

THESIS

EFFECT OF YOGA AND GROUP OCCUPATIONAL THERAPY ON COMMUNITY
REINTEGRATION AND PERCEIVED ACTIVITY CONSTRAINTS FOR PEOPLE WITH
CHRONIC STROKE

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ABSTRACT

EFFECT OF YOGA AND GROUP OCCUPATIONAL THERAPY ON COMMUNITY REINTEGRATION AND PERCEIVED ACTIVITY CONSTRAINTS FOR PEOPLE WITH CHRONIC STROKE

Purpose: People with stroke commonly experience perceived activity constraints, or barriers to engaging in activity, as well as challenges with community reintegration. The aim of this study was to assess the impact of an 8-week yoga and group occupational therapy (OT) intervention (Merging Yoga and OT: MY-OT) on perceived activity constraints and community reintegration among individuals with chronic stroke. We also assessed the correlation between perceived activity constraints and community reintegration in this sample.

Method: This non-controlled pilot study employed a pre- and post-test design. Fourteen people with chronic stroke participated in MY-OT and completed assessments at baseline and at the completion of the 8-week intervention. Results on an established activity constraints questionnaire and the Reintegration to Normal Living Index (RNLI) were analyzed using Wilcoxon Signed Rank tests.

Results: Perceived activity constraint scores improved significantly (76.82 ± 10.97 vs 87.08 ± 9.5 , $p = .005$; 13% change), as did RNLI scores (79.25 ± 15.45 vs 97.92 ± 11.46 , $p = .004$; or a 24% improvement). Perceived activity constraint and RNLI scores demonstrated an excellent and significant correlation ($r_s = .864$, $p = 0.001$).

Conclusions: When working with people with chronic stroke, rehabilitation professionals may consider group OT combined with yoga. Rehabilitation professionals may target perceived activity constraints in order to improve community reintegration.

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LIST OF KEYWORDS AND DEFINITIONS

Community Reintegration

Community reintegration is the “reorganization of physical, psychologic, and social characteristics so that the individual can resume well-adjusted living after incapacitating illness or trauma” (Wood-Dauphinee & Williams, 1987, p. 583).

Group Occupational Therapy

The delivery of occupational therapy in a group setting in order to develop task-specific and interpersonal skills. Occupational therapy uses everyday life activities, or occupations, to enhance participation in various contexts (American Occupational Therapy Association, 2014).

Perceived Activity Constraints

Perceived activity constraints are “something preventing participation [in an activity], or some obstacles that can be overcome in order to participate” (McGuire & Norman, 2005, p. 93).

Stroke

A stroke occurs when blood flow to the brain is disrupted when a blood vessel ruptures or is obstructed (Sacco et al., 2013).

Yoga

Yoga refers to the combination of physical postures, breathing exercises, and meditation used to balance the mind, body and spirit (Field, 2011).

CHAPTER 1: INTRODUCTION

1.1 Purpose

The purpose of this study is to assess the impact of an 8-week yoga and group occupational therapy intervention (Merging Yoga and Occupational Therapy: MY-OT) on perceived activity constraints and community reintegration among individuals with chronic stroke. This study also aims to assess the correlation between activity constraints and community reintegration in the sample of people with chronic stroke.

1.2 Background and Statement of Problem

Stroke is a leading cause of long-term disability in the United States, currently affecting 6.6 million Americans (Centers for Disease Control and Prevention, 2009; Mozaffarian et al., 2015). Challenges associated with chronic stroke include persistent hemiparesis, cognitive deficits, and limited independence with activities of daily living (Go et al., 2014). As a result of these challenges, over half of people with chronic stroke report lacking meaningful social or recreational activities to fill their day (Mayo, Wood-Dauphinee, Côté, Durcan, & Carlton, 2002).

For this thesis, I will focus on two concepts that relate to engagement in meaningful activities. The first is perceived activity constraints, or perceived barriers to engaging in activity (Crawford, Jackson, & Godbey, 1991; Jackson, Crawford, & Godbey, 1993). The second is community reintegration, or the renewal of meaningful roles, activities, and responsibilities after significant illness or trauma (Wood-Dauphinee & Williams, 1987).

There is limited research that examines the impact of various interventions on perceived activity constraints and community reintegration for people with chronic stroke. Yoga has been shown to reduce perceived activity constraints among breast cancer survivors and older adults (Van Puymbroeck, Smith, & Schmid, 2011), but no studies have explored whether this is also

true for people with chronic stroke. The research on therapeutic yoga for people with chronic stroke has demonstrated improvements in balance, quality of life, and mobility post-stroke (Bastille & Gill-Body, 2004; Immink, Hillier, & Petkov, 2014; Lynton, Kligler, & Shiflett, 2007; Schmid et al., 2012). Regarding our other outcome of interest, community reintegration for people with chronic stroke has improved after engaging in rehabilitation programs that incorporate group learning activities and self-management education (Huijbregts, Myers, Streiner, & Teasell, 2008; Mayo et al., 2015). Group occupational therapy has also been shown to improve fall risk factor management and fear of falling for people with chronic stroke (Schmid, Miller, et al., 2015).

The evidence supporting yoga and group occupational therapy for people with chronic stroke is therefore limited but encouraging. To our knowledge, no studies have been conducted to investigate how yoga and group occupational therapy impact perceived activity constraints and community reintegration for people with chronic stroke. In addition, qualitative literature has examined barriers to community reintegration (Hammel, Jones, Gossett, & Morgan, 2006; Walsh, Galvin, Loughnane, Macey, & Horgan, 2015), but the relationship between perceived activity constraints and community reintegration has not been explored quantitatively. Therefore, this pilot study aims to investigate the effects of yoga and group occupational therapy on perceived activity constraints and community reintegration for people with chronic stroke. Another objective of this study is to examine the relationship between perceived activity constraints and community reintegration for people with chronic stroke.

1.3 Research Questions

1. Is there a change in perceived activity constraints after engaging in eight weeks of yoga and group occupational therapy?

2. Is there a change in community reintegration after engaging in eight weeks of yoga and group occupational therapy?
3. Are community reintegration scores correlated with perceived activity constraints scores?

CHAPTER 2: REVIEW OF THE LITERATURE

2.1 Introduction

In this chapter, I will introduce the conceptual framework guiding this thesis. I will then present the definition, incidence, and prevalence of stroke, as well as its impact on daily life. I will focus on the impact of stroke on perceived activity constraints and community reintegration. Finally, I will discuss group occupational therapy and therapeutic yoga as interventions for individuals with chronic stroke.

