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Patients' experiences of group therapy during inpatient stroke rehabilitation

Hoff, Kerrie Lisa

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Patients' experiences of group therapy during inpatient stroke rehabilitation

Kerrie Lisa Hoff

Student number: 457791

Gauteng, 04 August 2021

A Research Report submitted to the Faculty of Health Sciences, University of the Witwatersrand

DECLARATION

I, Kerrie Lisa Hoff, declare that the work contained in this research report is my own work, except to the extent indicated in the acknowledgement sections.

This research report is being submitted for a degree of Masters in Physiotherapy, at the University of the Witwatersrand, Johannesburg, South Africa.

This work has not been submitted for any other degree or examination in this or any other university.



Kerrie Lisa Hoff

04 August 2021

Date

ABSTRACT

Background- New and cost effective therapies, such as group therapy, in stroke rehabilitation in the early stages of stroke onset have emerged. Group therapy plays a significant role in improving the physical and psychosocial domains of functioning, particularly in the recovery of mobility, performance of activities of daily living, quality of life and prevention of post stroke depression. There is little knowledge available regarding patients' experiences and views on group therapy during inpatient stroke rehabilitation. Therefore this study's aim was to evaluate patients' experiences of group therapy, post stroke, during inpatient rehabilitation.

Method- A qualitative study was performed, involving twelve participants. Semi-structured interviews were conducted in person or telephonically with patients that had received group therapy during inpatient rehabilitation. Three private rehabilitation units in Johannesburg were included in the study. The interviews were used to gain insight into patients' experiences of group therapy such as types of groups that they liked or disliked participating in, positives and negative aspects of group therapy and their preference between individual and group therapy. MAXQDA software was used to organise, code and analyse the data.

Results- There were three themes that emerged from the interviews: Social experiences of group therapy, viewpoints on the different types of group therapy and the type of preferred therapy. The majority of participants enjoyed participating in the group therapy and found it beneficial for their recovery after stroke. They found the groups to have significant benefits for their physical and psychosocial functioning. In particular, they enjoyed participating in a variety of groups, which were not limited to circuit group training. Most of the participants found it beneficial for their overall recovery after stroke to participate in both individual and group therapy.

Conclusion- Individuals that received inpatient stroke rehabilitation preferred participating in a combination of both individual and group therapy. They had positive experiences of receiving this combination okf therapy, and felt that it was beneficial for their physical and psychosocial recovery after a stroke.

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LIST OF ABBREVIATIONS

ADLs	Activities of daily living
BBS	Berg Balance Scale
CWT	Community walking training
ICF	Internal Classification of Functioning, Disability and Health
MAL	Motor Activity Log
NDT	Neurodevelopmental technique
OT	Occupational Therapy
ROM	Range of movement
6MWT	Six minute walk test
SIS	Stroke Impact Scale
TOCT	Task orientated circuit group training
TUG	Timed Up and Go
QoL	Quality of life
WHO	World Health Organization

CHAPTER 1: INTRODUCTION AND SCOPE OF THE RESEARCH REPORT

1.1 Introduction

Stroke is known to be the second leading cause of death worldwide with an annual mortality rate of approximately 5.5 million people (Dobkin, 2005; Carod-Artal and Egido, 2009; Donker, 2018). Particularly in a South African context, approximately 25 000 deaths occur annually due to stroke (Maredza et al. 2015). It has been estimated that if the current tendencies of stroke occurrence continues, by 2030 the number of stroke deaths will rise to approximately twenty million annually, and an estimated seventy million people will survive stroke annually (Maredza et al. 2015).

Although there is a high mortality rate following a stroke, many people are able to survive it, but their quality of life is most often affected and they are unable to return to their previous psychosocial functioning in their home and community (Mayo et al. 2002; Jaracz and Kozubski, 2003; Carod-Artal and Egido, 2009). A stroke has effects on various aspects of functioning in an individual, with four prominent domains of functioning being affected: mobility, performance of activities of daily living (ADLs), quality of life (QoL) and psychosocial well-being (Jaracz and Kozubski, 2003; Duncan et al. 2005; Carod-Artal and Egido, 2009; Moon et al. 2018).

New and cost effective therapies, such as group therapy, have emerged in neurological rehabilitation from the early stages of stroke onset (Wevers et al. 2009; Van de Port et al. 2012; Renner et al. 2016; English et al. 2017; Knox et al. 2018). Circuit group therapy, falling under the umbrella term of group therapy, is aimed at reducing the costs of staffing and the financial burden placed on stroke survivors and their families, by providing activity and functional based rehabilitation in a group setting to people that have had a stroke (English et al. 2017). The financial cost associated with stroke rehabilitation is significant, particularly for per person individual sessions as opposed to other models of service delivery such as at home therapy or group therapy. While rehabilitation at home may be more cost effective, this is not a feasible option for many people with a stroke and due to there being limited resources for rehab at home. The next best feasible and cost effective model of service delivery has been found to be group therapy, as this structure allows for a longer duration of therapy to occur in a single session. It includes benefits for functioning other

than physical benefits and group therapy has a more reduced cost than individual therapy in a fee-for-service structure in a private rehabilitation facility (English et al. 2017). The fee-for-service structure is the commonly used healthcare model whereby healthcare practioners charge their patients based on individual services provided. In this structure, group therapy is more cost effective than individual therapy, with a reduced weekly frequency and showing a decrease in the number of hospital re- admissions (Huckfeldt et al. 2017).

For a long period, it has been believed that individual one-on-one physiotherapy sessions are required after stroke for the most effective recovery to take place (English, 2007). Although there has been research that rehabilitation at home may be more cost effective, this has not seemed to be a feasible option for many people after a stroke, due to factors such as: inadequate supervision and assistance at home, reduced rehabilitation frequency, less intense rehabilitation being offered due to therapists being unable to go to the home on a daily basis and lowered motivation for performing rehabilitation at home (English, 2007; English et al. 2015). Research has found that two models of therapy have been proposed for use in stroke inpatient rehabilitation, namely: a seven day a week therapy and group therapy (English et al. 2015).

The two key components of group therapy are repetitive task practice based on functional tasks and activities, and secondly, adapting the exercises to suit the needs of each individual (English et al. 2017). Group therapy can target various aspects of physical functioning and has shown effectiveness on the gait speed, walking distance, stair climbing, transferring ability and task specific function of the upper limb in comparison to the standardised individual interventions commonly used after stroke (Wevers et al. 2009; English and Hillier, 2011; Van de Port et al. 2012; Knox et al. 2018). Group therapy is dynamic and can be delivered in the hospital, outpatient or community settings to target all socioeconomic backgrounds (English and Hillier, 2011).

Group therapy during inpatient rehabilitation plays a significant role in improving the physical and psychosocial domains of functioning, particularly in the recovery of mobility, performance of activities of daily living, quality of life and prevention of post stroke depression (Jaracz and Kozubski, 2003; Duncan et al. 2005). It influences the social and emotional aspects of functioning, as well as influencing the quality of life in people post stroke (Duncan et al. 2005; Renner et al. 2016). Group therapy plays a role in peer support

when activities are performed in pairs (Renner et al. 2016) or when therapy is performed in a large group, and has been found to have a positive impact on the psychosocial functioning of people after stroke and managing the common manifestation of post stroke depression (Schouten et al. 2011).

