

RESEARCH PAPER

Experiences of participation in rhythm and movement therapy after stroke

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Abstract

Purpose: The aim of this study was to investigate how persons with stroke experience participation in rhythm and music therapy. **Methods:** To gain knowledge of the qualitatively different ways persons with stroke experience participation in Ronnie Gardiner Rhythm and Music (RGRM) therapy, a phenomenographic approach was chosen. Interviews with 17 persons with stroke were done. Selection criteria were set to capture the variations in how the phenomenon appeared to the informants. **Results:** Two qualitatively different ways of experiencing the RGRM therapy were identified: (A) challenge leading to connection with the body and (B) being able. A feeling of being connected to the body was achieved as a result of the challenging tasks. By gaining a feeling of body awareness joy, energy and desire to do things increased. Learning new skills was promoted by having to be concentrated during therapy sessions and a sense of being able to carry out difficult tasks was achieved. **Conclusions:** Participation in RGRM seems to have helped the persons come to terms with their changed bodies, leading to feelings of being connected with their bodies. A feeling of change in competence occurred when an ability to carry out the tasks was simultaneously achieved.

► Implications for Rehabilitation

- Stroke may cause considerable functional limitations with needs of rehabilitation services as a consequence.
- Participation in rhythm and movement activities may help persons who have had a stroke come to terms with their “new” bodies.
- The rhythm and movement activities were considered demanding and helped return to a meaningful life.

Background

Stroke, heterogeneous as it is in its nature, may cause considerable functional limitations leading to restrictions of participation in activities, with needs of rehabilitation services as a consequence [1]. It is an intensely personal experience often resulting in a major disruption in a person's life, which in turn can lead to feelings of loss of confidence and isolation from families and friends [2]. Furthermore the body can be experienced as alien, as a broken tool, leaving the individual with a feeling of helplessness and loss of control [3,4]. To be able to carry out complex motor tasks such as walking, dressing and washing are skills that are often in focus in rehabilitation. Attention needs to be paid to activities that brought meaning to life before stroke and to help individuals come to terms with their changed bodies, abilities and self-images. Actions need to be taken to help them return to meaningful lives [3–6].

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History

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In rehabilitation multidisciplinary team care, patient motivation and engagement seem to be associated with positive outcome [1]. Theories of motor control and of learning are considered crucial to how interventions are organised. It has been shown that variable practice enhances long-term retention of motor skills [7]. Interventions such as constrained induced therapy, robotic treatment, weight-supported treadmill training and Tai Chi exercises improve arm–hand function, balance and gait [1,8–11].

Music has been suggested as a tool in rehabilitation, as there is some evidence that much music is intended for synchronised movements. There is a rhythmic predictability in music and these rhythmic components might serve as guides to motor acts for people with impaired motor planning abilities, as often is the case in stroke patients. The repetitive rhythmical patterning present in music can serve as useful guides in complex movements. Music is also considered to be highly motivational and to elicit emotional pleasure [12–16]. Listening to music, using musical motor feedback or performing music can have positive effects on motor functions including increased range of possible movements, improved gait patterns and generalisation of treatment benefits to real-world situations [15–20].

A number of studies have demonstrated that large, widespread areas of the brain structures are involved in listening to music, and even more in performing music. Music has an impact on emotional processing, cognitive functions, attention, semantic processing, learning, communication, memory and motor functions such as for instance synchronisation of movements [12,20–24].

Positive effects of rhythm- and/or music-based therapy have been reported in neurological conditions such as stroke [12,20–24]. As the consequences of stroke are long-term, there is a need to identify in which different ways individuals experience the bodily changes and how they experience a self-chosen activity. The rehabilitation services offered by society are time limited, therefore we need to suggest other kind of activities which are motivational and which improve physical well-being. Few studies have been done on how the persons who participate in rhythm and/or music therapy experience the intervention. The aim of this study was to explore how persons with stroke experience participation in rhythm and music therapy.