2.2 Conceptual Framework

The conceptual framework guiding this research is the International Classification of Functioning, Disability, and Health (ICF), created by the World Health Organization. Figure 1 illustrates the components of the ICF: health condition, body functions and structure, activity, participation, environment factors, personal factors (World Health Organization, 2001).

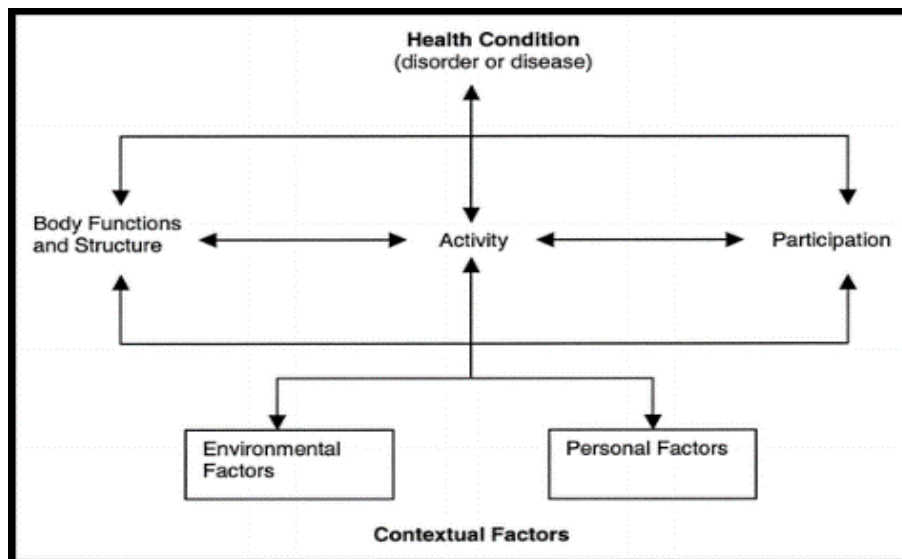


Figure 1: ICF Conceptual Framework

Body functions are the physiological aspects of the body, while *body structures* are the anatomical parts. *Activity* refers to action or task execution, such as mobility, self-care, learning, and communication. *Participation*, defined as “involvement in a life situation” (World Health Organization, 2001, p. 10), includes interpersonal relationships, as well as community, social, and civic life. *Personal factors* include an individual’s gender, age, race, and history. *Environmental factors* are the physical, social, and attitudinal environments in which an individual lives. The bidirectional arrows demonstrate that all domains are interrelated and impact each other.

All the participants in this study have had a stroke, a health condition. The intervention investigated in this study includes yoga, which is an activity that can facilitate participation through a group format, as well as impact body function and structure impairment. The other half of the intervention, group occupational therapy, addresses activity (learning, communication), with discussion about environmental factors and personal factors related to fall management after stroke. The outcome measures used in this study are housed under personal and environmental factors (perceived activity constraints) and participation (community reintegration). Because the domains have reciprocal relationships, the guiding hypothesis of this thesis is that an intervention addressing body function and structure, activity, environmental factors, and personal factors will positively impact activity and participation. For example, a change in strength and balance (body function and structure) may impact confidence (person factors). Together, these changes may lead to a person walking longer distances (activity), which thereby enables them to do more activities or socialization within the community (participation).

2.3 Chronic Stroke

Definition, prevalence, and incidence.

A stroke occurs when blood flow to the brain is disrupted when a blood vessel ruptures or is obstructed (Sacco et al., 2013). A new or recurrent stroke occurs in the United States every 40 seconds on average (Mozaffarian et al., 2015). It is currently estimated that 6.6 million Americans over the age of twenty have had a stroke (Mozaffarian et al., 2015). As the American population ages, the prevalence of stroke survivors is projected to increase 20% by 2030. This translates to an additional 3.4 million people, or 10 million total people with stroke by 2030 (Ovbiagele et al., 2013).

Impact of stroke.

Stroke is a leading cause of long-term disability in the United States (Centers for Disease Control and Prevention, 2009). For example, 50% of people six months after stroke have persistent hemiparesis, 30% require assistance to walk, 46% experience cognitive deficits, 35% suffer depressive symptoms, and 19% have aphasia (Go et al., 2014). In addition, 26% of people with stroke are dependent in their activities of daily living (Go et al., 2014), which is significantly correlated to long-term independence (Schiemanck, Kwakkel, Post, Kappelle, & Prevo, 2006). People with stroke report participation restrictions in work, education, autonomy indoors, and social relationships (Cardol et al., 2002). In one study of quality of life four years post-stroke, 83% of participants reported deteriorated quality of life since their stroke, particularly in the domain of leisure activities.

Stroke and activity constraints.

Constraints are defined as “something preventing participation [in an activity], or some obstacles that can be overcome in order to participate” (McGuire & Norman, 2005, p. 93). There

are three primary types of constraints—intrapersonal, interpersonal, and structural—which interact and ultimately impact level of participation (Crawford et al., 1991; Jackson et al., 1993). Intrapersonal activity constraints relate to internal or psychological attributes, such as physical functioning, cognitive abilities, psychological state, and perceived self-skill. Interpersonal activity constraints arise from relationships within social networks or with service providers, and could even be related to lacking a partner to engage in activity. Structural activity constraints are ecological influences, such as financial resources, transportation difficulties, availability of opportunity, season, and climate (Crawford et al., 1991).

Cognitive impairments and lower-extremity weakness have been associated with activity limitations for people with chronic stroke (Gauggel, Peleska, & Bode, 2000; Kluding & Gajewski, 2009). In addition, 66% of people with chronic stroke have a fear of falling, which is significantly associated with activity and participation limitations (Schmid, Arnold, et al., 2015). While activity limitations and activity restrictions are similar concepts to perceived activity constraints, the terms are typically used in different bodies of literature (i.e., activity limitations and restrictions are typically found in rehabilitation literature; activity constraints is used in leisure studies and therapeutic recreation literature). Because the assessment used in this thesis to assess the concept comes from therapeutic recreation literature, activity constraints will be used throughout this document.

Within the literature specific to perceived activity constraints, to our knowledge there is no research that quantitatively explores perceived activity constraints exclusively for people with stroke. However, it is known that people with physical disabilities experience activity constraints related to energy deficiency, time shrinkage, lack of opportunities and choices, dependency on others, and concerns about physical and psychological safety (Henderson, Bedini, Hecht, &

Schuler, 1995). Older adults experience activity constraints related to lack of time, health and safety concerns, and lack of companions (McGuire, Dottavio, & O'Leary, 1986). It is likely that a combination of the activity constraints experienced by older adults and people with disabilities impact older adults with stroke.