1.2 Problem Statement

Circuit group therapy during inpatient stroke rehabilitation has been shown to be as effective as individual standardised interventions in improving functional and task specific related activities, measured using standardised clinical assessment measures (Wevers et al. 2009; English and Hillier, 2011; Van de Port et al. 2012; Knox et al. 2018), but there is a gap in literature to discern what patients' feelings are towards group therapy and whether group therapy plays a role in their psychosocial functioning post stroke. Further research is required to determine whether patients participating in the rehabilitation program feel that group therapy is as beneficial as individual therapy in relation to their physical, emotional and social functioning, their satisfaction with an individual and group therapy model approach to rehabilitation (Renner et al. 2016) and whether they enjoy the group therapy aspect of rehabilitation post stroke.

With depressive symptoms being a common sequela of stroke, playing a role in affecting the quality of life post stroke (Jaracz and Kozubski, 2003) and leading to poor functional outcomes and a resultant decline in performance during rehabilitation (Hadidi et al. 2009; Jyotirekha and Rajanikant, 2018), there is a gap in literature about the effects that group therapy may have on the emotional and psychosocial well-being in people that have had a stroke (English et al. 2012). Schouten et al. (2011) found that group therapy had a positive impact on the psychosocial functioning of people post stroke, but there is minimal other research available to show the impacts of group therapy on the psychosocial functioning post stroke.

Circuit group therapy has been become a more widely used and effective therapeutic model in inpatient stroke rehabilitation (Wevers et al. 2009; English and Hillier, 2011; Van de Port et al. 2012; Renner et al. 2016; Knox et al. 2018). There has been minimal research done into other types of group physiotherapy that can be included in inpatient stroke rehabilitation, besides circuit group therapy (English et al. 2012), and whether patients enjoy the activities in these other types of groups and the social interactions that are involved.

1.3 Research Question

What are patients' experiences of group therapy, after stroke, during inpatient rehabilitation?

1.4 Aim of the Study

To evaluate patients' experiences of group therapy, after stroke, during inpatient rehabilitation.

1.5 Objectives of the Study

- To determine the positive and negative factors experienced by patients participating in group therapy during inpatient stroke rehabilitation.
- To determine which types of groups patients like and dislike participating in during inpatient stroke rehabilitation.
- To determine patients' preferences of individual versus group therapy during inpatient stroke rehabilitation.

1.6 Significance of the Study

With group therapy being more widely used during inpatient rehabilitation as a cost effective and functionally effective therapeutic modality, this study will yield further information into patients' perceptions and satisfaction of group therapy during inpatient rehabilitation. The study will also identify whether the social interactions during group therapy have an effect on patients' psychosocial well-being and in maintaining their emotional stability after stroke.

The participants in the study will be involved in various types of group activities during stroke rehabilitation and not solely circuit group therapy. This will yield further information into patients' experience towards other types of group therapy, apart from only circuit group therapy, as well as comparing patient satisfaction between an individual therapy approach versus a combined individual and group therapy approach.

This study will show whether group therapy has a positive or negative effect on the physical functioning and psychosocial well-being of individuals after stroke during inpatient rehabilitation, and whether participants have a positive or negative experience of group

therapy. This will then identify the positive or negative effects on the psychosocial well-being of individuals post stroke, and if group therapy plays a role in minimising the depressive symptoms post stroke. From this study, patients will be able to identify the personal benefits and preferences of group therapy during rehabilitation, providing vital information for therapists running groups in stroke inpatient rehabilitation units.

1.7 Organisation of the research report

Chapter 1	• An introduction to the topic of stroke and the concept of group therapy during inpatient stroke rehabilitation is given in this chapter. • The problem statement of finding out what patients' perceptions are of group therapy, and the effect of the social interactions involved with group therapy are presented, as well as the aim, objectives and significance of the research report.
Chapter 2	• This chapter reviews the literature on the definition and epidemiology of stroke, the effects of stroke on aspects of functioning, definition of group therapy, uses of group therapy in stroke rehabilitation and other findings of patients' experiences of group therapy used in other conditions as well as in stroke rehabilitation.
Chapter 3	• The methodology of the study is presented in this chapter. It outlines the source of participant selection, the sample selection, pilot and main study metholdolgy, ethical considerations and the data management and analysis process.

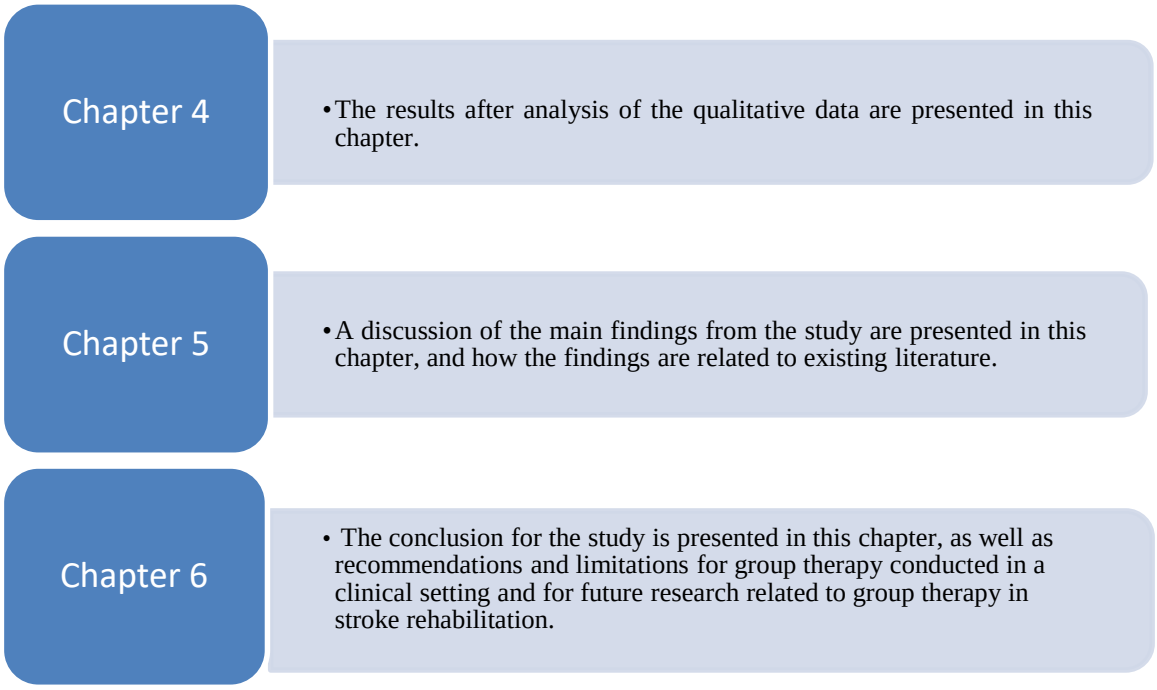

Figure 1.1 Organisation of the research report

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the current literature surrounding group therapy in inpatient stroke rehabilitation. An overview of stroke, epidemiology of stroke and the various aspects of functioning that a stroke can have an influence on are discussed. Group therapy is discussed, including: the use of group therapy in inpatient stroke rehabilitation; the effects of group therapy on the mobility, social and emotional aspects of functioning as well as on the quality of life post stroke; advantages and disadvantages of group therapy and the ideal structure of group therapy. The patients' experiences of group therapy in inpatient stroke rehabilitation could be found in literature, however there is minimal research that could be found on this topic and a gap in literature could be identified with relation to this. Patients' experiences of group therapy for other types of conditions is also discussed. The continuation of group therapy at an outpatient therapy level will also be discussed in this chapter.

Evidence was sourced from online physiotherapy literature databases, including EBSCO Host, PubMed, CINAHL, PEDro and Google Scholar, and included English articles published mainly between 2002 and 2021. Keywords used in the search were stroke, circuit group therapy, group therapy, individual therapy, quality of life, activities of daily living, post stroke depression, social relationships, mobility, physical activity and patients' perspectives.

