therapy. More striking is the lack of reporting from non-Western societies and this is why Saroj, Sahitya and Stephen's story is important. It captures the more typical challenges of meeting the heterogeneous needs of any stroke survivor, but also the unique demands rarely captured in the literature that concern the environmental and cultural elements influencing therapeutic engagement, processes, and progress.

Stephen and Sahitya recount the details of this clinical work as it unfolded, with some reflection on their clinical reasoning and the processes of establishing the therapeutic alliance. The aim is not to present their work in the context of the latest evidence, but to share this story and make available an example of events and possibilities in this particular part of the world with the resources that were available at the time. Where we felt it helpful, we have inserted relevant citations, but this does not represent a literature review intended to inform on the matters arising in the recounting of events.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Written informed consent has been obtained from the patient to publish this paper.

Jugaad

This case study brings to light an approach to clinical work best captured by the Hindi word Jugaad (Prakash et al., 2019). We mention this here for readers to bear in mind as

¹ A pseudonym has been used to preserve client confidentiality.

they follow this case report. Jugaad has been defined as a flexible approach to problem-solving using limited resources in an innovative way, and is possibly one of the better one-word summaries to capture the equally important auto-didactic form of learning which therapists working within an Indian context learn to integrate within their own therapeutic journey (Ghugari & Raisinghani, 2022). The need for using innovative methods where resources are limited, seems to foster forms of creativity which require therapists to intuitively remain reflexive to an ecological paradigm of practice.

Authors' Knowledge and Experience of Life and Work in the Region

Stephen: I am a Sri Lankan who moved to Uttarakhand in 2015, working primarily as an English teacher in the village school till 2018. Being a teacher granted intimate access to the community, its way of life, cultural nuances and challenges faced within. During my tenure as a teacher in Uttarakhand, I completed six months of online theoretical training and a three-month internship in music therapy. After completing this, I set about creating a grassroots music therapy project, which in its initial stages focused on community drumming among various villages in the region.

Sahitya: My introduction to the region was through the internship with Stephen. Being a Hindi-speaking Indian and having travelled to similar regions in the past, I was familiar with the culture. I completed my post graduate diploma in music therapy and a yearlong training in Integral Sound Healing (Hammer & Schmidlin, 2018) which enriched my approach to therapy and client care.

Alex: I have no experience of working in the region. I have some experience of travelling for three months in North India as far as Ladakh and of studying North Indian classical music on the sitar in Delhi. This lasted for one month and was a continuation of three-year undergraduate study with the late Dr. Gerry Farrell at City University, London. Whilst I was studying in Delhi, I witnessed similar daily activities as are described by Sahitya and Stephen in this article – visiting my teacher each day, the late Pandit Debu Chaudhuri. I accompanied him to his recitals and on visits to schools, witnessing his program of continuing the tradition of Indian folk music and raga.

Stephen: An Introduction from the Region

The remoter regions of North India have been subject to plans for improvements in the accessibility of allopathic health services and health care professionals, with the establishment of the National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS; Pandian & Sudhan, 2013). A lack of data on service provision across the continent since that time makes it difficult to determine how this is progressing, and incidence of stroke are increasing, making it the fourth leading cause of death and fifth leading cause of disability in India (Jones et al., 2022).

In my experience, there is little understanding of the distinction between conventional medicine and therapy within the socio-cultural community in Uttarakhand. Education and awareness around these distinctions are equally lacking. Client groups that include those with neurological disorders and special educational needs are often undiagnosed and remain without access to treatment and appropriate care or support (Jones et al., 2022). In some scenarios, such populations remain ostracised from their community. I have observed that it is not uncommon that stroke survivors and people with other disabilities such as epilepsy bear the weight of strongly held superstitious beliefs and stigma, which has been reported in the literature (Ravindranath et al., 2015). I have overheard sentiments and observed behavior expressing an attitude towards stroke survivors, and at times their families, that they must have been cursed by the gods for their condition. Given

the way certain symptoms of neurological disorders and disabilities especially outwardly manifest – abnormal movements, salivating, impaired comprehension – it is common for these to be interpreted through the lens of being a mental health problem, referred to locally as being “mental” (in a derogatory manner) or a spiritual problem, requiring the services of an indigenous healer.

Though not within the scope of this study, it is worth noting that in many cultures, including India, significant numbers of people seek out local healing systems for mental health or perceived mental health problems (Davar & Lohokare, 2009). The village where the patient, Saroj, was living has hardly any proper health provision. This leads therapists to screen and assess patients according to their observations and understanding, with as much information as can be added from local healthcare workers and doctors. All of this certainly calls for resourcefulness and Jugaad.

The Patient

Saroj was in her 70s and lived with her family in the North Indian state of Uttarakhand (see Figure 1). She had a fall two years prior to her referral to music therapy, while she was collecting water, and this resulted in a right hemisphere stroke. She presented with severe left upper limb hemiparesis and spasticity in the hand, both of her lower limbs were impaired, alongside receptive and expressive communication difficulties and low mood. While typically right hemisphere strokes do not affect speech and language comprehension, communication difficulties may nevertheless result, as in Saroj’s case, taking the form of limitations in understanding complex directives and indirect requests (Jones et al., 2022).