Among individuals one year post-stroke, satisfaction related to engagement in leisure activities is generally low (Hartman-Maeir, Soroker, Ring, Avni, & Katz, 2007). In the two years post-stroke, the perceptions of social connection and being in charge facilitate engagement in personally valued activities (Kubina, 2013). While the authors do not use the terms “perceived activity constraints,” social connection could be considered an interpersonal activity constraint, and the feeling of autonomy could be considered an intrapersonal activity constraint. Therefore, perceived activity constraints influence engagement in activity, which may then impact community reintegration.

Stroke and community reintegration.

Community reintegration is a complex and multi-faceted concept that has been defined as the “reorganization of physical, psychologic, and social characteristics so that the individual can resume well-adjusted living after incapacitating illness or trauma” (Wood-Dauphinee & Williams, 1987, p. 583). Community reintegration involves returning to family and community roles, resuming normal responsibilities, and contributing to social groups and society as a whole (Dijkers, 1998). People with stroke have described community reintegration as “getting back to real living” (Wood, Connelly, & Maly, 2010, p. 1051), a process that requires regaining physical function, establishing independence, and adjusting expectations.

In one study of individuals six months post-stroke, 65% of the participants reported limitations in community reintegration, with the most problematic areas being social and

recreational activities, long-distance travel, community mobility, and involvement in a meaningful activity (Mayo et al., 2002). In addition, community reintegration—more so than independence in basic or instrumental activities of daily living—has been shown to have the strongest positive association with quality of life for people with chronic stroke (Mayo et al., 2002).

Bhugal, Teasell, Foley, and Speechley (2013) defined the core issues of community reintegration as social support, caregiver burden, family interactions, family education, and post-stroke social and leisure activities. In their systematic review of stroke rehabilitation therapies, the authors determined that interventions that increase social support, particularly a family's communication and adaptive coping skills, improve the individual with stroke's outcomes related to community reintegration.

Activity constraints and community reintegration.

Within stroke research, several authors have examined the relationship between community reintegration and other variables. For example, Carter, Buckley, Ferraro, Rordorf, and Ogilvy (2000) found that depression and physical disability contributed to challenges with community reintegration. Murtezani et al. (2009) found that functional gait, motor functioning, balance, and independence with activities of daily living were positively associated with community reintegration. Community reintegration is also positively associated with balance self-efficacy for community-dwelling older adults with chronic stroke (Pang, Eng, & Miller, 2007). While many of these variables are examples of different types of activity constraints (e.g., physical limitations are a type of intrapersonal activity constraint), to our knowledge there is no quantitative research that globally examines perceived activity constraints.

There is however qualitative research that explores a similar concept. In a qualitative meta-synthesis of the literature on this topic, Walsh et al. (2015) determined four factors associated with community reintegration. The first two factors, stroke effects (e.g., cognitive limitations) and personal factors (e.g., perseverance), are similar to intrapersonal activity constraints. The third group of factors, social effects, overlap conceptually with both interpersonal activity constraints (e.g. family support) and structural activity constraints (e.g., transportation access). The fourth and final group of factors, relationships with professionals, is another example of interpersonal activity constraints. While perceived activity constraints and community reintegration seem to be related constructs, the relationship between them has not been studied quantitatively. Understanding this relationship may help uncover a mechanism to improve community reintegration.

2.4 Group Occupational Therapy

Occupational therapy.

Occupational therapy is “the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of enhancing or enabling participation in roles, habits, and routines in home, school, workplace, community, and other settings” (American Occupational Therapy Association, 2014, p. S1). Occupational therapists work with individuals with chronic stroke to improve motor skills, cognitive function, and visual neglect (Pang et al., 2007; Rand, Eng, Liu-Ambrose, & Tawashy, 2010; Shiraishi, Muraki, Ayaka, & Hirayama, 2009). Occupational therapists can also address activity and participation holistically, through interventions such as leisure groups, skills training in activities like dressing and cooking, and caregiver education (Steultjens et al., 2003).

Group occupational therapy.

Groups have been used as a therapeutic tool in the field of occupational therapy since the inception of the field (Meyer, 1922). Occupational therapists deliver interventions in a group setting in order to develop both interpersonal and task-specific skills (Mosey, 1986). Group interventions are effective due to the therapeutic experience of factors such as altruism and imitative behavior (Yalom, 1995). In one study of occupational therapy groups, the participants identified group cohesiveness, interpersonal learning, instillation of hope, universality, and guidance as the most helpful therapeutic factors (Falk-Kessler, Momich, & Perel, 1991). Group activities provide opportunities for occupational engagement and growth, while the group dynamic provides feedback and support (Schwartzberg, Howe, & Barnes, 2008).

Occupational therapy and activity constraints.

Upon review of the literature, it appears that currently there is no research on the impact of occupational therapy interventions on perceived activity constraints. However, as stroke is a chronic condition with lasting physical, cognitive, and emotional consequences, people with stroke commonly have chronic deficits regarding their engagement in meaningful activities. Occupational therapists can also work with people with chronic stroke to identify meaningful activities and develop their performance and satisfaction in those activities (Egan, 2007).

Occupational therapy and community reintegration.

Stroke recovery is a gradual and prolonged process. In one longitudinal, in-depth qualitative study of nine individuals in the first year post-stroke, Kirkevold (2002) proposed four phases of stroke recovery. It was not until the fourth stage, which started at six months at the earliest, that individuals “go on with life” (p. 896), adjusting to the long-term effects of stroke and resuming valued activities and roles. Therefore, this research suggests that people with

stroke are emotionally and mentally open to interventions addressing community reintegration primarily in the chronic stage of their stroke.

A small number of researchers have used an outcome specific to community reintegration in their studies of group interventions for people with chronic stroke. Mayo et al. (2015) studied the effect of a community-based rehabilitation program that incorporated occupational therapy principles and strategies but was carried out by recreation therapists, educators, and exercise therapists. The rehabilitation program consisted of an exercise component as well as project-based activities to promote leisure, learning, and social activity. The participants, who were in their sixties and sustained a stroke approximately two years earlier on average, experienced significantly increased community reintegration at the end of the program that was sustained three months after the program ended. In a different rehabilitation study for people with chronic stroke, Huijbregts et al. (2008) compared a self-management program combined with land and water exercise to a standard stroke education program. The two programs were carried out by a physical therapist and two unspecified health professionals, and individuals in the self-management and exercise group reported significantly greater community reintegration scores than those in the education group at the end of each program. While neither of these studies are strictly occupational therapy interventions, they do show the potential of rehabilitation programs to positively impact community reintegration for people with chronic stroke.

Group occupational therapy and stroke.