2.2 Stroke

2.2.1 Definition of stroke

A stroke is a neurological event causing cerebrovascular damage and dysfunction, and may result from ischaemia, which may be a silent brain infarction, or from a haemorrhage (Sacco et al. 2013; Coupland et al. 2017; Donker, 2018). It is defined by the World Health Organisation (WHO) as "a syndrome of rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin" (WHO, 2002). A stroke can result in several neurological problems such as: motor and sensory, speech and language, cognitive and emotional disorders, all of which limit participation in daily activities of living (Coupland et al. 2017; Moon et al. 2018).

A stroke can cause difficulty with mobility tasks such as maintaining an upright posture in sitting and standing, balance and gait (Kim et al. 2014; Bonini Rocha et al. 2018). After a stroke, individuals may also have difficulty with performing ADLs independently (Duncan et al. 2005), and often present with an overall reduced QoL (Mayo et al. 2002; Jaracz and Kozubski, 2003; Carod-Artal and Egido, 2009).

2.2.2 Epidemiology of stroke

There is a rising incidence of stroke worldwide with there being an estimated twenty million strokes that will occur annually by 2030 (Maredza et al. 2015). Eighty percent of this stroke incidence occurs in middle to low income areas, of which includes South Africa. There is an annual mortality rate, from stroke, of 5.5 million people worldwide (Dobkin, 2005; Carod-Artal and Egido, 2009; Donker, 2018). Particularly in the South African context, approximately 25 000 deaths occur annually due to stroke (Bertram et al. 2013; Maredza et al. 2015).

Although there is a high mortality rate following stroke, many people are able to survive it, but their quality of life is most often affected and they are unable to return to their previous psychosocial functioning in their home and community (Mayo et al. 2002; Jaracz and Kozubski, 2003; Carod-Artal; Egido, 2009). Factors such as mobility, ability to perform functional tasks such as activities of daily living and psychosocial functioning after stroke affect the quality life. Epidemiological data of stroke is necessary and important to develop prevention strategies, as well as cost effective strategies to manage stroke- which are of particular importance in middle to low income areas where the incidence of stroke is high (Maredza et al. 2015).

2.2.3 Effects of stroke on various domains of functioning

Among people that have had a stroke, approximately fifty percent end up being permanently disabled and are unable to return to their previous level of functioning (Lopez et al. 2006). Fifteen to thirty percent of stroke survivors are permanently disabled and twenty percent require full time care and are unable to return to their previous levels of independence (Yuling and Kenneth, 2006; Carod-Artal and Egido, 2009). A wide percentage of people with stroke, ranging between 25 to 74%, require some sort of assistance or are fully dependent on caregivers for participation of activities of daily living (ADLs) and are unable to be reintegrated back into their community (Duncan et al. 2005; Carod-Artal and Egido,

2009). Out of all the neurological conditions, stroke is the leading condition that results in the most long term disability (Lynch et al. 2008). It is due to this high percentage of long term disability and decreased ability to return to previous levels of functioning after a stroke that has resulted in inpatient stroke rehabilitation becoming essential, aiding in the physical and psychosocial recovery of stroke patients (Duncan et al. 2005; Carod-Artal and Egido, 2009). This is indicative that stroke has effects on various aspects of function in an individual with rehabilitation playing a significant role in improving the recovery of these functions, particularly with regards to the physical and psychosocial domains of functioning.

The primary goals of inpatient rehabilitation are to prevent secondary complications, minimize impairments as a result of the stroke and most importantly to maximise function (Duncan et al. 2005). Inpatient rehabilitation begins in the acute setting immediately after the stroke, and continues into the sub-acute rehabilitative phase, and finally to the outpatient phase once the patient is discharged home (Duncan et al. 2005). There are five levels of rehabilitation, whereby the primary goals of rehabilitation remain the same at each level, and the focus on the interventions for that level can be established (Landrum et al. 1995). These levels are described as:

- Level 0- Medical instability: Medical conditions are not managed
- Level 1- Medical stability: Medical condition is managed; plan for future needs and referral to sub-acute rehabilitation
- Level 2- Physiological maintenance: Maintain health and medical stability; prevent aspiration, maintain and improve range of movement (ROM), basic self-care, mobility, safety, basic communication, cognition and behaviour. This level may be achieved within sub-acute, step down facilities or outpatient facilities.
- Level 3- Residential reintegration: Self-care; mobility indoors; communication; safety in home and home management and independence.
- Level 4- Community re-integration: Reaching appropriate level of functioning within the community; management of personal and financial affairs; community mobility and activities; social competence; recreational activities and assistance with environmental resources.
- Level 5- Productive activity: Vocational rehabilitation, including return to work or education.

These five levels of rehabilitation assist a therapist in identifying which level of rehabilitation an individual falls into, to allow for the goals of rehabilitation to be identified and carried out after a stroke (Landrum et al. 1995; Duncan et al. 2005). This aids the therapist with returning each individual to their own highest level of functioning, as specified by the level of rehabilitation that they are in, and assists with achieving the broad goals outlined in each level. From these five levels of rehabilitation, it can be reasoned that in order to improve and maintain an individual's functioning after stroke, the five most significant domains of functioning identified are: self-care (falling under the wider category of activities of daily living), mobility, overall quality of life, psychosocial well-being and communication. With regards to physiotherapy, the first four domains of functioning are the most significant in rehabilitation after stroke.

As described, stroke has a major impact on leading to long term disability and affects various aspects of an individual's functioning. The areas of functioning that will be discussed in further detail are the four levels of functioning, significant for physiotherapy rehabilitation after a stroke, that have been identified in the levels of rehabilitation.

2.2.3.1 Mobility

A stroke has a major impact on the balance, mobility and gait of an individual (Kim et al. 2014; Bonini-Rocha et al. 2018). Walking is one of the limitations that people first want to recover again after having had a stroke (Duncan et al. 2005; Veerbeek et al. 2011; Kim et al. 2014). Walking is an important indicator in return to independence and in particular, for return to independence in activities of daily living (Veerbeek et al. 2011; Kim et al. 2014). The limitations in mobility after stroke are not necessarily recovered after rehabilitation, and it has been found that twenty one percent of people that had a stroke had a significant decline in their mobility one to three years after the stroke (Van de Port et al. 2012).

The components of gait that are most often found to be affected after a stroke are lower limb and pelvic muscle strength, global endurance and the speed of walking (Bonini-Rocha et al. 2018). Measuring gait speed is an important component of therapy post stroke, as it gives an indication of the amount of dysfunction related to gait and the individual's level of independence (Mehta et al. 2014). A comfortable walking speed is classified between 1.2-1.4 m/s, whereas a mild deficit in walking speed is > 0.7m/s, a moderate deficit is between 0.3- 0.7m/s and a severe walking deficit as a result of a stroke is classified with a walking

speed of < 0.3m/s (Mehta et al. 2014). Community walking is also impacted after a stroke, as community walking involves walking at a given speed of at least 1.2 m/s, for a minimum set distance and having to adapt to changes in the environment e.g. changes in terrain, distance and traffic (Shumway-Cook et al. 2002). A decreased ability to mobilise in the community causes a concurrent decrease in independence to achieve ADLs, social aspects of functioning and reducing QoL after a stroke (Shumway-Cook et al. 2002; Kim et al. 2014).

Group therapy has been found to have favourable effects in the walking pattern, speed, distance and ability to ascend and descend stairs in comparison to other commonly used models of physiotherapy (Wevers et al. 2009; English and Hillier, 2011; Knox et al. 2018), and this will be discussed in further detail in section 2.5.4.

