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Perceived benefits and barriers to yoga participation after stroke: A focus group approach

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ABSTRACT

Background: and Purpose: There is increasing evidence to suggest yoga can be beneficial to health and wellbeing after stroke. The purpose of this study was to identify perceived benefits and barriers to yoga participation among adults with chronic stroke.

Materials and methods: Twenty-six community dwelling adults (14 female, 12 male) who were at least 6-months post-stroke participated in four focus groups held at local stroke recovery meetings. Data was recorded and transcripts were analysed thematically.

Results: Participants identified whole body benefits, the return of connection and feeling health in mind as the primary benefits of yoga. Perceived barriers included physical barriers to participation, cognitive challenges, environmental access, and financial limitations.

Conclusion: Stroke survivors perceive yoga practice provides benefits in 'connectedness'. Future interventions should recognize the importance of yoga instructor training, focus on the mind-body connection aspects of yoga, and modifying activities to safely accommodate the physical abilities of the participants.

1. Introduction

Stroke is a leading cause of disability in Canada with known barriers to all types of physical activity [1]. People after stroke are the most sedentary of all chronic disease populations and engaging in physical activity is critical for improving function, quality of life and for secondary disease prevention. Yoga is increasing in popularity in the general population; there are over 36 million people practicing yoga in the United States [2].

There is increasing evidence to suggest yoga can be beneficial to health and wellbeing after stroke [3]. The topic of yoga and stroke is an increasing area of research interest. A 2007 systematic review [4] found only one paper whereas a 2017 systematic review [5] identified five randomized controlled clinical trials. The quality of these trials is reported as variable and the small sample sizes (N17-47) makes it difficult to detect between group differences. A recently published Cochrane review [6] found very low level evidence to suggest benefits for yoga participation for people after stroke. Both these recent reviews recommend that further research is required.

Across these studies positive results have been reported in physical, cognitive, emotional and social domains. Specifically these include improvements in memory, mood, reductions in stress and improvements in quality of life [7] and pain [8]. Improved physical capacity (as measured by the 6 min walk test) and function (range of motion) were also recorded [8]. In another study where Yoga and Occupational Therapy were combined, improved engagement and participation was a key outcome [9].

With the popularity of this form of physical activity [2] and increasing research examining the quantitative benefits for people with stroke, it is surprising that qualitative analysis of the perceptions of people with stroke appears so infrequently in the literature. To date there is only one small study in this area(n = 9), highlighting the need for more research to understand yoga as a therapeutic practice for people after stroke [10]. The purpose of this qualitative project was to explore perceived barriers and benefits to yoga participation among community-dwelling adults who are at least 6-months post-stroke.

2. Materials and Methods

2.1. Participants

A convenience sample of community-based adults with stroke was recruited using announcements at local stroke support groups, notices at the regional rehabilitation centre, and emails to select physiotherapy clinics that treat neurological clients. Additionally, organizers of local stroke recovery groups were contacted by email and/or phone. To be included in the focus groups participants had to be: 1) 19 years of age or older, 2) at least 6 months post-stroke, 3) living in the community.

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Exclusion criteria were: 1) having another neurological condition in addition to the stroke, 2) being unable to communicate effectively to understand and respond to questions. This study did not exclude based on yoga experience; stroke patients with significant experience in yoga as well as those who had never tried yoga were included.

2.2. Data collection

Focus groups were held at three different local stroke recovery group locations during their regular meeting times. The groups were kept to a maximum of seven participants to optimize potential for group discussion. Focus groups were recorded and field notes taken at each session.

A focus group method was chosen to provide a broad group perspective about the topic of yoga after stroke. As Cote-Arsenault and Morrison-Beedy state, the "purpose of all focus groups should be to gain understanding of a particular group's perspectives and opinions" [11].

Two researchers were involved in the data collection and analysis. Researcher one is a physiotherapist working in stroke rehabilitation and researcher two is an occupational therapist who is a clinical resource therapist for neurological populations. Both have completed training in yoga instruction.

2.3. Data analysis

The research team informally debriefed after each session. The recording of the first focus group was listened to by all authors and feedback was provided to the facilitator. Transcripts were typed verbatim from focus group audio recordings and verified for accuracy. Field notes taken during discussion were summarized and shared with the research group and were included in data analysis. Authors reviewed study data, including audio recordings, transcripts, and summarized notes, and independently conducted initial analysis. As described in Granheim and Lundman, a qualitative content analysis process was used to analyze data [12]. For example, meaning units were identified from the data, which were then labeled with codes. Codes were then grouped into categories based on commonality. Finally, themes were identified to express the latent content of the data.