To date, there is limited research on the use of group occupational therapy for people with chronic stroke. Lund, Michelet, Sandvik, Wyller, and Sveen (2012) studied the impact of a group lifestyle course combined with physical activity compared to group physical activity alone for people between three months and one year post-stroke. While the two groups did not differ

statistically at the nine-month follow-up, both groups had improvements in perceived health and well-being, as well as self-reported occupational performance and satisfaction. Another example comes from Schmid, Miller, et al. (2015), who developed a group occupational therapy intervention focused on fall management for people with chronic stroke. As a result of the intervention, fall risk factor management improved for the participants, and the number of people with fear of falling decreased. The participants' scores related to activity and participation also improved, but not significantly. Finally, a recent study from Wolf, Baum, Lee, and Hammel (2016) investigated the effect of group occupational therapy on participation. These researchers adapted an existing and well-established self-management intervention, the Stanford Chronic Disease Self-Management Program, by adding additional sessions that emphasized home, work, and community management after stroke. While the inclusion criteria allowed participants as early as 3 months post-stroke, at least 58% of the participants were in the chronic stage of their post-stroke recovery. The intervention was found to positively impact health-related self-efficacy and participation self-efficacy. Returning to the ICF framework, community reintegration is related conceptually to participation; therefore, there is mounting evidence that group occupational therapy can improve community reintegration outcomes for people with chronic stroke.

2.5 Therapeutic Yoga

The word yoga comes from the Sanskrit word “yuj,” which means to yoke or join together (Woodyard, 2011). While there are many types of yoga practices, in Western culture, the word yoga typically refers to a combination of physical poses, breathing exercises, and meditation (Field, 2011). Yoga practice promotes strength and endurance, improves physiological variables such as blood pressure and respiration rate, and reduces the stress

response in healthy adults (Arora & Bhattacharjee, 2008; Raub, 2002). The practice of yoga in the United States has become increasingly popular, with 5.1% of adults practicing yoga in 2002, to 6.1% in 2007, to 9.5% in 2012 (Clarke, Black, Stussman, Barnes, & Nahin, 2015). The use of yoga is becoming increasingly popular among adults 65 and older as well: while there were no significant differences in the use of yoga between 2002 and 2007 for this population, there has been a 1.3% increase in yoga use between 2007 and 2012.

With the growing use of complementary and integrative health approaches in the United States, yoga therapy has emerged as a distinct subcategory within the field of yoga. The International Association of Yoga Therapists defines yoga therapy as “the process of empowering individuals to progress toward improved health and well-being through the application of the philosophy and practice of Yoga” (Taylor, 2007, p. 3). Like occupational therapy, yoga therapy holistically addresses both the mind and the body of an individual to promote health (Mailoo, 2005).

Therapeutic yoga and activity constraints.

Therapeutic yoga has been found to improve activity constraints. Van Puymbroeck et al. (2011) studied the impact of Hatha yoga on activity constraints for older adults and breast cancer survivors. After eight weeks of yoga, the participants reported a statistically significant 5.99% decrease in activity constraints, particularly in constraints related to environmental factors and body functions. While not yet investigated, it stands to reason that yoga could similarly decrease activity constraints for people with stroke.

Therapeutic yoga and community reintegration.

To our knowledge, no research has been conducted on the impact of yoga on community reintegration for people with stroke, or for people with other neurological conditions. However,

yoga has been found to positively impact health-related quality of life for older adults (Patel, Newstead, & Ferrer, 2012), and community reintegration can be considered a proxy for quality of life (Wood-Dauphinee & Williams, 1987).

Therapeutic yoga and stroke.

Yoga has been found to improve exercise capacity and health-related quality of life among individuals with stroke and other chronic diseases, including heart disease and chronic obstructive pulmonary disease (Desveaux, Lee, Goldstein, & Brooks, 2015). Research on the impact of yoga for people with stroke includes two case studies, three randomized control trials, and one qualitative study.

Bastille and Gill-Body (2004) used a single-case study to examine the effect of weekly yoga on four participants who were 9 months to 8 years post-stroke. The yoga intervention lasted eight weeks and included education, body awareness, breathing, physical poses, guided imagery and relaxation, seated silent meditation, and time for sharing. Three participants improved their timed mobility scores, two improved their balance, and all four improved in at least three out of six quality of life domains. Lynton et al. (2007) also used a single-case study design to examine the effect of a Kundalini yoga intervention delivered twice a week for 12 weeks. At the completion of the intervention, the three participants all demonstrated improved dexterity and speech with a reduction in their aphasia. The encouraging results of these prospective studies paved the way for larger studies investigating the impact of yoga on people with stroke.

Immink et al. (2014) studied the impact of a 10-week intervention on motor function, mental health, and quality of life for 22 people with chronic stroke. The intervention group demonstrated decreased anxiety as well as improvements related to memory function when compared to the control group. Schmid et al. (2012) conducted a prospective, randomized pilot

study to investigate the impact of an 8-week yoga intervention on balance, balance confidence, fear of falling, and quality of life for 47 people with chronic stroke. The yoga group demonstrated a clinically meaningful improvement in balance, and their fear of falling scores also significantly improved. Chan, Immink, and Hillier (2012) compared the effects of exercise-only and exercise-plus-yoga interventions on mood disorders for 14 people with stroke. While individuals in both groups had clinically relevant improvements in depression and anxiety, members in the yoga group demonstrated greater improvements. The researchers also concluded that yoga is a feasible, safe, and acceptable intervention for this population. In addition to the quantitative research regarding yoga for people with chronic stroke, a qualitative study investigating the experience of participating in yoga illuminated further benefit, with the individuals reporting improved body awareness, body sensation, feeling calmer, and feeling more emotionally connected to their body (Garrett, Immink, & Hillier, 2011).

Yoga is a complementary therapy to occupational therapy, as both are holistic approaches to health and well-being (Mailoo, 2005). However, little research has incorporated both occupational therapy and yoga. In one pilot study, 55 individuals at an inpatient rehabilitation center (including 12 people with stroke) could choose to participate in yoga in addition to their ongoing inpatient rehabilitation, which included occupational therapy (Schmid, DeBaun-Sprague, et al., 2015). The participants perceived that yoga improved breathing, relaxation, psychological well-being, and nearly all reported that they would recommend yoga therapy to others in inpatient rehabilitation.

Overall, the literature supports that both group occupational therapy and yoga can positively impact the lives of people with chronic stroke. However, there are gaps in the research concerning how each therapeutic intervention impacts activity constraints and community

reintegration for people with chronic stroke. In addition, while barriers to community reintegration have been documented through qualitative literature, this relationship has not been explored quantitatively.