2.2.3.2 Activities of daily living (ADLs)

A stroke causes motor, sensory, speech and language, cognitive and emotional limitations, all of which restrict participation in ADLs (Moon et al. 2018). The motor and sensory deficits caused by a stroke are the most significant with regards to their effect on the performance of ADLs (Moon et al. 2018). Activities of daily living can be described according to two categories, namely: Basic and instrumental ADLs. Basic ADLs include all those activities needed for survival such as self-care and personal hygiene tasks and include activities such as: feeding, toileting, bathing, dressing, transferring and mobilising (Duncan et al. 2005; Legg et al. 2006). Instrumental ADLs refer to more complex activities such as domestic chores at home, managing finances, social participation and reintegration into society (Duncan et al. 2005; Legg et al. 2009; Blomgren et al. 2019).

The activity that has the biggest impact on affecting the independence of ADLs after a stroke is walking (Veerbeek et al. 2011). Walking falls under the general term of mobility after stroke and factors such as balance in standing and during walking, in order to perform basic and instrumental ADLs, is the reason that mobility greatly impacts on the performance and independence of these activities after a stroke.

Rehabilitation post stroke includes task orientated training to improve the performance of ADLs (Yoo and Park, 2015; Moon et al. 2018). The specifics of task orientated training and its inclusion into group therapy, to improve ADLs, will be discussed at a later stage.

2.2.3.3 Quality of life (QoL)

Stroke is a large predictor in affecting the QoL in people that have had a stroke (Mayo et al. 2002; Jaracz and Kozubski, 2003; Carod-Artal and Egido, 2009). Quality of life has been defined as an individual's perception of well-being according to the satisfaction or dissatisfaction with areas of life that are important to each person (Mayo et al. 2002; Jaracz and Kozubski, 2003; Carod-Artal and Egido, 2009). The three components most commonly found to affect QoL after a stroke are: symptoms of depression; emotional support and physical disability (Jaracz and Kozubski, 2003).

These three components show that both psychosocial and physical functioning can affect QoL post stroke and need to be continually assessed in an individual during rehabilitation. The WHO developed a framework in 2001, called the Internal Classification of Functioning, Disability and Health (ICF), to describe individuals' functioning in rehabilitation (WHO, 2001; Stucki et al. 2002; Yaruss and Quesal, 2004). It is used to provide a standardised framework for the description of health and health related factors. The domains of the ICF include: impairments of body structure and function, activity limitations, participation restrictions, environmental and personal factors (WHO, 2001). This overview of health allows for an individual to be assessed according to their physical and psychosocial functioning, taking into account the associated impact of environmental and personal factors, and the impact this has on their activity and participation in different environments.

The ICF framework is used in rehabilitation post stroke, so that an individual's health can be viewed according to all of these domains, and each of these domains can be improved on in rehabilitation to allow for an individual to return to their highest possible level of function post stroke (WHO, 2001). As a physiotherapist working in rehabilitation post stroke, it is important to use the ICF and take into consideration the psychosocial functioning of an individual as this is directly associated with their physical functioning and return to independence.

The first component found to affect QoL post stroke is post stroke depression, which is an important part of the psychosocial functioning of an individual (Jaracz and Kozubski, 2003; Carod-Artal and Egido, 2009). Post stroke depression directly affects the QoL of an individual that has had a stroke, and causes an individual to have a lowered perception of their well-being. Post stroke depression will be discussed in further detail in the next section.

During the first several weeks following a stroke, social support from family is an essential factor to prevent symptoms of post stroke depression (Jaracz and Kozubski, 2003).

This leads to the second component that affects the QoL after stroke, namely emotional support. Emotional support, as a component of social support, is an important predictor of QoL after stroke and is vital to prevent depressive symptoms from occurring during the initial phase after a stroke (Jaracz and Kozubski, 2003; Carod- Artal and Egido, 2009; Volz et al. 2016). Caregivers play a large role in the emotional support of an individual after a stroke, as the caregiver is with the individual for a large portion of the day, and assists the family with not only caring for the patient, but also in providing social support for the individual (Jaracz and Kozubski, 2003).

The third component which has been found to affect the QoL post stroke is physical disability. This component was not shown to have as strong a relationship with the QoL as the above two psychosocial factors (Jaracz and Kozubski, 2003; Grabowska-Fudala et al. 2019), but more the factors within the larger domain of physical disability played a role in affecting QoL. A loss of speech was found to be of more significance, when people that had had a stroke were interviewed, as this was seen to have a direct impact on their social relationships and therefore affect their QoL (Lynch et al. 2008). A loss of independence, as a result of physical impairments, was also found to be a critical component in affecting the QoL post stroke. Individuals linked their loss of independence once again to their social relationships, whereby they felt that their dependence on their family would negatively affect their relationships with them (Lynch et al. 2008). Individuals felt that their physical limitations were a barrier that could be easily overcome and that they could learn to adapt to these limitations, and therefore improve their independence (Lynch et al. 2008). The ability to perform ADLs independently is related directly to a quicker return to social life and ultimately an improvement in the QoL post stroke (Kim et al. 2004). This displays the close link between physical functioning and ADLs, social relationships and QoL post stroke, and how each domain influences the other. This shows the equal importance of both psychosocial and physical limitations in affecting the QoL after a stroke.

As can be seen from the above literature, the key factor found in influencing QoL post stroke is social support and maintaining previous relationships, which is directly linked to post stroke depression (Jaracz and Kozubski; Lynch et al. 2008). This means that the incidence

of post stroke depression increases if an individual does not have good social support and is unable to maintain their previous relationships, which in turn negatively affects their QoL. This is in accordance with the ICF and the significant relevance that psychosocial functioning has in returning to previous levels of independence post stroke. People that have had a stroke therefore require social support and motivation during therapy to assist in improving their quality of life post stroke (Jaracz and Kozubski, 2003 and Duncan et al. 2005). The ways in which group therapy can play a significant role in improving quality of life post stroke will be discussed at a later stage.

2.2.3.4 Psychosocial

The last domain of function, to discuss, that can be affected by stroke is the psychosocial functioning of an individual. This has been reviewed in the QoL section above, with relation to the ICF. One of the major impacts that stroke has on the psychosocial functioning of an individual is the occurrence of post stroke depression (Hackett et al. 2005; Hadidi et al. 2009; Cai et al. 2019). Depression is a common sequelae of stroke (Duncan et al. 2005; Williams, 2005; Hadidi et al. 2009; Hackett and Pickles, 2014; Cai et al. 2019) and is a large predictor of quality of life post stroke (Jaracz and Kozubski, 2003; Carod- Artal and Egido, 2009).

There has been an increase in the incidence of post stroke depression, with recent studies showing an incidence rate of 41-52% (Jia et al. 2006; Wulsin et al. 2012; Hackett and Pickles, 2014) and one third of all people with stroke displaying depressive symptoms after their stroke (Hackett et al. 2005). There are several factors that may result in the incidence of post stroke depression, such as: a personal or family history of depression prior to the stroke, severity of the stroke, social support received after the stroke and the presence of post stroke fatigue (Hackett et al. 2005).