Methodology

Rhythm and movement therapy

In this article, the rhythm and music therapy created by musician Ronnie Gardiner, called Ronnie Gardiner Rhythm and Music Therapy (RGRM), is chosen as the target of interest [25]. It consists of elements of music, rhythm, movements and spoken expressions. During therapy sessions the body is given two colours, red for the left part of the body and blue for the right part of the body. The therapy uses rhythm, words and sounds; a specific note system has been developed by Ronnie Gardiner in which symbols for movements and a specific name for each movement comprise the point of departure. The leader is a trained music therapist, and chooses music appropriate for the group. During sessions the participants have to follow the note system, exposed on transparencies on the wall, say the appropriate expression and perform the movement which is connected with that specific expression. Each movement has a specific name, which should be voiced while doing the movement. Upper and lower extremities on the same side of the body or left upper and right lower extremity or vice versa are to be used together. Groups with different levels of difficulty are offered. Group members meet once a week for 10 consecutive weeks each semester.

Phenomenography

To gain knowledge of the qualitatively different ways persons with stroke experience the participation in RGRM, a phenomenographic approach was chosen [26]. This approach aims at exploring what meanings people ascribe to and how they experience phenomena such as participation in rhythm and movement therapy. Phenomenography has its roots in pedagogic research with focus on description of conceptions of the surrounding world. In phenomenography, interest is directed at the different ways people understand a phenomenon, i.e. it is a second-order perspective as opposed to phenomenology, in which the goal is to uncover the essence, the inner core, of a phenomenon. Phenomenography has been found useful in health-care research as it can contribute to understanding of how different patients experience their states and needs, which can mean that health-care professionals are more prepared to use different measures to fulfil the needs of different patients. In phenomenography, the underlying assumption is that there is a limited number of variations between people, which can be described in qualitatively different categories [26,27]. To capture

the variations in experience, there needs to be a variation between informants. The informants were selected regarding sex, age, marital status, localisation of incidence, time elapsed since stroke occurred. Focus in this study is on how people experience and interpret the RGRM therapy in different ways.

Data collection

Each group member was given a letter of introduction by the RGRM therapist. The therapy groups were held in two different suburbs of Stockholm, with two groups at each location. The invitation letter was distributed in both locations to all four groups.

Data were collected by semi-structured interviews carried out by the first author, according to Kvale [28], in a place chosen by the informant. An interview guide was developed through discussions between the first and the last author. All interviews were started with the same question to initiate the dialogue: ‘‘Please tell me about an occasion when you felt you learned something in the RGRM therapy’’. Areas covered in the interview guide were motor skills, the body and daily activities, the leader, the group and the music, and comparison between music/rhythm therapy and other forms of activities. The interviews lasted between 35 and 70 min. All interviews were audio-taped with the participant’s permission and transcribed verbatim by the first author.

The study was approved by the regional ethical board at Karolinska Institutet, dnr. 2010/644-31/5.

Analyses

The analytic procedure was carried out according to the phenomenographic approach [26]. To get to know the material well, the word-by-word transcription of the interviews was done by the first author.

After that the entire interviews were read several times in order to become familiar with the material (familiarisation).

Then the most significant statements where participants described how they experienced RGRM were marked and selected and a condensed version of each dialogue was created (condensation).

Significant statements within and across interviews were compared in search of similarities and dissimilarities (comparison).

Statements which appeared similar were preliminarily grouped together. Qualitatively different categories were sought by comparing statements across all interviews. After several revisions distinct categories were grouped together (grouping).

The experience in each group was described in the richest way possible and agreed upon by the authors (articulating) and each group was assigned a suitable title (labelling).

In the last step, the categories were compared with regard to similarities and differences in order to find a structure in how the categories were related to each other (contrasting).

To ensure trustworthiness the categorisation was negotiated in discussions between all three authors until consensus of the categories was reached [29].

No member checks were made.

Findings

Here we describe the informants in the study and the qualitatively different ways of experiencing the RGRM therapy.

Informants

The participants in the RGRM had all chosen to take part in the therapy out of their initiative. They had previously been enrolled in a rehabilitation programme offered by public health and when

Table 1. Information on participants.

Part	Age	Sex	Time after stroke (years)	Hemisphere lesion	Time in RGRM (years)
1	60	m	2	left	1.5
2	67	m	5	right	2
3	76	m	2	right	1.5
4	52	f	10	both	5
5	69	m	2	left	1.5
6	75	f	16	cerebellum	10
7	75	m	8	right	5
8	53	m	5	left	4
9	69	f	14	left	not available
10	65	f	9	right	5
11	67	m	3	left	2
12	66	f	13	left	7
13	75	m	16	left	10
14	60	m	10	right	5
15	70	m	4	right	1
16	38	f	7	right	not available
17	69	f	2	left	0.5

$n = 17$ (10 men aged 60–76, seven women aged 38–75).

it was finished they felt it important to continue with other kinds of movement activities. All but three came from the southern parts of Stockholm. Socio-economic conditions varied and the group consisted of blue-collar workers, white-collar workers and managers (Table 1).