CHAPTER 3: METHODOLOGY

3.1 Research Design

This was a secondary data analysis of data derived from a non-controlled pilot study with a traditional pre-test post-test design. The study was conducted at the Integrative Rehabilitation Lab at Colorado State University's (CSU) Foothill Campus.

3.2 Participants

A convenience sample of 14 participants were recruited from the community by posting CSU Institutional Review Board (IRB) approved flyers, speaking at stroke support groups, and calling people who had previously agreed to participate in future studies. Inclusion criteria included: having a stroke greater than six months ago; being older than 59 years; self-report of a fall or fear of falling; completion of stroke rehabilitation; scoring a 4 or more on the 6-item Mini Mental Status Exam; having impaired balance indicated by a score of <46 on the Berg Balance Scale (Berg, Wood-Dauphinee, Williams, & Maki, 1991); ability to stand with or without an assistive device; ability to speak English; and ability to attend sessions twice a week for eight weeks. The research team obtained human participants approval from the CSU IRB. All participants gave written informed consent prior to commencing the study.

3.3 Outcome Measures

Data were collected by the principal investigator of the study and two research assistants from the Department of Occupational Therapy, who were trained in the proper administration of all assessments. Participants completed questionnaires prior to beginning the study and again at the completion of the intervention at eight weeks. Data were collected on demographic information, including age, race, gender, education, and marital status; as well as data concerning participants' stroke characteristics, such as time since stroke, type of stroke, and presence of

hemiparesis and weakness. Variables of interest in this study are perceived activity constraints and community reintegration.

Activity constraints.

An established activity constraints questionnaire was used to assess the participants' perceived barriers to participating in activity. The questionnaire includes 20 possible constraints to engaging in activity, such as "I'm too tired," "I have problems with transportation," and "I have nobody to participate with." The participant rates how each constraint limits his or her activity using a five-point Likert scale (1 = strongly agree; 5 = strongly disagree). A total score ranges from 20 to 100. While cut-off scores have not been established for this measure, lower scores indicate greater perceived activity constraints. The activity constraints questionnaire has not been used in stroke research, but it has been used to assess the impact of yoga on physical activity constraints for middle-aged and older adults (Van Puymbroeck et al., 2011).

Community reintegration.

Community reintegration was measured using the Reintegration to Normal Living Index (RNLI) (Wood-Dauphinee, Opzoomer, Williams, Marchand, & Spitzer, 1988). The RNLI is an 11-item questionnaire that assesses a person's perception and satisfaction regarding reintegration into normal daily functional activities, relationships with family members and other people, and participation in social and recreational activities. Statements include, "I am able to take trips out of town as I feel necessary" and "I spend most of my days occupied in work activity that is necessary or important to me." The participant scores each statement with a 0-10 visual analog scale anchored by the statements of "strongly disagree" (0) and "strongly agree" (10). The range of possible scores is therefore 0 to 110, with low scores representing minimal integration. There are no established cutoff scores for this assessment within the stroke population. The RNLI has high internal consistency (Cronbach alpha = 0.92 for people with stroke) (Bluvol & Ford-Gilboe,

2004), strong test retest reliability ($r = 0.84$) (Steiner et al., 1996), adequate inter-rater reliability ($r = 0.62$) (Wood-Dauphinee et al., 1988), and established content and construct validity (Daneski, Coshall, Tilling, & Wolfe, 2003; Steiner et al., 1996).

The RNLI is one of the top four post-stroke participation scales due to its strong psychometric properties, low cost, and short administration time (Kessler & Egan, 2012). Researchers have used the RNLI as a measure of community reintegration for people with stroke shortly upon discharge from the hospital (Hoffmann, McKenna, Cooke, & Tooth, 2003), as well as for community-dwelling individuals with chronic stroke of six months or more (Eng et al., 2003; Mayo et al., 2002; Obembe, Mapayi, Johnson, Agunbiade, & Emechete, 2013). Within the chronic stroke population, the RNLI has been used in research to measure community reintegration before and after an intervention (Eng et al., 2003).

3.4 Intervention

The study consisted of an eight week intervention with two groups of up to ten participants. Each group participated in a two-hour session twice a week for eight weeks, with one hour dedicated to group occupational therapy and one hour dedicated to therapeutic yoga. Both the group occupational therapy and yoga followed a standardized protocol, so that each group received the same progression and manual. A registered occupational therapist facilitated the group occupational therapy sessions, which focused on fall risk factor management. Topics for group occupational therapy included fall analysis, activity modification, and fall management. See Table 1 for additional details. The group occupational therapy program included group discussions, lectures, activities, and take-home exercises. The program was developed from previous group occupational therapy pilot studies, drawing from occupational therapy theory, self-management theory, and cognitive behavioral therapy theory (Finlayson, Peterson, & Cho, 2008; Schmid, Miller, et al., 2015).

Table 1: Group Occupational Therapy Weekly Topics

Week	Session Topic
1	Introduction to falls, changing behaviors/ and attitudes
2	Fall analysis, stroke effects and their role in falls
3	Medications, alcohol, and fall risk; mobility aids; physical activity and falls
4	Physical activity, endurance, and fatigue
5	Physical activity for improved strength, fall hazards in the home and community
6	Fall management
7	Program overview
8	Focus groups

A registered yoga teacher led the yoga sessions and collaborated with a certified yoga therapist to create a progressively challenging progression of modified yoga postures, breathing, and meditation in seated, standing, and supine positions (see Table 2 for more detail). Props such as blocks, bolsters, blankets, straps, and mat tables were used as needed to facilitate yoga postures. When necessary, the yoga posture was modified and assistants helped move people through postures.

3.5 Data Analysis

Data management and analyses were conducted using SPSS 23 software. All data were entered by two trained research assistants. Descriptive statistics were used to describe the sample, with demographics and stroke characteristics data described by means, standard deviations, frequencies, and proportions as appropriate. Due to the small sample size, baseline and 8-week data for each variable were compared using the non-parametric test, Wilcoxon Signed Rank, with the level of statistical significance set at <0.05 . A Bonferroni correction ($.05$ divided by the number of variables; $\alpha=.05/2=.025$) was completed to counteract the issue of multiple comparisons. In addition, the percent change $(T1-T2/T1 \times 100)$ was calculated for each variable to further explore trends in the data. Correlations between perceived activity constraints and community reintegration were examined using the following guidelines to interpret