It is worth discussing post stroke fatigue in slightly more detail, as this is one of the major complaints experienced by individuals after a stroke (Duncan et al. 2005; Lerdal et al. 2009; Hackett et al. 2014; Bennett et al. 2016; Kazuaki et al. 2020). Post stroke fatigue has been described as a feeling of exhaustion, lack of energy for physical and mental tasks and is not alleviated by rest (Lerdal et al. 2009; Kazuaki et al. 2020). Post stroke fatigue is important to consider during rehabilitation as it directly impacts individuals' performance during rehabilitation and once discharged home, can affect individuals' independence in performing ADLs, reduces QoL and lowers the rate of returning to work (Kazuaki et al. 2020).

Independence in ADLs is said to be affected by post stroke fatigue due to the lack of motivation during rehabilitation as a result of the decline in physical and mental energy (Kazuaki et al. 2020). It has been shown that those individuals presenting with feelings of fatigue one year after a stroke, have a higher dependency for performing ADLs (Appelros, 2009). Post stroke fatigue therefore results in a lack of physical improvement in rehabilitation and a reduced return of independence in performing ADLs, ultimately affecting the QoL post stroke. These factors may then increase the risk of post stroke depression occurring. Although fatigue post stroke has been well researched, there is a lack in knowledge regarding the management thereof (Lerdal et al. 2009; Kazuaki et al. 2020).

Stroke severity is linked to levels of independence and feelings of depression after stroke, whereby a severe stroke would likely lead to decreased levels of independence and an increased incidence of post stroke depression due to the need of dependency on others (Hackett et al. 2005; Wulsin et al. 2012). Even individuals that become fully independent after a stroke, still present with depressive symptoms and experience difficulties with social participation (Carod-Artal et al. 2009). This could be attributed to their decreased ability to maintain previous relationships, difficulty in socially interacting with others in the same way as prior to the stroke and possibly due to communication difficulties. Although they may be fully independent after the stroke, there may still be difficulties with re-integrating back into the community and resultant participation restrictions can further limit their social interactions with others and leave individuals longing for their "life before stroke" (Carod-Artal et al. 2009).

This leads to another frequent psychosocial limitation, following a stroke, of feelings of social isolation (Schouten et al. 2011; West and Bernhardt, 2011; English et al. 2012; Volz et al. 2016). A low level of family support after a stroke can leave an individual feeling socially isolated, with levels of motivation and mood steadily decreasing which ultimately affects their physical and psychosocial functioning. This has been shown to lead to feelings of post stroke depression (Tsouna-Hadjis et al. 2000; Duncan et al. 2005; Volz et al. 2016).

Post stroke depression has been shown to be associated with a decline in the functional outcomes, activities of daily living and ultimately in the quality of life post stroke (Jia et al., 2006; Carod- Artal et al. 2009; Hadidi et al. 2009; Wulsin et al. 2012), as well as causing a decline in the efficacy of neurological rehabilitation (Kaadan and Larson, 2017; Karaahmet

et al. 2017). Depression after stroke has been shown to reduce concentration, energy levels, self-efficacy and motivation (Hadidi et al. 2009), all of which affect functional performance in rehabilitation. These are significant findings to observe, as post stroke depression has many negative impacts on performance and recovery in neurological rehabilitation. By simply understanding the risk factors for post stroke depression and preventing the occurrence thereof, physical and psychosocial recovery after a stroke can be greatly enhanced and lead to an improved QoL.

Screening for post stroke depression, and the prevention thereof, are considered essential components of neurological rehabilitation during the early stages following stroke onset with emphasis placed on maintaining the emotional well-being of stroke survivors during the rehabilitation process (Duncan et al. 2005 and Jaracz and Kozubski, 2003; Crawford et al. 2008; Kaadan and Larson, 2017; Cai et al. 2019). Starting rehabilitation as soon as possible after stroke has been shown to reduce the risk of post stroke depression, following a first occurrence of stroke, by 43% (Hou et al. 2013). One of the main reasons that early rehabilitation results in decreased post stroke depression, is the social interactions that are involved during the rehabilitation process (Hou et al. 2013) between an individual and the health care workers and with the other individuals that have also had a stroke. The importance of social relationships and social functioning post stroke, as well as the important influence that these two aspects have on the quality of life of individuals post stroke, have been highlighted in research and will be discussed in more detail further on (Duncan et al. 2005; Hadidi et al. 2009; Hou et al. 2013).

Research suggests that rehabilitation post stroke should include education for the patient, family and caregivers about the facts surrounding the current situation, with the main aim of preventing social deterioration of the patient (Duncan et al. 2005). After a stroke, a large majority of people develop temporary and/or permanent physical impairments, which limits their participation in society, their social interactions and support from people that they previously had good relationships with (Kaddan and Larson, 2017). It has been found that high levels of family support and presence of the family after a stroke occurrence, are associated with improved functional gains and motivation during rehabilitation (Tsouna-Hadjis et al. 2000; Duncan et al. 2005).

2.2.3.5 Conclusion of the effects of stroke on various domains of function

It can be summarised that stroke greatly affects four aspects of functioning in individuals, including: mobility, activities of daily living, quality of life and psychosocial functioning. These four domains of function have been discussed in detail, as they are relevant to regaining independence during physiotherapy stroke rehabilitation.

Besides stroke affecting each of these domains of function directly, it can be seen that all four of these domains have a direct relationship between each other. For example, a decline in mobility after a stroke causes a decreased independence in achieving activities of daily living, and a decline in social aspects of functioning and QoL. A decline in QoL after stroke can lead to a decreased psychosocial functioning with a higher probability of post stroke depression occurring. The presence of post stroke depression can result in a reduction in physical activities and exercise and lead to a further decline in mobility and in the performance of ADLs.

This highlights the importance of physiotherapy in rehabilitation post stroke in assisting individuals with gaining as much independence as possible with mobility and execution of ADLs, to allow for the improvement and maintenance of their QoL and psychosocial function. An effective physiotherapy modality used in stroke rehabilitation to achieve these goals is group therapy.

2.3 Group therapy

2.3.1 Definition of group therapy

Group therapy is a model of physiotherapy whereby individuals perform rehabilitation in a group setting, in an intensive manner, and it is well utilised during stroke rehabilitation (English et al. 2007; English et al. 2015). Group therapy involves therapy for more than two participants with a similar degree of functional ability, performing the same exercises together simultaneously and with minimal tailoring and progression of the set exercises to meet the needs of each individual participating in the group (Wevers et al. 2009; English et al. 2012). Usually one, maximum of two, impairments are targeted in group therapy, with the main aim of reaching their highest functional ability while under the supervision of at least one therapist (English et al. 2007).

Circuit group therapy falls under the umbrella term of group therapy, and is therapy that is also provided to more than two individuals at a time but is differentiated from the broad term of group therapy by the fact that it involves a tailored intervention program that is suited to the needs of each individual within the group (English et al. 2007; Wevers et al. 2009; English et al. 2012). Circuit group therapy and its effectiveness in stroke rehabilitation was first described by Dean et al. (2000) in the outpatient setting, and has since had many advances and further input. Circuit group therapy is still used in the outpatient setting, but is also utilised in the sub-acute phase of stroke rehabilitation- once an individual is medically stable and has been transferred out of the acute setting (English et al. 2015). Circuit group therapy usually targets several impairments, and can involve individuals either rotating between different workstations, or performing a tailored set of activities as a group but targeting the needs of each individual or performing tasks in pairs (English et al. 2007). This type of group therapy targets individuals with varying levels of function, but with the sole aim of improving each individual's impairments.

The main concept of circuit group therapy is to implement task specific training (Wevers et al. 2009; Van de Port et al. 2012; English et al. 2014; Lawal et al. 2015). Task specific training is when an individual performs a functional task repetitively with the main aim of being able to perform the specified functional task with as much independence as possible. These tasks range from transitions in bed, sitting to standing, standing, walking and reaching tasks using the paretic arm (Van de Port et al. 2012; English et al. 2014; Bonini-Rocha et al. 2018). This is done under the supervision of the therapist, with the therapist tailoring the exercises for each individual's needs and specific goals (Van de Port et al. 2012).