Saroj’s primary caregiver was her then 12-year-old granddaughter, who helped with most of her daily living activities. Both conversationally and through my observations, it was clear Saroj had been an active character in the village, which meant that sitting at home and having to depend on others was a significant lifestyle change, to which she clearly struggled to adapt and accept.

Figure 1. A village in the region where Saroj lived. Image taken by Stephen Philip.



Therapy Sessions with Stephen

My work with Saroj spanned one year and eleven months, during which time I saw her once a week except when there were holidays and when I had to be away from the village. This amounted to a total of 62 sessions during this period. The goals at this stage were to

manage spasticity and involve the hand in exercise. A physiotherapist who had been delivering hand massage to Saroj was leaving. She handed over working with Saroj to me with little instruction. While therapists are uncommon in this region, even among allopathic practitioners, it is common practice that they be flexible enough to work outside their specialty, given the lack of human resources. A music therapist being asked to take on the role of a physiotherapist was very much in line with how things work in this context.

April – Mid-May 2018: Reducing Spasticity with Hand Massage

Initially only massage oils were used, which contributed towards reducing the spasticity. As sessions progressed, I felt that this spasticity could be reduced even further. Fairly standard physiotherapy rehabilitative equipment for hands, like massage balls, finger strengtheners and stretchers were not available. Additionally, as I was unfamiliar with the rehabilitative equipment mentioned above, I resorted to a more rudimentary approach – in colloquial Hindi, a Jugaad. I intuitively knew that reducing spasticity was a possibility, and I knew that I needed an object that would help me manipulate the fingers on Saroj's hand. For this, I used a thin, 6-8cm long mallet, easing it between Saroj's already oiled fingers like a lever of sorts (Figure 2). Combinations of two fingers, often the thumb as a pivot, in conjunction with the index, middle, or ring finger, were used. By applying pressure at the right angles, the mallet brought about a substantial increase in how far the curled fingers in Saroj's effected hand could stretch. As sessions progressed, it was discovered that the mallet could be placed in Saroj's grip to stretch three to four fingers simultaneously.

Figure 2. Using a mallet to stretch the fingers on Saroj's affected hand. Image taken by Stephen Philip.



About three months into my work with Saroj, I attended a year-long training in Integral Sound Healing which covered body work, touch, and massage (Hammer & Schmidlin, 2013). The sections on massage in these modules provided further insight into possible applications with Saroj, especially those based on the five elemental ayurvedic approach (earth, water, fire, air, ether) to massage, which were assimilated into sessions. The first four elements have been known in Europe at least since the days of ancient Greece and evolved initially as a model to understand and express laws operating in the natural world. In spite of its origins from antiquity, the system is very much alive today in India, and their fundamental metaphors continue to provide helpful parallels in understanding the dynamic that underlies various modern scientific disciplines like chemistry, physics, medicine, and psychology (Perret, 2005). In the context of stroke rehabilitation and

massage, the element water, with its metaphoric associations of movement and flow, is considered an ideal foil for stimulating blood flow to the hand.

Reflecting on our work, we discovered some literature on combining massage with music-based interventions. In a US study, both hand massage and calming music (10 minutes of listening) had a sustained effect on reducing agitation in people living with dementia, although delivering both simultaneously did not increase benefit (Remington, 2002). Another study found that the combination of preferred music listening and massage (foot and leg) using aromatherapy may be an effective therapeutic strategy to improve sleep quality in intensive care patients (Pagnucci et al., 2019).

Mid-May – July 2018: Music Improvisation and Movement Synchrony

In this period, I began to establish some goals using music-based interventions:

1. Range of movement (distal and proximal)
2. Bilateral instrument playing
3. Movement synchrony: Assessing whether pulse could help with priming and timing arm/hand movements

I experimented with a few musical interventions that included a mix of improvisation and structured play with a focus on stimulating as much distal and proximal upper limb use as possible, rather than focusing mainly from the elbow towards her fingertips (Figure 3). I also decided to facilitate bilateral playing, working equally, and perhaps even more, with the functional hand, as I felt that using the range of motion in that hand might bring in some confidence and sense of meaning for her. The improvisation, which included her playing handheld tambourines, floor toms, rattles, a xylophone, and a metallophone, saw largely mono-patterned responses from her ([The Art and Craft, 00:05-00:27](#)).

I hoped the structured playing would meet the goal of enhancing movement accuracy and timing, and the co-ordination of both upper limbs. Since increasing consistency in a patient's ability to make contact with an instrument in coordinating and redeveloping upper limb movements is a sign of improvement (Baker & Tamplin, 2006), I hoped that introducing a metronome would support improvement, in particular the priming and timing of movement. She appeared to understand the purpose of the metronome when I introduced it, clearly trying to synchronize her playing to it, but sustaining a consistent beat was challenging for her ([The Art and Craft, 00:28-00:40](#)). This may have been due to the movement frequency (tempo) and introducing this approach too early, when hand-over-hand support was still much needed. Overall, her body language communicated that she wasn't greatly enjoying this, and I felt myself wondering if Saroj was feeling some dissatisfaction with progress and whether her family were reluctant to engage and support the exercises between sessions. These reflections stemmed partly from my observations of Saroj during the musical interventions, where her body language suggested someone going through the motions. Typically, she displayed happiness at seeing me, at the start of a session. But as the session progressed, her interest appeared to wane. Since I could only work with her hands during our sessions, I wondered whether she may have experienced augmented fears around her hopes of being able to walk again. Further, asking me about walking again was a regular question, one which I could only respond to when a translator was present. Additionally, there seemed to be little indication of the adults in the family following through with exercises between sessions. Perhaps in a different context it would have been possible to interpret these observations as disinterest on the part of the family. This, however, highlights a complex contextual insight about roles and responsibilities within a family in this North Indian context. A stroke survivor requires a form of long-term care that is an investment of time on the part of the caregivers. However, this was