Table 2: Yoga Protocol

<i>All sessions start with centering and meditation, and end with a final relaxation.</i>		
Position	Modified Yoga Pose	Description
Seated (Weeks 1-8)	Pranayama: 2:1, Ujjayi, Dirga Swasam (three-part), Nadi Sodhana (alternate nostril), Simhasana (lion's breath)	Slow, deep, rhythmic breathing
	Marjariasana (cat), Bitilasana (cow), Ardha Chandrasana (half moon)	Spinal flexion, extension, & lateral flexion
	Skandhasanchalana (shoulder movement)	Shoulder rolls
	Urdhva Hastasana (upward salute)	Arm movements, scapular ROM
	Mudras	Finger movements
	Kanthalasanchalana (neck movements)	Neck rotation, flexion, extension
	Drishthi Bheda	Eye movements
	Uttanasana (forward bend)	Forward fold
	Eka Pada Rajakapotasana (pigeon)	Hip rotation and stretch; ankle, foot, toes ROM
	Ardha Matsyendrasana (half spinal twist)	Hand to opposite knee
Standing (Weeks 2-8)	Skandhasanchalana (shoulder movement)	Shoulder rolls
	Urdhva Hastasana (upward salute)	Arm movements
	Parsva Tadasana (sidebending mountain pose)	Lateral flexion
	Salabhasana (locust pose)	Leg extensions
	Tadasana (mountain) with cactus arms	Chest opener
	Virabhadrasana I (warrior 1 pose)	Prolonged standing lunge
Floor (Week 5-8)	Supine Eka Pada Utkatasana (figure four pose)	Hip rotation and stretch; ankle, foot, toes ROM
	Padangusthasana (big toe pose)	Posterior leg stretch
	Apanasana (knees-to-chest pose)	Energy release
	Skandhasanchalana (shoulder movement)	Shoulder strengtheners
	Setu Bandha Sarvangasana (bridge pose)	Pelvic rolls & tilt, back bend
	Kanthalasanchalana (neck movements)	Head turns
	Savasana (corpse pose)	Supine relaxation and meditation

Spearman's r_s values: 0.00-0.25 indicated little or no relationship; 0.25-0.50 indicated fair relationship; 0.50-0.75 indicated moderate to good relationship; and >0.75 indicated good to excellent relationship (Portney & Watkins, 2000).

CHAPTER 4: MANUSCRIPT

4.1 Introduction

Currently, over 6.6 million Americans have sustained a stroke, making stroke a leading cause of long-term disability in the United States (Centers for Disease Control and Prevention, 2009; Mozaffarian et al., 2015). Long-term effects of stroke include persistent hemiparesis, cognitive deficits, and dependence in activities of daily living (Go et al., 2014). Emotional well-being is also negatively impacted post-stroke (Srivastava, Taly, Gupta, & Murali, 2010) and has been found to be significantly associated with community reintegration (Egan, Davis, Dubouloz, Kessler, & Kubina, 2014). Community reintegration has been defined as the renewal of meaningful roles and responsibilities after traumatic injury or illness (Wood-Dauphinee & Williams, 1987). Among the chronic stroke population, 65% of individuals express limitations in community reintegration (Mayo et al., 2002).

Several factors have been associated with community reintegration post-stroke in the qualitative literature. These factors include stroke effects (e.g., physical limitations, communication deficits, fatigue, cognitive deficits); personal factors (e.g., perseverance, adaptability); and environmental factors (e.g., physical barriers, relationships with professionals) (Robison et al., 2009; Walsh et al., 2015). These factors in the qualitative literature overlap conceptually with perceived activity constraints. There are three categories of perceived activity constraints: intrapersonal, interpersonal, and structured constraints (Jackson, 1988). Intrapersonal constraints are related to internal or psychological attributes, such as physical functioning and perceived self-skill. Interpersonal constraints are constraints resulting from relationships within social networks or with service providers. Finally, structural constraints are ecological in nature,

such as transportation or availability of opportunities. Collectively, all three types of perceived constraints interact and impact how a person perceives their engagement in meaningful activity (Crawford et al., 1991; Jackson, 1988; Jackson et al., 1993). It therefore stands to reason that there is a possible relationship between perceived activity constraints and community integration; however, at this time, this relationship has not been explored quantitatively.

There is a need for interventions that address these important post-stroke variables. An intervention that uses a mind-body approach might be appropriate, as such approaches may encourage people to perceive greater self-control and empowerment (La Forge, 1997). The body of literature regarding yoga for people with chronic stroke indicates that yoga improves scores on outcome measures related to physical abilities such as mobility, dexterity, and balance (Bastille & Gill-Body, 2004; Lynton et al., 2007; Schmid et al., 2012). Yoga has also been found to improve psychosocial outcomes like depression, anxiety, fear of falling, and quality of life for people with chronic stroke (Chan et al., 2012; Immink et al., 2014; Schmid, Miller, Van Puymbroeck, & DeBaun-Sprague, 2014; Schmid et al., 2012). Additionally, yoga has improved perceived activity constraints among breast cancer survivors and older adults (Van Puymbroeck et al., 2011), but this outcome of interest has not yet been investigated in people with chronic stroke.

In addition to yoga, group occupational therapy (OT) has also been used as an intervention for people with chronic stroke. Group OT may be useful in addressing these post-stroke variables as it incorporates self-management principles and therapeutic factors, such as group cohesiveness and interpersonal learning (Falk-Kessler et al., 1991). Schmid, Miller, et al. (2015) developed a group OT intervention focused on fall management for people with chronic stroke, which improved fall risk factor management and decreased fear of falling. Group OT

focused on lifestyle redesign has been found to improve perceived health and well-being, self-reported occupational satisfaction, and community reintegration for people with chronic stroke (Lund et al., 2012; Ng, Chan, Chan, & Chow, 2013). Recently, Wolf et al. (2016) found that a group OT intervention built on self-management theory improved health-related self-efficacy and participation post-stroke. Thus, there is a growing body of research that supports that group OT can improve post-stroke outcomes, but little research that looks specifically at perceived activity constraints or community reintegration.

While OT and yoga are complementary as holistic approaches to health and well-being (Mailoo, 2005), little research has incorporated both OT and yoga. The purposes of this study were to investigate the effects of Merging Yoga and Occupational Therapy (MY-OT) on perceived activity constraints and community reintegration for people with chronic stroke, as well as to examine the relationship between perceived activity constraint and community reintegration scores.

4.2 Methods

Design

This was a secondary data analysis of data derived from a non-controlled pilot study with a pre-test post-test design (Schmid et al., 2016). These analyses were focused on perceived activity constraints and community reintegration.

Participants

Participants were recruited from local support groups and prior research studies. A convenience sample yielded 14 participants who were ≥ 59 years of age, had a stroke greater than six months ago, completed stroke rehabilitation, and self-reported a prior fall or fear of falling. Additional inclusion criteria included a score ≥ 4 on the 6-item Mini Mental Status Exam

(Callahan, Unverzagt, Hui, Perkins, & Hendrie, 2002), impaired balance, and the ability to stand with or without an assistive device, speak English, and attend twice weekly sessions for 8 weeks. The Institutional Research Board approved the study and all participants consented to the study.