2.3.2 Structure of group therapy

As described previously, group therapy is defined as therapy that involves more than two individuals at a time, in a setting that is supervised by a trained therapist (English et al. 2007; Wevers et al. 2009; English et al. 2012). The ratio of staff to patients in a group is recommended to be 1:3 (Blennerhassett & Dite 2004; English et al. 2007; English et al. 2015), to allow for adequate supervision and assistance to still be given to the individuals in the group session. An important factor of group therapy is that it should be a tailored program that is specific to each individual's needs within in the group setting, and each task should be progressed according to each individual's needs (Blennerhassett & Dite 2004; Duncan et al. 2005; English et al. 2007). Each individual's progress should therefore be monitored

continuously and each task adapted accordingly (English et al. 2007). Individuals included into group therapy can have similar or different degrees of functional ability, which gives even more reason for each task to be tailored according to the needs and degree of functional ability of each individual participating in the group (English et al. 2007; Wevers et al. 2009).

The structure of group therapy can be set up in a manner where participants are given a set of core activities that are tailored to each of their individual needs and they are not required to physically move around to different stations in the group. Ideally the participants should have similar functional abilities, and perform the given tasks together in the group with the therapist adapting each activity according to each individual's ability (English et al. 2007). The alternative is for group therapy to be structured in a circuit based arrangement with a variety of workstations that are set up to target several aspects of functioning of each individual. The participants would be required to physically move inbetween each workstation and spending five minutes at each station performing the given functional task (English et al. 2007).

The key focus of group therapy is the practice of functional tasks, through task orientated training, to facilitate motor learning and neuroplasticity changes to take place after a stroke (Carr and Shepherd, 2003; Blennerhassett and Dite, 2004; Duncan et al. 2005; English et al. 2007; English et al. 2015). Task orientated training also facilitates the execution of functional activities which promotes a positive return to independence and performance of ADLs. A useful approach to structure the activities within a group task, is to divide the activities into those that individuals can do independently, and activities that will require some assistance from the therapist. This allows the therapist to provide assistance to those individuals that need it and facilitate a safe and effective environment for the group therapy to take place (English et al. 2012).

The duration of group therapy has been found to be most effective when run for 60 to 90 minutes, with a frequency of three to five times a week (Duncan et al. 2005; English et al. 2007; Wevers et al. 2009; Van de Port et al. 2012; Kim et al. 2016; Knox et al. 2018), allowing for increased therapy time during rehabilitation. One-on-one therapy sessions are usually 30-40 minutes in duration (English et al. 2007), which highlights the fact that individuals spend more therapy time during group therapy. In group therapy, more therapy can be delivered to patients using less therapy time (English et al. 2007, English et al. 2017).

Group therapy should be sustained for at least four weeks from stroke onset for effective changes to be seen (English and Hillier, 2011).

Group therapy can be provided within a variety of settings after a stroke has occurred, including acute and sub-acute inpatient settings and the outpatient setting once the individual has been discharged home from rehabilitation (Duncan et al. 2005; English et al. 2012). Group therapy is most effective when started as early as possible after a stroke and can continue into the chronic phase of stroke, which is past six months after stroke onset (English et al. 2012).

With that being said, group therapy is rarely performed in the acute setting after stroke due to certain barriers such as: medical instability, drowsiness, decreased tolerance of long therapy sessions, not being available for therapy due to other appointments in the hospital such as being assessed by the doctor or nurse, having medical investigations being done or being seen for other therapy and difficulty in finding space for group therapy (Duncan et al. 2005; Wevers et al. 2009; English et al. 2012). Once an individual is transferred from an acute to sub-acute inpatient rehabilitation setting, then group therapy is usually initiated effectively. When group therapy is performed in the outpatient setting, there is a strong need for adequate planning as a specific time needs to be found and communicated with all individuals in the group so that transportation can be organised to attend the group. A venue would also need to be secured, and planning is necessary to ensure that the venue is not being used by another therapist at the same time (English et al. 2012).

Literature shows an ideal and effective structure of group therapy that is utilised after a stroke, which can be easily adapted to suit the needs of the individuals involved. The group structure ensures that individuals are able to perform task orientated training in a safe environment, with their individual needs being catered for during rehabilitation after a stroke. There are many uses of group therapy, leading to it becoming a well utilised therapeutic approach in rehabilitation after a stroke.

2.3.3 Use of group therapy in inpatient stroke rehabilitation

There has been a concern worldwide with the rising incidence of stroke and a concurrent rise in the costs of healthcare, leading to a need of finding ways to deliver rehabilitation after a stroke in the most cost effective way possible with an individual still benefitting from the

delivery of therapy (Bovier et al. 2005; Wevers et al. 2009; English and Hillier, 2010; Robertson et al. 2011; Van de Port et al. 2012; Renner et al., 2016 and Knox et al., 2018). This is how the concept of group therapy emerged in neurological rehabilitation following a stroke. There are many benefits of using group therapy, which will be outlined below.

An important benefit of group therapy in stroke rehabilitation, particularly in low resourced areas, is the cost effectiveness of group therapy in comparison to individual therapy (Bovier et al. 2005; Wevers et al. 2009). Group therapy can provide financial relief to the health care system by potentially reducing the staff to patient ratios, allowing for a reduced amount of staff providing rehabilitation to a greater amount of people after a stroke, but with patients receiving more therapy time (English et al. 2007; Wevers et al. 2009; Van de Port et al. 2012). The duration of group therapy is longer than individual therapy sessions, resulting in individuals spending more time in therapy when participating in group therapy (Van de Port et al. 2012).

In the study done by English et al. (2007), it was found that individuals receiving group therapy received a greater amount of therapy than those receiving the conventional one-on-one therapy. Those that received group therapy were receiving 129 minutes of therapy a day and those receiving individual therapy received 37 minutes a day. Group therapy was also more cost effective- for a therapist to provide six patients with individual therapy, it would total 222 minutes, and the provision of group therapy to six individuals would be 129 minutes. This shows that in 222 minutes where six patients could be seen for individual sessions, in the same amount of time a group could be run to see these six individuals and an additional two patients could be seen for individual sessions. This allows for more patients to be seen in the same amount of time. From this study, it can be seen that less time and staffing is required to provide therapy to the same amount of people, with equally effective results, when utilising group therapy (English et al. 2007).

The suggested staff to patient ratio is 1:3 in the inpatient and outpatient settings (Dean et al. 2000; Blennerhasset and Dite, 2004; English et al 2007), with group therapy having been found to be as effective and safe as individual therapy during inpatient stroke rehabilitation (English et al. 2007; Van de Port et al. 2012; Renner et al. 2016). Although there have not been significant results for group therapy being superior to individual therapy in terms of self-reported mobility measures, fatigue measures from the fatigue severity scale and

improving feelings of depression, there have been significant findings in improved walking speed, walking distance and stair climbing with group therapy (Van de Port et al. 2012; Knox et al. 2018), as well as a greater degree of independence with walking when discharged home (English et al. 2007). These improved functional outcomes on various aspects of walking occur in group therapy as a result of individuals spending more time in standing positions, and performing functional tasks while standing, during group therapy as opposed to individual therapy sessions. More time is also spent unsupervised while performing standing and walking tasks in group therapy, which allows for individuals to become more comfortable and confident with walking and mobility related tasks when returning home in an environment where one is not continually supervised (Van de Port et al. 2012, Knox et al. 2018).