not an option in Saroj's family, which had a complex dynamic. Her son had a history of substance misuse, leaving her daughter-in-law to spend the best part of each day working in fields, and another adult male relative spent the entire day working as a laborer. This left three grandchildren of school age, two girls in their early teens and an even younger grandson, with one granddaughter being the only family member showing consistency in the family's commitment to Saroj's welfare. The socio-economic fabric in this context clearly posed severe challenges to the amount of time Saroj's family could set aside to care for her. So far in my career, I had not encountered ecological practice in music therapy and didn't have a point of reference from which I could self-articulate the value in promoting health within and between various layers of the sociocultural community and physical environment (Baker & Tamplin, 2006). It was at this juncture that I considered combining music with art and using equipment that shared similar grip and arm movement.

Figure 3. A musical intervention from early work with Saroj. Image taken by Stephen Philip.



August 2018 – February 2020: Motivation, Fine Motor Control and Cognition; Combining Art Materials and Music

There was a marked difference in the entire family's response once the paint-related materials came out, as here was the possibility of something a little more familiar to all of them. My decision around using art was based on a perceived sense of the client not being overly engaged with the music-based interventions. In terms of a typical rural Indian education, painting is often the only art form, which has some presence within the curriculum, whereas music and other forms of creative art education are available in the more well-to-do schools in urban areas.

From a therapeutic perspective, I felt that a paintbrush, in terms of grip, required handling something of a size, length, and weight similar to the mallets, which could have served as preparation for playing instruments at a later stage. Combining arts-based activities with music listening has also been reported as reducing depression and distress in older people and people living with dementia (Hanser & Thompson, 1994). Saroj was more engaged, enjoyed it and the change facilitated fine-motor movements. If the arts materials were motivating for her, then they fulfilled this important purpose as well as using similar grip and movements as when playing instruments or performing some activities of daily living. Rather than having a fixed object as a slate, I found that either me or her grand-daughter holding the slate (often a frame drum) at an angle with the paper on top, meant that we could make subtle on-the-go shifts to the angle, and increase the complexity required to control the mixture of paint and water. With painting we also brought in a balance of structure and improvisation. Structure included clear images with

boundaries within which to paint (Figure 4) and improvisation was a mix of larger and simpler boundary images, and sometimes painting on a blank sheet of paper.

Figure 4. Saroj uses her unaffected right hand to support her affected left hand while painting within a clearly defined image. Image taken by Stephen Philip.



In terms of cognition, this approach facilitated decision-making, planning and organizing through the choosing and placing of colors. The materials and process called for greater concentration and precision when working with images within boundaries. There was a reduction in the need for verbal cueing, which seemed to bring about improvements in Saroj's choice of expression (as opposed to mono-patterned musical expression when we had tried improvising), co-ordination, and fine motor movements ([The Art and Craft, 00:56 – 01:25](#)) Additionally, with background music her brush strokes often naturally fell into sync with the pulse, both in structured and improvised painting (Figure 5; [The Art and Craft, 00:41 – 00:55](#)), which enabled me to shift the angle of the slate with the pulse as well, resulting in a sort of dance between painter and slate holder.

Reflecting on the music-centered interventions prior to August 2018, it is possible that Saroj experienced the metronome as being intrusive and bland. Whereas the introduction of background music to support her painting may have felt gentler and coupled with there being no specific verbal instructions connected to the music, it might have functioned as a pleasant and supportive presence, entraining her brush strokes to its underlying pulse without her having to know or focus on it.

Figure 5. Saroj's brushstrokes syncing with background music in improvisational painting. Image taken by Stephen Philip.



Managing the Environment and Family Dynamic

I was aware that home practice is essential to achieve sufficient repetition of movements to bring about neurological change and improved arm function. Evidence for the importance of dosage is supported by both music-based (Ripolles et al., 2015; Villeneuve & Penhune, 2014) and non-music-based studies, as is the need to improve ways of recording independent home practice (Turton et al., 2017).

It was a challenge to set up a schedule from which the family could support Saroj painting between sessions. One such regular challenge was Saroj's grandson making good use of painting materials for himself, which could cause some obstruction to Saroj accessing them. Saroj's twelve-year old granddaughter was the only family member showing consistency in commitment to her home practice, but given her age and the need to juggle her schoolwork and household chores, it was overall a far from ideal system of caregiving, with a disproportionate amount of responsibility on her.

Due to the global COVID-19 pandemic, all work with Saroj ceased until September 2020.