Assessments

Trained researcher assistants collected all data. Participants completed questionnaires with the research assistants before and after the 8-week intervention. Demographic information included age, race, gender, education, and marital status. Questions related to stroke characteristics included time since stroke, type of stroke, and presence of hemiparesis and weakness.

Community reintegration.

Participants also completed the Reintegration to Normal Living Index (RNLI), an 11-item questionnaire that measures perception and satisfaction with one's community reintegration (Wood-Dauphinee et al., 1988). Participants respond to statements such as "I am able to take trips out of town as I feel necessary" and "I spend most of my days occupied in work activity that is necessary or important to me" using a scale from 0 (strongly disagree) to 10 (strongly agree). Total scores are therefore between 0 and 110, with low scores representing minimal integration. RNLI has high internal consistency, strong test-retest reliability, adequate inter-rater reliability, established content and construct validity, and is a gold-standard measure of post-stroke participation (Kessler & Egan, 2012). Within the chronic stroke population, RNLI has been used in research to measure community reintegration before and after an intervention (Eng et al., 2003).

Activity constraints.

We assessed participants' perceived barriers to participating in activities with an established activity constraints questionnaire. Participants respond to 20 statements such as "I'm too tired" or "I have problems with transportation" using a five-point Likert scale (1 = strongly agree; 5 = strongly disagree). Total scores range from 20 to 100, with lower scores indicating greater perceived activity constraints. The activity constraints questionnaire has been used previously in yoga research to assess the impact of yoga on activity constraints for middle-aged and older adults (Van Puymbroeck et al., 2011).

Intervention

The MY-OT intervention consisted of a two-hour group session twice a week for eight weeks, with one hour of group OT followed by one hour of therapeutic yoga. A registered and licensed occupational therapist facilitated the group OT sessions, which focused on fall risk factor management. Topics included fall analysis, activity modification, and fall management (see Table 1). The program included group discussions, lectures, activities, and take-home exercises, and was developed from previous group OT pilot studies, using OT, self-management, and cognitive behavioral therapy theories (Finlayson et al., 2008; Schmid, Miller, et al., 2015).

In conjunction with the study team, a certified yoga therapist developed a standardized progression of modified yoga postures, breathing, and meditation in seated, standing, and supine positions (see Table 3). The yoga was delivered by a registered yoga teacher. Props such as blocks, bolsters, blankets, straps, and mat tables were used as needed to facilitate yoga postures. When necessary, the yoga postures were modified and assistants helped participants through the physical postures.

Table 3: MY-OT intervention

Week	Session	Group OT Topic	Yoga Progression
1	1	Program introduction	<p>Week 1: Seated yoga, including:</p> <ul style="list-style-type: none"> • Breathing and meditation • Eye, head, neck, shoulder movements • Finger movements (mudras) while counting • Seated spinal twists, flexion, extension, lateral flexion • Hip, ankle, foot, toe stretches/ROM <p>Seated postures from week 1 Standing postures, including:</p> <ul style="list-style-type: none"> • Week 1 postures done in standing • Lateral extension, arm and shoulder movements in standing (Mountain pose) • Chest opening (Cactus) • Leg extension (Locust pose) • Prolonged lunges (Warrior pose) <p>Seated postures from week 1 Standing postures from weeks 2-4 Supine postures, including:</p> <ul style="list-style-type: none"> • Week 1-4 postures done in supine • Posterior leg stretch (Big toe stretch) • Back extensions (Bridge pose) • Knees to chest (Apanasana) • Relaxation and meditation (Corpse pose)
	2	Introduction to fall risk	
2	3	Fall analysis	
	4	Stroke effects and their role in falls	
3	5	Managing fall risk <ul style="list-style-type: none"> • Medications • Alcohol • Mobility aids 	
	6	Managing fall risk <ul style="list-style-type: none"> • Physical activity 	
4	7	Endurance <ul style="list-style-type: none"> • Role of endurance • Building endurance 	
	8	Fatigue <ul style="list-style-type: none"> • Role of fatigue • Managing fatigue 	
5	9	Activity modification	
	10	Physical activity and Strengthening	
6	11	Identifying fall hazards in environment	
	12	Fall management and Advocacy	
7	13	Fall management case studies	
	14	<i>No OT; yoga only</i>	
8	15	Program overview	
	16	Focus groups	

Data Analysis

Data were analyzed using SPSS Statistics 23 software (SPSS Inc, Chicago, IL). Demographic and stroke characteristics were analyzed using descriptive statistics, including means, standard deviations, frequencies, and proportions as appropriate. Due to the small sample size, baseline and 8-week data for each variable of interest were compared using Wilcoxon Signed-Rank Test with the level of statistical significance set at <0.05 . To counteract the issue of multiple comparisons, we completed a Bonferroni correction ($.05$ divided by the number of variables; $\alpha=.05/2=.025$). In addition, the percent change $(T1-T2/T1 \times 100)$ was calculated for both variables. Correlations between perceived activity constraint and community reintegration scores were examined using the following guidelines to interpret Spearman's r_s values: $0.00-0.25$ = little or no relationship; $0.25-0.50$ = fair relationship; $0.50-0.75$ = moderate to good relationship; and >0.75 = good to excellent relationship (Portney & Watkins, 2000).

4.3 Results

A convenience sample of 14 participants was recruited for the study. Thirteen individuals completed baseline and follow-up assessments; one person did not complete the study due to eye surgery coinciding with the intervention. Average attendance was 13.2 out of 15 classes (one class was cancelled due to a snow storm). Classes were missed due to illness, travel, medical appointments, and transportation issues.

Of the 13 participants who completed the study, the average age was $73.23 (\pm 7.94)$, 6 (42%) were male, and 11 (77%) had at least some college-level education. The participants' self-report of stroke characteristics indicated that 10 (77%) participants sustained a stroke greater than 5 years ago. Additional demographic and stroke characteristic data can be found in Table 4.

Table 4: Baseline demographics and stroke characteristics

Variable	N=13
Sex	
Male	6 (46%)
Female	7 (54%)
Age (mean, SD, range)	73.23±7.84, 61-90
Marital status	
Married/Partnered	10 (77%)
Divorced/Single	3 (23%)
Education level	
High school graduate	2 (15%)
Some college	3 (23%)
College graduate	6 (46%)
Post-graduate degree	2 (15%)
Race	
Caucasian	13 (100%)
Weakness due to stroke	
Yes	12 (92%)
No	1 (8%)
Side of hemiparesis	
Right	6 (46%)
Left	5 (39%)
N/A	2 (15%)
Type of stroke	
Ischemic	8 (62%)
Hemorrhagic	2 (15%)
Unsure	3 (23%)
Time since stroke	
6 months – 5 years	3 (23%)
>5 years	10 (77%)

NOTE: Values are mean ± SD or n (%).