To capture variations of how the phenomenon was experienced by the informants they were selected regarding sex, age, marital status, localisation of incidence, time elapsed since stroke occurred. The informants were 10 men and seven women. Ages varied between 38 and 76 years. Nine were married, six were widowed or divorced and two had been singles all their lives. Eight had right hemiplegia, and six had left; two had small incidences on both cerebral hemispheres and one had an incidence in the cerebellum. The time elapsed since stroke occurred varied between two and 14 years, and times in RGRM therapy varied between one semester and 10 years.

Two qualitatively different ways of experiencing the RGRM therapy were identified: (A) challenge leads to connection with the body and (B) being able. When starting the therapy a feeling of having a “changed, unfamiliar body” which was described as a feeling of “unfamiliarity”, was expressed and difficulties in how to handle the “changed, unfamiliar body”, which had lost former abilities, were highlighted.

The experience of the RGRM therapy was that it served as a way to come to terms with the “changed, unfamiliar body” and led to a change in ability to carry out complex activities. A feeling of body awareness and increased bodily competence was achieved.

In this process, the music served as facilitator and the leader and the group members served as facilitators and/or role models. Participation in the RGRM therapy led to a change in ability to carry out complex activities.

A. Challenge leads to connection with the body

A feeling of getting connected with the body was experienced as a result of the challenging and complex tasks of the RGRM. By gaining a feeling of body awareness and bodily competence, joy, energy and the desire to do things increased.

The unfamiliar, unreliable body was challenged during therapy sessions, as the demands were considerable, requiring full concentration on the body and what it should perform throughout the sessions. The challenges consisted of such tasks as having to change suddenly in the middle of a sequence, having to switch

from one side of the body to the other or having to find alternative ways of performing tasks.

No, but you just have to look at this note and try to remember which is the right and which is the left side where one is to move the feet or the hands, it's all of it together [8]

... that is the hardest part, I think, to react so to speak, to react with the left side in the middle of when it comes, in the middle of a sequence of different moves when you have been working with the right and suddenly comes the left ... It takes a while before the left gets there. [15]

To start with, the body was experienced as disrupted and out of control in the therapy. As the different parts of the body were engaged in the therapy a feeling of regaining control occurred. It was necessary to keep track of the right and left sides of the body, upper and lower extremities, to voice the right expressions, to know which part of the body should move and which should be kept still, and change when told by the leader to the beat determined by the music. Having to meet these demands resulted in a feeling of

... twisting the nerves in the brain and connecting them with right and with left. [7]

Even if the RGRM therapy was experienced as confusing, demanding intense concentration, which caused exhaustion, it was experienced as rewarding and resulted in a feeling of getting connected with the body.

... terribly confusing but that is really what it is about ... you must try no matter how it works. [11]

... I've gained a feeling for my body. [5]

... because if you don't follow this line with the movements you get lost, so you have to sit and concentrate at the same time as you are to do a movement, which leads to both concentration and doing the movement, so I'm terribly tired when it is finished because my brain has been working on different levels. [16]

The music was experienced as an important facilitator in the process of managing the body and in remembering and dealing with all the complex activities. The music made it easier and more fun to keep up and perform the movements, even if having to follow the beat could cause difficulties.

... one remembers the movements because of the music. [8]

... very important with pace and tempo, it builds on getting it right and she makes things happen in the tempo that we can manage or a little harder all the time. [11]

As the therapy involved so many systems in the brain, such as vision (following a line with the eyes), moving different parts of the body, recognising the symbols and saying the words for them, the balance system was challenged.

... well, vision and balance are very much connected so if I can see that things are moving a lot I have to focus on just keeping my balance. That's what it's like when I had to move my eyes, then I started to feel sick, and I had the feeling that the world was going up and down. The therapy helped. [11]

Improved balance was experienced as coming to terms with the body, resulting in a feeling of regaining control of the body and the surrounding world.