Stephen's Reflections in the Wake of Sahitya's Internship

After this one-year and 11-month period of working with Saroj, I was able to involve a second therapist, Sahitya, when her request to do an internship came in. She worked with Saroj for five weeks. We ran sessions conjointly, focusing on music-based arm and hand exercises to help regain function (see Table 1 for summary of sessions). Later, we reflected on this and found some supporting literature about working conjointly (with children rather than adults), where two music therapists reported that this enhanced their understanding of the therapeutic process, making recommendations more concise (Fearn & O'Connor, 2003).

Sahitya's request for an internship was exciting, but it also pushed me into having to introspect about whether I could fulfill the role of a supervisor. She had just completed six months of theoretical training in music therapy online – which meant that her first hands-on experience in working as a music therapist would be within this somewhat unconventional context for therapeutic work. Given the time I took to integrate between my own music therapy training and where I ended up practicing, I felt a sense of responsibility as to whether working in this context for a five-week period would cause more confusion than good.

What transpired, however, was that the internship pushed me into searching for literature which would help me place my work within a theoretical framework that was new to me and would benefit future work. In this process, the book *Community Music Therapy* (Ansdell & Pavlicevic, 2004) was instrumental in my growing appreciation towards how this approach challenged the boundaries and definitions of conventional music therapy. It's emphasis on how culture ought to inform perceptions of therapeutic needs, and the continuous development of new perspectives, role identities, and fresh approaches to music therapy practice, had much in common with observations and realizations from the preliminary work reported in this case study. Additionally, the ecological and integral paradigms of therapeutic practice, which contexts like this remote area of North India call for, were richly supplemented by insights from *Defining Music Therapy* (Bruscia, 2013). Bruscia contends in this book that the unique therapeutic needs that surface within ecological areas of practice may result in models that look nothing like music therapy as we know it, at times making them extremely difficult to define, distinguish, and categorize. He succinctly states that an integral approach to therapy requires that therapists be reflexive enough to follow a model or protocol faithfully and to modify it in ways that meet client needs as they emerge. They should use other protocols

if and when necessary, but also find flexibility, based on their clinical reasoning to establish unique ways of working without using protocols.

Sahitya's working with Saroj brought in fresh perspectives and opened up possibilities which I hadn't considered. I observed significant improvements in the therapy and Saroj and her family's positive rapport towards a Hindi-speaking therapist, due to three changes that Sahitya introduced:

1. The use of background music that was personally meaningful to Saroj
2. The portable electronic keyboard
3. Her interactions with the family, within and outside of sessions

Music Therapy Sessions with Sahitya

Session 1: Uhhh... Is This "Music" Therapy?

These sessions are summarized in Table 1, as a quick reference to session content and Saroj's responses, which then factored into our clinical decision-making.

My first session with Saroj on this internship started off with Stephen and I packing a few instruments and walking through the village to reach her home. The music therapy sessions began with a short hand massage (Figure 6), gradually opening each finger. Stephen introduced me to the form of massage he had used. The aim was to stimulate blood flow.

Figure 6. A music therapy session in progress: Massaging Saroj's affected hand amidst neighbors and dogs. Image taken by Stephen Philip.



In the first session, spasticity was so severe that only the index finger could be extended, with hand-over-hand support. During our interactions, I learned that Saroj was originally from West Bengal in East India which is culturally and musically very rich, and I began to feel that some music from her culture of origin could be used during hand massage. We asked her if she remembered any songs, to which her response was an unequivocal no ([The Art and Craft, 01:30 - 01:45](#))

Session 2: A Blast from the Past: The Body Keeps the "Score"

After our last session, we pushed back the timing for this one so that Saroj's granddaughter would have more time to get her ready. My involvement within this matrix, as an outsider who could converse fluently in Hindi, was probably an impetus for Saroj to interact with

someone who was showing a keen interest in her current life circumstances.

Saroj's granddaughter had just finished bathing, oiling, and drying her hair in the sun, and she sat in her usual place in the garden, hair brushed and tied in a knot – it became apparent that she took great pride in her appearance, particularly for visitors. Possibly, given the transformation she had undergone due to her stroke from being an active force in the community to an isolated and confined onlooker, visitors were rare.

Use of Personally Meaningful Facilitating Music

Keeping her Bengali culture of origin in mind, I incorporated *Rabindra Sangeet* (a traditional genre of music from Bengal) as background music from the next session onwards. We used the pulse of the music in the massage and movement of her affected hand. We noticed that the music led her into a state of reminiscence ([The Art and Craft, 01:46 – 02:06](#)) She wasn't verbally communicating her thoughts, but we could see a positive change in her persona. There were moments when she would be lost in deep thought and would suddenly come back to the present time with an increased willingness to engage with the environment around her and those present in that environment. Often this came about via a smile, a playful look, comment, or, on occasion, even a small laugh ([The Art and Craft, 02:07 – 02:18](#)) The music seemingly transported her to a time and place steeped in nostalgia, going by her alternating between introspection and self-conscious amusement. Her relating to the music that was played seemed to support her involvement in the motor movements. We continued to use this music during the massage sections of our work with her.