Another benefit of group therapy is that it may reduce the length in hospital stay when provided early on after a stroke (Blennerhasset and Dite, 2004; English and Hillier, 2011). This refers to the fact of group therapy being beneficial during the sub-acute phase of stroke rehabilitation while individuals are admitted into an inpatient rehabilitation unit (English and Hillier, 2007; English et al. 2012). There is a gap in literature with regards to the exact reason for the reduced length in hospital stay, but it is speculated that it is due to individuals spending more time in therapy (as discussed above) when participating in group therapy, allowing for a faster return to functional activities and discharge home (English et al. 2012).

A considerable amount of therapy, while an individual is in an inpatient rehabilitation unit, is taken up with low or even no physical activity as one-on-one therapy sessions are usually a maximum of one hour in duration (West and Bernhardt, 2012), with the rest of the day being spent sitting in their room. Individuals are estimated at being inactive for 20-50% during the day (English et al. 2012; English et al. 2014). Group therapy allows for an increase in therapy time, as groups are generally 60-90 minutes in duration, allowing for individuals to be engaged for a longer time in physical activity (West and Bernhardt, 2012; English et al. 2012). Individuals spend more time in standing positions during group therapy than individual therapy, which as positive effects in improving walking distance and walking speed (Renner et al. 2016, Knox et al. 2018). During the chronic phase of stroke, there is a consistent picture of individuals displaying high levels of inactivity at home (English et al. 2014), and again, going in to attend group therapy in an outpatient setting also encourages

improved physical activity levels and encourages individuals to want to be more active at home (English et al. 2014).

Although individuals may spend more time engaged in therapy during group therapy sessions, as mentioned above there may be periods of inactivity such as when therapists are bringing other individuals to the group or when the therapist is supervising another individual during a group task (English et al. 2012). Therapists should be mindful of ensuring the environment is safe for each individuals' needs during the group session, so that each individual can continue with task orientated exercises unsupervised, which is likely to lead to increased time spent physically active during the day, improved independence in functional tasks and a quicker discharge home to an environment that does not require full time supervision (Blennerhasset and Dite, 2004, English et al. 2012).

With the dynamics of group therapy encouraging peer support and social interaction (Duncan et al. 2005; English et al. 2007; Wevers et al. 2009), it encourages individuals to not always sit in isolation in their room in between therapy sessions, but instead facilitates social interaction either in the rehabilitation gym or while together in the room (English et al. 2007; Wevers et al. 2009). This allows for the prevention of post stroke depression occurring after a stroke, during rehabilitation, as group therapy is promoting an individual to socially interact with the other patients that are with them in rehabilitation and helps them to be able to maintain their current relationships. Group therapy allows for a bond to form between individuals involved in the rehabilitation process post stroke, which provides a strong sense of support and reduces the feeling of social isolation that can occur (Duncan et al. 2005; English et al. 2007).

Maximising the amount of physical therapy during stroke rehabilitation allows for an individual to spend more time in active and repetitive practice of functional tasks, which is known to enhance neuroplasticity (Carr and Shepherd, 2003; English et al. 2012). One of the key components for neuroplasticity to occur after a stroke is practice and the repetition of an active task, specifically a task that is meaningful for the individual (Carr and Shepherd, 2003; English et al. 2012). Group therapy allows for the repetitive nature of task specific practice and hence the facilitation of neuroplasticity (Wevers et al. 2009; Van de Port et al. 2012). Task specific training that is done in group therapy to improve walking and related functional outcomes include exercises focused on balance control, transfers, gait and gait

related activities such as stair climbing (Van de Port et al. 2012). The repetitive nature of task specific practice and more spent doing this during group therapy, allows for a greater improvement in mobility tasks such as walking and stair climbing, when compared to individual therapy (Wevers et al. 2009; Van de Port et al. 2012).

The fundamental feature of group therapy is task specific training, with there being three features of task orientated training in group therapy that make it an efficient and effective model of therapy (Blennerhassett and Dite, 2004; English et al. 2007; Wevers et al. 2009). Firstly, task orientated training allows for the intense practice of meaningful tasks, with progression according to individual needs, in order to improve function. This is relevant for neuroplasticity, as it is allowing for the repetition and practice of meaningful tasks.

Secondly, with group therapy being longer in duration than individual therapy, it allows for a longer time for patients to practice task specific practice, allowing for a greater degree of independence. This is important when considering that a driving factor for neuroplasticity is not just the type of practice, but also the amount of practice (English et al. 2015). Therefore, a longer duration spent in group therapy practising a meaningful task, is further facilitating neuroplasticity to take place.

Thirdly, group therapy incorporates peer support and social interaction as the patients do the therapy together, which improves their ability to perform given tasks. With group therapy allowing for patients to spend more time doing task specific training than individual therapy, it makes it a very effective model of therapy for recovery post stroke (Carr and Shepherd, 2003; Duncan et al. 2005; English et al. 2007), as it encourages the return of independence in ADLs, and improves QoL post stroke.

In circuit group therapy, whereby different work stations are set up within the group for individuals to perform, a useful benefit of having these different workstations is that it easily allows for each functional task to be customised for each individual (Wevers et al. 2009; Kim et al. 2016). This means that the intensity, frequency and duration of each task can be changed for each individual to ensure that each task is achievable, yet still challenging, to facilitate motor learning to take place (Carr and Shepher, 2003; Wevers et al. 2009; English et al. 2012).

The last significant benefit of group therapy is that it encourages the participation of family members or caregivers during the group session (Duncan et al. 2005). Due to the minimum therapist to patient ratio of 1:3, as described above, it means that an individual will not receive supervision throughout the group therapy session. Therapists therefore often encourage caregivers to attend group therapy sessions, as it allows for there to be more supervision of individuals while performing tasks. Family and caregivers being present in group therapy sessions gives the therapist an opportunity to provide education to them about carry over of exercises at home, and encouraging independence in functional tasks which can reduce the potential stress and caregiver strain in the long term (Duncan et al. 2005).

This section defined the general uses and benefits of group therapy in stroke rehabilitation. Stroke impacts various aspects of functioning both physically and psychosocially and group therapy has a significant role in influencing these aspects of functioning after a stroke.

2.3.4 Limitations of group therapy

As with all interventions, there are benefits, as well as limitations that can be encountered when administering the intervention. The same is true for group therapy, and the limitations of group therapy after stroke onset will be discussed below.

This first challenge of group therapy is the concept that group therapy results in a change of the mindset and in the practice of therapists working in stroke rehabilitation (English et al. 2012). As with any change, it takes time, practice and patience to accept the new change and feel comfortable with it. Therapists working in stroke rehabilitation would be used to the concept of one-on-one therapy with their patients, and may not have experience in group therapy. Therefore the process of implementing and sustaining group therapy in a rehabilitation setting, requires an experienced therapist who is knowledgeable and preferably has experience in the field of group therapy in stroke rehabilitation (English et al. 2012). This will allow for the other therapists to learn the theory surrounding group therapy, as well as the clinical skills required to run a group with people that have had a stroke. Once therapists are confident with running a group in the rehabilitation setting, and have embraced the change, they will feel more invested in the concept of group therapy allowing for the groups to be run in an effective manner (English et al. 2012).