In regards to RNLI, we found a significant increase between baseline and post-intervention scores (79.25±15.45 vs 97.92±11.46, $p=.004$; 24% improvement). Perceived activity constraints scores also increased significantly from baseline to 8 weeks (76.82±10.97 vs 87.08±9.5, $p=.005$; 13% improvement). Changes in RNLI and perceived activity constraint scores remained significant after the Bonferroni correction ($p=0.025$). In addition, baseline RNLI scores and perceived activity constraint scores demonstrated an excellent and significant correlation ($r_s=.864$, $p=0.001$).

4.4 Discussion

The purpose of this study was to explore the impact of group occupational therapy and yoga on community reintegration and perceived activity constraints for people with chronic stroke and examine the correlation between the two variables. The results suggest that scoring for both outcome measures improved and that perceived activity constraints and community reintegration are correlated.

Similar to other interventions targeting community-dwelling people with chronic stroke, this study demonstrated that group programming that combines self-management education with physical activity can improve community reintegration. Mayo et al. (2015) found that a community-based rehabilitation intervention that included group activities and exercise significantly improved community reintegration. Huijbregts et al. (2008) compared a self-management program combined with land and water exercise to a standard stroke education program, and found that the combined intervention was more effective than the education program at improving community reintegration. In contrast to the aforementioned studies, the MY-OT study uses yoga as a modality, which uniquely compliments occupational therapy as a holistic approach to health and well-being (Mailoo, 2005).

As described in other studies that investigated the impact of yoga on perceived activity constraints (Van Puymbroeck et al., 2011), our participants reported fewer perceived activity constraints after eight weeks of MY-OT. Yoga is known to improve body awareness, mood, and balance for people with chronic stroke (Chan et al., 2012; Garrett et al., 2011; Schmid et al., 2012), which may alleviate intrapersonal activity constraints in particular. In addition to yoga, our participants also participated in group occupational therapy. Discussions and activities related to managing stroke effects and the environment may have reduced perceived activity

constraints as well. Since research regarding perceived activity constraints for people with chronic stroke is limited, these results could pave the way to larger studies and a better understanding of this population's perceived activity constraints.

Previous research has shown that walking endurance, motor functioning, and balance are associated with community reintegration for people with chronic stroke (Murtezani et al., 2009). The MY-OT study provides evidence of another factor associated with community reintegration, perceived activity constraints. Our finding of the significant correlation between perceived activity constraints and community reintegration is supported by qualitative literature. Four themes have been associated with community reintegration in qualitative literature (Walsh et al., 2015). The first theme, primary effects of stroke, includes physical and cognitive impairments, as well as communication deficits. Personal factors, such as perseverance and adaptability, is the second theme of factors associated with community reintegration. Both stroke effects and personal factors are similar to the concept of intrapersonal activity constraints and are addressed in the MY-OT study. The third theme in the qualitative literature is social factors. Some social factors overlap with structural activity constraints, such as transportation access; while other social factors, such as support from family and friends, are related to interpersonal activity constraints. The fourth and final theme, relationships with professionals, aligns conceptually with interpersonal activity constraints. Therefore, the MY-OT study uniquely supports the qualitative literature regarding factors impacting community reintegration with quantitative results. Potentially, if rehabilitation professionals help people with stroke minimize perceived activity constraints, community reintegration will improve.

Limitations

There are several limitations to this study. The lack of a control group, unblinded assessors, and small sample size are suitable for exploratory analyses, but not for generalizing conclusions to other populations or geographic locations. In addition, given the study design, we cannot discern which changes are attributed to group occupational therapy, to yoga, or to the combination of interventions. The encouraging results of this study support continuing this line of research with a more robust study design. Future research should use a waitlist or randomized control design with blinded assessors. Even with these limitations, this study indicates that yoga and group occupational therapy may benefit people with chronic stroke.

Conclusion

While this is an exploratory study, results suggest that merged group OT and yoga can improve perceived activity constraints and community reintegration for people with chronic stroke. This study also provides preliminary evidence that one's level of community reintegration may be associated with their perceived activity constraints. Rehabilitation professionals may consider group OT or self-management programming in combination with yoga when working with people with chronic stroke.

CHAPTER 5: CONCLUSION

People with stroke often experience limitations that impact their satisfaction and level of engagement in personally meaningful activities (Gauggel et al., 2000; Hartman-Maeir et al., 2007; Kluding & Gajewski, 2009; Kubina, 2013). Post-stroke sequela can also negatively impact community reintegration, as people with stroke face physical, emotional, and social recovery (Burton, 2000; Mayo et al., 2002). While this is an exploratory study, it provided preliminary evidence that occupational therapists can use yoga in combination with a self-management group to improve both perceived activity constraints and community reintegration. These changes may relate to participants engaging in yoga as a new leisure activity, finding new social roles within the group intervention, and developing self-efficacy related to engagement in new activities. Occupational therapists can integrate self-management principles into their treatment sessions to empower their clients in managing their stroke symptoms as well as post-stroke social and community roles. Occupational therapists can also learn more about yoga through continuing education and slowly add elements of yoga to their occupational therapy practice, such as teaching breathwork to their clients.

This study also demonstrated an excellent and significant correlation between perceived activity constraints and community reintegration. This can be understood using the ICF framework, since the six domains of the ICF are interrelated and impact each other. Therefore, perceived activity constraints (which are typically environmental or personal factors) could influence another area, community reintegration (which best aligns with participation on the ICF). Occupational therapists work to promote their client's participation in valued roles and activities. This finding could encourage occupational therapists to focus on their clients'

perceived activity constraints in order to promote community reintegration. For example, an occupational therapist might choose to address the client's perceived self-skill (an interpersonal activity constraints) and engage them in an activity that builds their confidence and self-efficacy, so that the client can generalize that activity to a community setting. The MY-OT study explores one effective intervention that improves factors important to quality of life post-stroke (Mayo et al., 2002). Future studies should continue the MY-OT line of research with a more robust design that includes a control group.

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LIST OF ABBREVIATIONS

AOTA	American Occupational Therapy Association
CSU	Colorado State University
ICF	International Classification of Functioning, Disability, and Health
IRB	Institutional Review Board
MY-OT	Merging Yoga and Occupational Therapy
OT	Occupational Therapy
SPSS	Statistical Package for the Social Sciences