Bilateral, Fine Motor Control: Introduction of a Portable Keyboard

I had been reading *Music Therapy Methods in Neurorehabilitation* (Baker & Tamplin, 2006) during the internship. When reading about the use of various instruments for bilateral upper limb synchronization and the use of a keyboard for fine and spatial motor control, I thought that this instrument would be a good fit for our work with Saroj. I also felt, given that she had never come across a keyboard before, that it would serve as something novel, fun and motivating to engage with.

We introduced a battery-powered three-octave Casio keyboard, with 44 small, unweighted keys (Figure 7). Keeping in mind the space we were working in, we had to adjust the use of the keyboard by simply placing it on Saroj's lap as she sat on a chair. In an ideal situation we would have preferred to use a proper stand or a table.

Figure 7. An image of the keyboard incorporated into the sessions with Saroj.



We encouraged Saroj to explore the instrument and she initially played with her fist in a somewhat chromatic style going all the way up and down the keys, a response similar to the mono-patterned style of playing she exhibited during her early music therapy sessions with Stephen. She attempted to play with her functional right hand, and after a few minutes we supported her in using her left, affected hand as well. We could see that she

was able to target and play individual notes; however, it was only in a similar motion – playing every note consecutively in one direction up the keyboard.

We initially planned to introduce a pattern of notes from a popular *Garhwali* song familiar to the client. However, as the session progressed, we realized the jumbled pattern of notes was challenging and made it difficult for her both to follow modeled instructions and to control the movements of her hand (Figure 8; [The Art and Craft, 02:19 - 02:42](#)) The reason for using the keyboard was manifold and it was important to encourage playing patterns that served the purpose of engaging the affected hand and introducing best quality, repetitive wrist and finger movements. It also might introduce some structure and framework to a whole new dimension of creative expression, perhaps aiding motivation and adherence.

We observed that she would make efforts to support her affected hand with her functional hand, holding on to her wrist and playing with the corner of her left-hand thumb. Her left hand was unable to maintain control due to which multiple keys were played at uneven intervals. During the sessions, her level of concentration and focus was very high throughout the 12- to 13-minute duration of using the keyboard.

Figure 8. Attempts at introducing Saroj to a phrase from a popular Gharwali song on the keyboard, with Saroj's granddaughter (far right) listening in while preparing lunch for the family. Image taken by Stephen Philip.



Session 3: Landing on the Pulse

We observed that Saroj was becoming more able to use the pulse to help with the priming and timing of movements, reflecting an improvement in motor control and the potential to use movement synchrony to increase engagement and repetition (note the 12- to 13-minute duration of playing in the previous session).

There was a sense of familiarity that had set in with the keyboard. Our interventions were based on finding ways to meet the goal of enabling her to move her affected hand with more control and accuracy to create sounds and improve activities of daily living. We worked on gross and fine motor movements all of which were executed with the support of the right hand or the therapist. It was also becoming clear that she was moving beyond her monotonous style of playing. She was able to play with more control with the corner of her left thumb and played single keys, making contact with them accurately. Her tempo was fairly steady, which to us indicated an intuitive use of pulse and the somewhat universal capacity of humans to lock into it (Thaut, 2008; [The Art and Craft, 02:44 – 02:56](#)). In comparison to previous sessions, it was becoming clear that Saroj was demonstrating increased motivation and musicality in her playing, which we wanted to capitalize on to see if we could support higher levels of repetition. We noted that she enjoyed playing

repeated notes, which helped to facilitate this.

We moved on to using more temporal structures, beginning with the counts 1 and 2, to play two notes, which were apart from each other (the notes F and B). We noticed that she was unable to repeat the same pattern independently. We observed that she would remember the rhythm of the patterns being used but could not accurately match the notes. We gradually moved on to using two fingers to play simultaneously – her thumb and index finger. We attempted to play intervals in thirds and maintain a rhythm, which she was able to hold on to ([The Art and Craft, 03:11 – 03:30](#)). We tried to replicate this in the affected left hand. However, it was slightly more challenging; we saw that she attempted to play with her left 2nd and 3rd fingers pulled out with her right-hand. Going ahead with this, we had musically assisted her in playing with bass notes, maintaining the same pulse and rhythm. The tempo was fast and quite controlled. She continued to play notes away from each other like the 1- and 2-beat counting patterns we had attempted earlier. This was a point where I felt that she was heavily engaged in the session. Exploring more with the instrument, we tried playing with a different keyboard voice and observed that her playing was gradually becoming a lot more intentional. She attempted to use the different movements we had used throughout the session and continued to be quite attentive, playing with a lot of concentration.

Session 4: She Plays the Melody over her Rhythm

We observed that Saroj was able to recollect the patterns we had been playing previously on the keyboard. In this session, one of the highlights was that we were able to work around the concept of bilateral synchronization, where Saroj independently played with her right hand and was supported by the therapist to play with the left simultaneously (Figure 9; [The Art and Craft, 03:53 – 04:03](#)). This was quite an amazing moment, as we saw her use both hands to create something, which also gave her a sense of satisfaction. The best part was that she led both the melody and rhythm.

Figure 9. Bilateral synchronization: Saroj plays independently with her right hand while her left hand plays simultaneously with support from Sahitya. Image taken by Stephen Philip.