Disagreement amongst team members was resolved based on consensual process. A senior researcher reviewed the codes, categories, and themes to improve validity.

2.4. Ethics

All participants provided written consent and this project was approved by the University of British Columbia Behavioral Research Ethics Board, ID H15-00426.

3. Results

A total of 26 participants were involved in the study, including 14 females. The age of participants ranged from 46 to 85 years (mean 63.6 ± 10.7 years). Average time since stroke ranged from two to twenty-three years (mean 7 ± 6.5 years). One person had Huntington's chorea and two people reported previous myocardial infarctions as well as stroke. Two people resided in assisted living settings. Twenty-two people had some experience of yoga, either before or after their stroke. Ten of these had attended seated yoga at the stroke recovery group that they were recruited from and had done five or fewer classes. One had experience of Bikram yoga before their stroke and participated in adapted yoga at a physiotherapy clinic afterwards. At least six people had identifiable aphasia and supported language strategies (written key words on flip chart) were used to facilitate inclusion in the group.

Focus groups had six or seven people each and all involved both men and women. None of the participants had current relationships with any researcher at the time of the focus groups. One person had a previous therapeutic relationship with a researcher. Analysis of data revealed three major perceived benefits of participation in yoga after stroke: physical benefits, wellbeing and connectedness. Four major themes emerged as perceived barriers: physical barriers, environment, cost and cognition. Participants (P) are identified in the results below by a unique number.

3.1. Whole body physical benefits

Yoga was acknowledged to be a physical activity that is possible to do after a stroke. Participants identified that yoga has physical benefits such as; *'developing flexibility, strength, and coordination'* (P10). These benefits were unique to this form of exercise and different from *'what many other exercises don't really address' using muscles that haven't been used much before'* (P23). The benefits appeared to be multiple and widespread, described as a *'Wide spectrum of impact on my body'* (P10). Several participants described the slow nature of the exercises providing benefits for muscles that had not been used as much since the stroke. For people with residual loss of movement, participants felt yoga could be beneficial because they are able to visualize their affected side moving. Yoga practice was also seen to have potential to improve posture.

3.2. Feeling healthy in mind

Participants discussed the psychological and emotional benefits of yoga in reducing depression and anger. Yoga was thought to provide an overall healthy feeling and a means for relaxation; '*Firstly it calms me down. You know, sometimes I'm kind of tense and it's really relaxing.'* (P25).

The breathing and meditative components were identified by those with prior yoga experience as positive influences in their lives as evidenced by one participant who said; '*After stroke I tend to panic so easily … I do some of inhale and exhale and become more patient.'* (P7*)*. Participants also mentioned that yoga helps to improve sleep quality, create positive thinking, calm the mind, and focus on 'the now' and *'I come back to yoga to help my mind*' (P6). The relaxation component was described as being helpful to healing; '*You're just more relaxed. And it helps you train your brain to your body, right*?' (P21).

3.3. Return of connection

The concept of yoga helping to connect the mind with the body or the mind with the heart was mentioned by several participants. One example; 'th*ey say that the mind and the body should be one thing*' (P19). Participants also spoke of yoga helping to integrate the more affected and less affected sides of their bodies that can seem to be disconnected after a stroke; '*the yoga helped me connect the left side to the rest of my body*.'(P21) Participants used phrases such as '*integrating everything and getting it flowing properly'* (P19) and '*go together'* to describe this concept of connection that was a benefit of yoga participation. Connectedness also included the linking of the body and brain. This was described in some cases to assist with getting the brain to 're-program' after a stroke.

3.4. Physical barriers to participation

Concerns such as falling or being unable to get onto and off of the floor were voiced by participants as potential barriers for people with stroke; *"one of the barriers is some of the exercises or poses you have to do on the floor, if you have a stroke it's very difficult to get up.'* (P21) Those who had little or no experience with yoga often thought they would not be able to practice due to physical limitations such as being unable to balance on one leg; '*we cannot do both sides … also we cannot stand up doing something.*'(P16). Participants felt they could not attend a 'normal' class but would require a class that is specifically adapted for their needs after having a stroke, because of their physical impairments. Some participants identified that they thought they would need 'hands

on' help to be able to do a yoga class; *'it has to be the type of yoga that adapts to our condition … you can't just go to any class.'* (P23).