I couldn't sit straight at all to start with, I had terrible vertigo all the time and because of that the . . . therapy was perfect. [6]

To have to manage new, challenging demands, requiring intense concentration on performing with the body resulted in learning how to live in the changed body. The body felt less strange and a feeling of being at home in the body was achieved.

B. Being able

Due to the complex way the therapy was organised and to having to be active and concentrated all the time, participants felt that learning new skills was promoted and a sense of being able to carry out difficult tasks was achieved. The therapy was considered useful for training memory and learning new movements, either complex coordination or just small movements like lifting the left foot or using the thumb of the right hand. Even if the ultimate goal could be “to throw my crutches away and walk” [7], small goals were recognised as being important and a feeling of “being able” was achieved. The high demands on simultaneous capacity were described as “agility training for the brain” [12] and highly appreciated as such.

It was perceived as a purposeful way of learning the new movements. A feeling of change in ability occurred when it became possible to carry out new movements or to carry out the tasks simultaneously.

I couldn't stand up and do the rhythm, but now I can, perhaps I can walk soon. [2]

. . . to coordinate the movements is not difficult per se but the difficult part is to do the right movements; you have to know what they are called and what you should do. [9]

To switch over from one side of the body to the other seemed to be particularly difficult, especially if it was combined with cross-over movements, as it could cause a feeling of “short circuiting [5]”.

. . . it's all right when you are allowed to do repetitions of the same tasks but when you have to change it is hard to follow. But it feels like being useful . . . it is positive. [7]

. . . and in the beginning it was always very hard to change from the left side to the right in different sequences, very hard, but it is great fun when you get it, yes I could. [4]

Fine motor tasks such as being able to better pronounce words (oral motor control) and being able to read (eye movement control) were improved by the therapy, as elements such as following the line with notes and having to say the right expression at the same time as carrying out the movement were integrated parts of the therapy:

It feels like you're cheered up by the music, and with rhythm it is great fun. I think rhythm is very important for speech too. I didn't really have aphasia but it was like a little hard to get things out, say the right words and so on. I chose the wrong words a lot. And I think it trains, rhythm trains so that your speech becomes better too because it is movement and it is a rhythm, and you need that to be able to speak. So I think that is good. You must go on doing fun things. [11]

I couldn't read, for instance. I couldn't, it just flickered and . . ., but now my vision has returned. [4]

The RGRM therapy resulted in a feeling of “being able” due to the complexity of tasks, the group members serving as role models and the therapist's personal qualities. Not only was the

complexity of the training experienced as important for gaining competence, but also the other participants in the group and the therapist were experienced as facilitators. The other group members served as guides in the process of gaining ability and gave emotional support. It was considered important to meet others with the same kind of problems and the feeling of fellowship was appreciated. The therapist's personal and professional qualities were seen as equally important. She was highly appreciated as she could increase demands gradually, could choose music which promoted ability to follow the demands, kept an eye on each individual in the group and was enthusiastic.

Discussion

The findings of this paper suggest that participation in an activity that is challenging and demanding was valued, as it led to a feeling of “being connected to the body” and a feeling of “being able”.

To have to deal with a body which has changed suddenly due to stroke may lead to a feeling of being homeless in the world. The basic experience of the stroke is tied to the body, which presents itself as not possible to control as before [30]. Changes in the biological body influence the body subject, i.e. the body in which an individual lives and exists in the world [31]. The being in the world that was previously taken for granted is disrupted, leaving the person who has had stroke with a feeling of a gap between themselves and their bodies [32].

The RGRM therapy seemed to help the individuals come into contact with the changed body, thus helping to regain an at-home feeling in the body. It was necessary to use the body, to find ways to perform what was considered complex and challenging, which resulted in increased awareness of the body. Participants had to know which parts of the body should move and which should be kept still, the relative positions of the different parts of the body during movement, and their relationship to the environment. It should be remembered, though, that the being-at-home feeling in the body that was there before stroke onset, will never be quite the same after the stroke [30]. To find a new and different form of the at-home feeling in the body, participation in RGRM therapy might be a help as bodily know-how and body awareness were increased, and disruption of the mind–body harmony was diminished.