Session 5: Freedom and Self-Expression from Improved Function

This being the fifth and last session with the two therapists working together, it became increasingly clear that the Saroj was familiarizing herself with our repertoire of songs and this genre of music. Repeatedly listening to a set of songs every week during the massage made its way into entraining the massage movements that we were exploring.

In this session, we had moved into improvising on the keyboard and a few distinct

moments emerged. Saroj entered a musical dialogue and played thirds in a C Major scale and used the index and middle finger of her unaffected right hand. This was a movement that we had explored in earlier sessions; however, the control and independence had improved substantially now. It was also beautiful to see how the music itself had got her into this movement without any verbal instructions. We observed that Saroj was now able to make spontaneous choices while improvising, for example, which fingers to use, the rhythmic pattern and where the pauses should be.

During the internship, I was introduced to a few improvisational concepts through the book *Improvisation* written by Tony Wigram (2004). During group drumming sessions amongst peers, we had explored using empathetic improvisation methods like mirroring, matching, grounding alongside musical dialogues. With this background, I attempted to incorporate these techniques during the keyboard improvisation as I accompanied Saroj using bass notes.

As our sessions progressed, we experimented using tones and voices on the keyboard, such as sitar, dholak, and tabla. We chose to explore using these tones and voices as we felt there would be added familiarity for Saroj with the sound of Indian instruments. We also felt breaking the monotony of using the same voice/tone repeatedly could bring in more variety that would keep Saroj engaged and aid adherence. Further, when experimenting with an orchestral strings voice, Saroj naturally adapted her playing style – she would hold on to the keys for much longer to make full use of their sustain. Her playing had intention and thought, as she played around the keyboard keys D and B consistently and for prolonged periods. We could not be sure what her thinking was while playing, but there was clearly a melodic motif which she was building upon, pointing towards an increasing musical sense. Up to this point she had been playing with her functional right hand. Now, she took hold of her left hand and began unfurling her fingers, attempting to bring them into contact with the keyboard (Figure 10). She was motivated to play by pulling out three of her fingers one by one: her index, middle and ring fingers. The other interval that she created repeatedly was fifths (A to E). Looking back at the first session, where during the massage itself it was quite a challenge to work with her left-hand fingers, this was quite an improvement to see.

Figure 10. Saroj supporting left finger movements with her right (unaffected) hand. Image taken by Stephen Philip.



A light moment in the session was when we switched to tabla and dholak voices and played short glissandos. Saroj just picked up on it and started copying these movements. She enjoyed it so much that she switched to her stronger hand to play more. It was interesting to see her play along with the Indian rhythmic sounds. Stephen incorporated rhythmic patterns, which were more commonly heard in the region as well, such as those found in

live wedding music, funerals, and ceremonial gatherings. Saroj’s responses may have been due to her familiarity with this sound world and the rhythmic patterns from her preferred music. It could also be due to the novelty of being able to produce fast, rhythmic playing from her glissandos on the keyboard, that quite accurately recreated those that would come from a tabla player.

As we continued with the improvisation along with the different voices on the keyboard, we came to an understanding that Saroj had developed a certain amount of control while using the affected hand, she was also highly motivated to push herself even more. We understood that if there were a kind of base support for her left hand, she would be able to slowly develop more functionality. As we were discussing this, she figured out a way to do this with her right hand and began playing again. Her left hand was above the right, which formed a base or ledge between her fingers to be able to play. For the first time Saroj was improvising with a sitar sound on the keyboard using two fingers of her left hand.

After five weeks of settling into a routine for sessions, we found ourselves celebrating Saroj’s improvements. A period of playful improvisation captured this very well. We had, by now, observed that Saroj was clearly enjoying the range of playful voices within the keyboard, and randomly assigned a voice which sounded like a muffled toy gun. Sahitya set the tone for the session by using rhythmic effects from the keyboard as a form of grounding to which Saroj improvised over with voracious rhythmic precision. At times, I alternated between grounding and matching techniques. This morphed into dragging our fingers across the white keys of the keyboard in a sweeping, glissando motion. Saroj by this point in the session was relaxed and keenly observing our sweeping gestures across the keys. Once we finished our playful exploration, she calmly joined her unaffected hand with her affected hand and made a perfect imitation of our improvisation.

Stephen joined Saroj from the bass end of the keyboard, and what proceeded to unfold were a series of call-and-responses. Seemingly, the significance of the moment had not gone unnoticed as Saroj’s granddaughter from outside had been listening and made a comment along the lines of us “sounding like we were in animated toy cars.” This observation brought out the child in Saroj, as her previously calm demeanor gave way to impish laughter ([The Art and Craft, 04:15 – 05:43](#)).