3.5. Cognitive challenges

Participants acknowledged common changes in cognition such as memory loss and deficits in executive function skills. These interfered with their participation in yoga; '*One of the losses … is predictive memory loss. And I have difficulty, you know, creating schedules and following them. Because I can remember things I have done but I cannot remember things I have to do.'* (P16).

3.6. Financial limitation

Financial concerns, both related to the fees of classes as well as associated costs such as transportation were discussed in focus groups. In fact, cost was mentioned as a barrier in all the focus groups. Some participants stated cost was their major barrier to yoga participation; '*I think it comes down to the fact that so many of us are on fixed incomes.'* (P22) *and 'I really like to do [yoga] but you have to have money*.'(P4).

3.7. Environmental access

Numerous environmental barriers were identified by participants. Factors such as convenience of class location and accessibility of location were described as barriers; '*transportation is a problem for people who are handicapped*.' (P21). Participants also voiced concerns about the availability of adapted classes appropriate for people. This focused on the skill level and stroke knowledge of the teacher, as illustrated by P21 who said; ' … *It doesn't matter how much the instructor says, "You gotta do it, you gotta do it, you gotta try," they don't understand that the tone [spasticity] is setting in, right, and you can't do it.'*

4. Discussion

This study provides an improved understanding of the perceptions of people with chronic stroke with respect to yoga participation. While some of the benefits that this cohort echo benefits seen in the general population, several facets of benefits address stroke-specific deficits. Physical benefits and barriers were both described along with psychological benefits and environmental barriers. Yoga has been documented to have a range of physical and psychological benefits for a range of non-stroke chronic disease populations [13]. However research trials involving people after stroke tend to be small [6] and this makes it difficult to draw consistent conclusions across published studies. This current study has a relatively large sample size for this field and makes these findings particularly valuable. Our participants with stroke reported improvements in strength and flexibility seen in the general population but added that the whole-body focus of this form of exercise appeared particularly beneficial. This promotes the position of yoga as an exercise option for people with stroke who want to improve their impairments through exercise [14].

One main difference from yoga in the general population to our group is the that participants in our study highlighted the importance of yoga helping to improve the connection between the left and right sides of the body that was disrupted since the stroke. Our study adds support for this 'connection' theme that was previously identified in a smaller study of nine people [10]. The linking of the body and brain was another aspect of connectedness that our group described as being beneficial to healing, and the impact of positive psychological health warrants further investigation.

Yoga participation can have positive implications for stress reduction in general and stroke populations [15]. This stress reduction can have positive short and long-term effects on health. In the short term, this study demonstrates that it is useful for managing anxiety and improving mood in a similar way to effects seen in a general population [16]. In the longer term, stress is an important cardiovascular risk factor and yoga may play a role in secondary prevention [17]. Our study demonstrates that people after stroke perceive they can achieve benefits to their psychological heath regardless of physical ability.

Perceived cost and environmental barriers in this study were similar to other studies examining exercise participation of people with stroke [18], however several physical barriers more specific to yoga were identified. For example, weakness following stroke may impact the ability to participate in standing yoga poses. Additionally, yoga exercises requiring participants to get on to a mat on the floor and back up again may be more problematic for those with mobility limitations than other types of physical activity programs.

This study provides clear direction to practitioners delivering classes to people after stroke that the physical impairments of participants need to be considered in the class delivery. Skill level of the instructor and delivery mode (individual or class sessions) are topics that are debated in literature when providing yoga to people with chronic conditions [19]. Our study supports that specific instructor training and experience to manage a class with people after stroke is valuable.

There are several limitations to this study. Firstly, the participants were a convenient sample attending a pre-existing group, and the data may not be generalizable more widely. The focus group moderators and stroke recovery group leaders all had a positive view of yoga, and this has the potential to introduce bias into the results. One study participant was known to one of the moderators, and while efforts were made to minimize any influence of this, it may have impacted the responses of that participant.

5. Conclusion

Stroke survivors perceive that yoga provides benefits to stroke-specific deficits in 'connectedness' that other forms of activity do not. Yoga participation can produce benefits in psychological and physical health, despite cognitive and physical challenges. This information may be useful for clinicians, people with stroke, and community organizers to understand the possible benefits and barriers of yoga for stroke survivors. Future interventions in this population should recognize the importance of training for the yoga instructor, focus on the mind-body connection aspects of yoga, and modifying activities to safely accommodate the physical abilities of the participants. Additionally, there is an opportunity to integrate concepts related to yoga into programs within existing healthcare and recreation programs.

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