In the “Being able” category, the challenge of having to perform tasks never done before was experienced as rewarding. To participate in a challenging activity can *per se* be experienced as rewarding as it offers a feeling of having learned something new and having grown as a human being [33]. A wide range of bodily capabilities is necessary to be able to participate in society, but as stroke patients have to manage a changed body they often need to find compensatory strategies to carry out tasks they had previously done automatically. As the individuals in this study reported increased capability to carry out different activities, an actual change seems to have taken place, leading to a perception of “I can” instead of a perception of “I cannot”. It is still unclear, though, in what way the gained bodily knowledge could be transferred to daily life even if it was experienced that it became easier, for example, to stand unaided or to control oral movements (pronunciation) and eye movements (reading).

Performing two or more tasks at the same time and doing them to the beat defined by the music and together with other participants require a considerable amount of activation of higher-order motor areas. As individuals who have had a stroke are often described as having difficulties with complex situations, due to disturbances in executive functions such as planning, sequencing, solving problems, performing two tasks concurrently and switching [34], it was perhaps somewhat surprising to find that

challenging simultaneous activities were appreciated. On the other hand, it is suggested in literature on motor learning that practice structure which is cognitively demanding, organised so that motor tasks are randomly interwoven with trials of other motor tasks has a positive influence on the learning process, as it has been shown that variable practice enhances long-term retention of motor skills [7].

The findings in this study seem to be in concordance with the suggestions in the literature.

Both practice structure and belonging to a group were experienced as facilitating learning. To learn from others in a group has been found profitable in other studies because it is believed to facilitate changes in attitudes, beliefs and skills acquisition [35]. It was highlighted that mutual sharing, good role modelling and feedback from each other in the group promoted learning [36,37]. The therapist was seen as important for learning in her capacity to guide the participants by being positive, enthusiastic, knowledgeable and seeing each individual in the group.

There is reason to discuss the role played by the group members in the term ‘‘Zone of proximal development’’ coined by Lev Vygotsky [38]. Vygotsky suggests that guidance from more capable peers can change performance in a task from initially impossible to perform alone, into being able to perform without assistance. The group can be said to serve as scaffolding in the learning process, which was experienced in this study. Researchers such as Rogoff and Bandura have also emphasised that learning is promoted by observing others and by performing together with others [39,40].

Furthermore, the idea that learning from others is reinforced by research in neurophysiology. It has been suggested the mirror neurons are involved in this process as they seem to build up an internal representation of a motor act performed by somebody else and also encode the aim of the observed action [41,42].

The music was experienced as guiding the motor acts. Elements such as melody, harmony, rhythm and metre were helpful in finding the rhythm in the movements and in the speech. The music promoted relaxation and the movements were experienced as becoming smoother. The process of remembering the movements and the expressions connected to the movements were facilitated as the characteristics of the music created an association with what was to be performed. But at the same time as the rhythmic structure could be facilitating, it could also cause difficulties if bodily impairments caused limitations in executing what was to be performed. In those situations it was necessary to find alternative solutions.

The RGRM therapy was perceived as fun and seemed to promote the process of becoming connected with the changed unfamiliar body, leading to feelings of once more being at home in the body and of being able.

To offer individuals who have had stroke participation in movement activities accompanied by rhythm and music could add to other interventions in stroke rehabilitation.

Methodological considerations

Trustworthiness in the study was established through a process in which all three authors were involved in discussions to reach consensus on the analysis procedure and the descriptions of categories [29]. Interpretation of the text was validated through a circular movement between the parts and the whole. The participants were chosen strategically to ensure a rich diversity [26]. The sample size was judged to be sufficient as no new information appeared in the last three interviews, thus saturation was considered to be attained.

Limitations of the study

It should be remembered, though, that the sample was selected from a group of persons with stroke who had joined the activity on their own initiative. This limits the transferability of the study findings [43], but still adds to knowledge of what persons with stroke value as important, namely being connected to the body by being challenged and learning new movements in a stimulating environment. To achieve credibility, excerpts from the interviews have been provided to illustrate and support the findings, thus making it possible for the reader to consider the relevance of the categories.

Further research

To gain knowledge on what kind of activities individuals who have had stroke need, after having been discharged from public rehabilitation services more research is needed. Provision of services should reflect a more comprehensive understanding of the experience of living with stroke.

More research is also needed on the extent to which gained bodily competence can influence daily life.

Conclusions

Involvement in activities that promote connection to the body and increase competence by being demanding and challenging was valued by the individuals in this study, as it led to a feeling of being at home in the body. Participation in RGRM seems to have helped the persons come to terms with their changed bodies and return to lives perceived as meaningful.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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