Table 2. Summary of five sessions with Sahitya whilst on her internship.

| Session number | Materials used | Exercises | Facilitating music | Client responses |
|----------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Massage oils, mallets, Bluetooth speaker for background music | Massage to stimulate blood flow to the hands | Music fused with Indian chants | Client claims no recollection of music from her Bengali culture of origin. Rigidity of fingers on the affected hand decreases. |
| 2 | Massage oils, mallets, Bluetooth speaker for background music, keyboard | Massage to stimulate blood flow to the hands, modelling phrases from familiar music to be repeated by the client on the keyboard | Rabindranath Sangeet (Bengali Music), Fyonladia (Gharwali Song) | The music used in the massage seemed to bypass the client’s admission of not remembering music from her childhood. She seemed to be reminiscing based on the background music used during the massage. Unable to repeat modelled exercises on the keyboard. |

| Session number | Materials used | Exercises | Facilitating music | Client responses |
|----------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 | Massage oils, mallets, Bluetooth speaker for background music, keyboard | <p>Massage to stimulate blood flow to the hands</p> <p>Therapeutic methods: mirroring, matching, empathic improvisation, grounding, and accompanying</p> | <p>Rabindranath Sangeet (Bengali Music)</p> <p>Improvised music on the keyboard</p> | <p>Client begins to break out of her monotonous style of musical expressions, begins to better emulate modelled, non-verbal, musical instructions.</p> <p>Increased musicality in her playing.</p> <p>Rigidity of fingers on the affected hand decreases.</p> <p>Begins to show improvements at matching her movements to improvised music on the keyboard</p> |
| 4 | Massage oils, mallets, Bluetooth speaker for background music, keyboard | <p>Massage to stimulate blood flow to the hands</p> <p>Therapeutic methods: mirroring, matching, empathic improvisation, grounding, and accompanying</p> <p>Bilateral synchronization for upper limb rehabilitation</p> | <p>Rabindranath Sangeet (Bengali Music)</p> <p>Improvised music on the keyboard</p> | <p>Client makes reference to a memory from her Bengali culture of origin.</p> <p>Able to recollect movement patterns from the previous session</p> <p>Increased musicality in her playing</p> <p>Rigidity of fingers on the affected hand decreases</p> |
| 5 | Massage oils, mallets, Bluetooth speaker for background music, keyboard | <p>Massage to stimulate blood flow to the hands</p> <p>Bilateral synchronization for upper limb rehabilitation.</p> <p>Therapeutic methods: mirroring, matching, empathic improvisation, grounding, and accompanying</p> | <p>Rabindranath Sangeet (Bengali Music)</p> <p>Improvised music on the keyboard</p> | <p>Client is able to observe and replicate modelled non-verbal instructions, even playful ones.</p> <p>Rigidity of fingers on the affected hand decreases</p> <p>Client appears more confident and composed.</p> <p>Displays increased self-initiative.</p> <p>Client enters into musical dialogues with therapists.</p> |

Postlude: A Reflection from All Three Co-Authors

This brought us to the end of the five-week internship in the village, which comprised a different approach to initial sessions with Stephen. The regularity of sessions had dwindled

for reasons including the strict lockdown measures due to the COVID-19 pandemic that began in 2020 and changes in the community which restricted our movements. In sessions following the internship period, Saroj appeared more able to engage in daily activities, using her affected hand to drink chai (tea) with support from a caregiver/therapist (Figure 11; [The Art and Craft, 05:45 – 05:58](#)). I imagined that there could have been further improvements towards increased independence if she had been able to receive weekly, or even biweekly music therapy.

Support in Between Sessions

In Saroj's situation, her granddaughter was her only caregiver who would usually observe the sessions and ensure some follow-through during the week. But considering her age and other tasks bestowed upon her, she would not be able to actively replicate the tasks on a regular basis.

Figure 11. Post internship: Saroj sips a cup of chai with her affected left hand supported by the therapist. Image taken by Stephen Philip.



Use of Preferred Music

With respect to the music choices used in the sessions, there have been positive outcomes with both familiar and unfamiliar music. The choice of slow tempo music during the massage was particularly effective as it fostered synchronization of hand movements and acted as an external stimulus to the other purposes of the massage beyond improving blood circulation – to relax the client's muscles and reduce spasticity.

Movement Frequency and Quality of Arm/Hand Movement

The tempo and rhythm for the keyboard improvisations were typically set according to the client's capacity in terms of the speed with which she was able to move her arm without compromising the quality of movement. We could observe a gradual increase in the tempo from the first to the last session and a steadier rhythm maintained in the last session particularly. There could be multiple factors contributing to this outcome, such as increased familiarity with the instrument, the music and the required movements to produce tones (including key sensitivity) and hence more confidence for the client in executing the task, with better finger movement and control. Using the metronome did not work when it was introduced, probably because movement synchrony needed to be worked towards at Saroj's pace, and because it was too restrictive, and too alien to her – being a far cry from the rhythmic patterns of tabla playing.

Community Services in the Region

We feel that our experience of working with Saroj highlights the need for more healthcare services in rural communities particularly for stroke rehabilitation in the areas of diagnosis, assessment, treatment and education for survivors and their families. Our work tailoring exercises to meet Saroj's needs under these conditions provides an illustration of the impact that can be made on the development of appropriate community stroke rehabilitation, enabling both stroke survivors and their families to engage and progress towards independence.

From Music Therapy Intern to Community Services and Conjoint and Interdisciplinary Working

Sahitya

As a music therapy intern working in this community, I was able to employ a combination of music therapy models, which earlier had existed only in books and journals. I came to realize how each of these traditionally boxed models and approaches could seamlessly blend in therapeutic practice and contribute effectively to the holistic treatment of a client. Through the two-therapist model of working with Saroj, we were able to bring in our own perspectives and experiences to the sessions, keeping a closer eye on Saroj's responses and employing the most appropriate thinking, materials and interventions. As a trainee I relied heavily on literature and explorative ideas while Stephen was able to put this in the context of the community and navigate the process based on his experience of working with the client. This conjoint working approach has clear value and potential for interdisciplinary learning, to the benefit of clients and their families and caregivers. Additionally, conjoint learning when framed in the context of a supervisor-intern relationship carries rich implications for learning and the exchange of knowledge and applicable skills.

Reflections from the Three Co-authors

Music therapists are trained to work in highly flexible ways in terms of how they manipulate and adapt music and which theoretical models they employ – there can be a high degree of *Jugaad*. They also borrow from other therapeutic disciplines – art or play therapy, for example – and access a whole range of music from different cultures, which probably depends on their cultural background, breadth of music consumption in terms of genres, music education and equitable access to music. Ayurvedic hand massage is an intrinsic part of our culture in India, and more assimilated into it than might be the case for others. We did not encounter this approach in our music therapy training or seek the literature and discover any scientific evidence whilst working with Saroj – I was using hand massage because this was the handover from the physiotherapist. This was not strictly conjoint or co-working in an interdisciplinary sense, but it fed into my clinical decisions on how to use music and related equipment to meet the general goals of reducing spasticity, accessing instruments and improving hand use.

Combining Approaches

While working with Saroj, we were not limited to a single approach, such as those suggested within the branch of neurologic music therapy. Based on our clinical reasoning, gradually assessing Saroj's motor and cognitive function, responses to interventions (we had no information from other clinicians or assessment reports), getting to know her and attune to her needs and motivations, we were able to build and adapt a treatment program. The rapport we developed with her and her family was greatly assisted following the

introduction of music that was culturally and personally relevant. This was a necessary step beyond techniques such as Therapeutic Instrumental Music Performance (Thaut, Michael & Hoemberg, 2014), that did more to encompass social science and neuroscience thinking, which may need more attention from music therapists working in neurorehabilitation settings in order to avoid becoming constrained by models such as neurologic music therapy. The selection of patient preferred music is not an integral part of such techniques employed for sensorimotor recovery, but perhaps it should be. It has been reported by Dr. Nishindra Kinjalk, a leading figure in music therapy developments in India, that in Western music therapy practice generally, the role and selection of appropriate music has not been understood (Singh, 2021). This would depend on the patient population and the goal of therapy – for example, patient-preferred music has been used to help stroke recovery (Baylan et al., 2019; Sarkamo et al., 2008), with improvements in cognition and mood. Perhaps Western practitioners would benefit from exploring Kinjalk’s writings, particularly in neurorehabilitation and not only music therapists, but other clinicians such as occupational, physio and speech therapists. Kinjalk’s methods are cited as selecting music based on patient diagnosis, history, mood and suitability. There are many mechanisms to music interventions that have been highlighted (Sihvonen et al., 2017). Clinicians must continue to develop their clinical reasoning to draw out those most pertinent to each patient, whether it is for motor system stimulation, motivation and reward, cognition or a balance of each.

Jugaad encapsulates well the approach that we took for this work. Its inextricable intertwining with the way life plays out in India makes it a given that creative and innovative hacks are hardwired into the sub-continental psyche. From a therapeutic perspective, this made accepting the journey of discovery and letting go of any overwhelming feelings of “having to know or thinking we should know the answers” all the more natural.

About the Authors

Sahitya Rajagopal is Music Therapist, private practice, Co-founder, Dhruvpadx Ableton, (A music and sound integrated experience project), Delhi, India. Rajagopal has been a student of music therapy and has been exploring its application in the Indian Context. She has completed her bachelor’s degree in Hindustani Classical Music Honors from Delhi University, India which creates a strong academic understanding of Indian Classical Music. She has pursued a Post Graduate Diploma in Music Therapy from Chennai School of Music Therapy, India. As part of her training, she completed internships at Matli with a grassroots project called Grapefruit Music, Uttarakhand, India and at Mahatma Gandhi Medical College and Research Institute, Puducherry, India. She has completed her training with Svaram Musical Instruments and Research, in Auroville-India under their Integral Sonic Studies Program, which is a year-long 4 module program.

Alex Street is a neurologic music therapist and senior research fellow at the Cambridge Institute for Music Therapy Research. His research focus is on designing and delivering interventions to improve neurological function, including movement, speech and cognition, mood and quality of life, for people with various neurological conditions in acute, subacute and community settings. Alex has a particular interest in developing and implementing technology to improve accessibility, self-delivery of exercises and to increase treatment dosage.

Stephen Philip founded Strange Beautiful Music (formerly Grapefruit Music), a grassroots music therapy trust in the Indian Himalayas, and immensely enjoys offering music therapy

services to a small group of people in his community. Occasionally, he facilitates drum circles within the community, amongst visiting friends and neighbours. Originally from Sri Lanka, he now lives in India where he completed his training as an integral sound healer with Svaram Musical Instruments and Research, Auroville-India (2018), and his Post Graduate Diploma in Music Therapy with the Chennai School of Music Therapy (2016). He also holds a Masters in Divinity.

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