The risk of falls may pose a risk during group therapy, due to the semi-supervised nature of group therapy (English et al. 2015). This is as a result of the therapist to patient ratio of at least 1:3 (Blennerhassett & Dite, 2004; English et al. 2007; English et al. 2015) whereby each individual cannot be supervised for the full time during the group session. It has been found that activities that are done in weight bearing positions are more effective in promoting safe and independent mobility (English et al. 2014). This can further pose a risk for falls, as individuals benefit the most from group therapy when performing task orientated training in weight bearing positions such as sitting, standing or walking positions (English et al. 2014; Knox et al. 2018). Although there is an increased risk of falls during group therapy, overall research shows that there have been no significant adverse events reported during group therapy and it has found to be a safe intervention to use in stroke rehabilitation (Van de Port et al. 2012; English et al. 2014).

While the risk of falling is there, therapists are able to structure the group sessions in such a way that external support is available near each individual should they require support during a task. The therapist should also know which tasks individuals are able to perform independently and safely, so that during that specific task the therapist is able to supervise another individual (English et al. 2007; Van de Port et al. 2012). This allows for tasks to be given to each individual in the group that suits their needs, yet is sufficiently challenging enough and so that they are able to perform it safely and effectively (English et al. 2015).

As noted previously, individuals spend between twenty to fifty eight percent of their day being inactive in rehabilitation (English et al. 2014). Inactive therapy is said to be periods where the individual is resting in a lying, sitting or standing position and is not engaged in an active task (Elson et al. 2009; English et al. 2012). In a study done by Elson et al. (2009), it was found that individuals spent an equal amount of time engaged in physical activity in group therapy and one-on-one therapy. Since group therapy runs for a longer duration than individual therapy, individuals spent a longer time engaged in physical activity in the group, however an almost equal time was spent inactive as compared to one-on-one therapy. Individuals may be spending an equal amount of time inactive in a group session, even though it runs for a longer duration than one-on-one therapy, since they are performing majority of the tasks in the group unsupervised (English et al. 2012). Therapists should therefore be mindful of utilising the increased duration of time that is available in group

therapy for individuals to be physically active, and minimise the rest periods and time spent inactive in group sessions (English et al. 2012).

Patients have also indicated that they want to receive as much therapy as possible during rehabilitation and they sometimes feel that they dislike having to wait for staff in between sessions or at the start of a group session when the other patients are being brought to the gym (Bennett et al. 2016). This is also an important factor to take note of, as patients waiting at the start of a group for other patients to arrive will further increase their time of inactivity in the day, so therapists should also be mindful of this and consider giving the patients a task to perform while waiting for the other patients.

Although there are several barriers to group therapy in stroke rehabilitation, these are barriers that can easily be overcome, particularly with therapists that are confident and comfortable with the concept and clinical execution of group therapy. Group therapy plays a very important role in influencing various aspects of functioning after a stroke.

2.3.5 The role of group therapy on various aspects of functioning after stroke

2.3.5.1 Mobility

One of the first functional tasks that individuals would like to return to doing after a stroke is walking (Kim et al. 2014). Walking is seen as an indicator of return to independence after a stroke, and is therefore something that individuals want to regain after having a stroke (Veerbeek et al. 2011; Kim et al. 2014).

Group therapy has been found to have favourable effects in the walking pattern, speed, distance and ability to ascend and descend stairs in comparison to other commonly used models of physiotherapy (Wevers et al. 2009; English and Hillier, 2011; Knox et al. 2018). A systematic review by English et al. (2017), found that circuit group therapy is effective in improving walking ability in people after stroke, and is found to be most effective when delivered in the early and late periods after stroke.

In a study done by Knox et al. (2018) in South Africa, where the effects of task orientated training on walking was investigated, participants were randomly allocated to either a task, strength or control group. Each participant was included if they could walk at least ten meters

at a speed less than 1.1 m/s, without assistance, but with the use of assistive devices or supervision if needed. In the task training group a series of six exercises were performed, focusing on strengthening, balance retraining, improving endurance and task performance in standing and walking positions. The strengthening group consisted of ten exercises in a seated or lying position, targeting lower limb strengthening. Resistance was provided with gravity, free weights, elastic bands and balls. Participants in these two groups attended six, sixty minute sessions, over a twelve week period. The control group consisted of one ninety minute education session on stroke management, with the inclusion of twenty minutes of exercise. Outcome measures were assessed at baseline, post intervention (twelve weeks) and a further re-assessment twelve weeks later. The outcome measures that were used were the: Six minute walk test (6MWT), 10 meter gait speed test, Berg Balance Score and the Timed Up and Go (TUG) test.

The study compared the outcome measure scores between the three groups, and found that the speed of walking and the distance walked, was greater in the group receiving task training. It was concluded that six one-hour task-orientated circuit gait training group sessions, offered once per week over a twelve week period, improves locomotor recovery and walking competence, including improving the distance walked after a stroke (Knox et al. 2018). This is important to note, as group therapy that includes task orientated training, in weight bearing positions, is effective in improving walking ability after a stroke.

Returning to walking after a stroke should not be limited to indoor walking only, as walking encompasses outdoor mobility and walking in different environments for return to independence (Shumway-Cook et al. 2002; Kim et al. 2014). Environmental factors contribute to the level of community ambulation after a stroke, several of these factors include: level of terrain, postural transitions, altered levels of distraction, road traffic and walking distance (Shumway- Cook et al. 2002).

Based on this, Kim et al. (2014) conducted a study to investigate how a group community walking training program can improve mobility after a stroke. Participants included in the study had to have a gait speed of less than 0.8 m/s and be able to walk ten meters independently without an assistive device. The mobility outcome measures used in this study were the 6MWT, 10 meter walk test and the community walk assessment, which were all assessed at baseline and three days after the intervention period. Participants were randomly

allocated to either the control group or the community walking training (CWT) group. Both groups consisted of thirty minutes each of conventional physiotherapy and occupational therapy, five times a week, for four weeks. In addition, the CWT group participated in the CWT program for 30 minutes per day, five times a week, for four weeks. The CWT program involved walking outside of the hospital setting on uneven terrain, including obstacles, and also walking within a shopping centre. The community mobility route was changed every week to include different environments and obstacles.

The results of the study found that the CWT group displayed significantly greater improvements in walking function than the control group, with greater values in the 6MWT noted in the CWT group. This indicated an improved speed of walking, and distance walked in the group that included activities involved with mobility tasks in the community. The significance of this study emphasises the clinical need for inpatient stroke rehabilitation units to include walking groups outside of the hospital setting and in real life community scenarios to adequately improve walking function in community settings and therefore improve independence when discharged home (Kim et al. 2014). This also highlights that group therapy, other than circuit group therapy, is effective in improving mobility after a stroke and assisting with community re-integration.

A systematic review that was done by Bonini et al. (2018), intended to investigate the effectiveness of circuit based training on gait speed and balance after a stroke. 112 articles were reviewed, with a total of 750 participants aged between 38 - 91 years, with the overall therapeutic intervention lasting between a period of four to nineteen weeks. The speed of walking was assessed using the 6MWT and the 10 meter walk test, and balance was assessed using the Berg Balance Scale and the TUG test for a functional balance assessment. The control groups received a range of conventional physiotherapy, including: strengthening, joint manipulation, balance and gait retraining and upper limb activities to practice daily activities such as picking up objects of various size, writing and manipulating cards (Van de Port et al. 2012; Kim et al. 2017). The circuit based exercises performed in the experimental groups differed slightly, but had a common theme of workstations that targeted balance, speed of walking and distance walked. Ten workstations were added to the circuit and participants spent five minutes at each station, with an additional ten minutes at the end of the circuit group doing walking relay races to facilitate improved speed of walking. The ten workstations included (Blennerhasset and Dite, 2004, Kim et al. 2017):

1. Sitting at a table and reaching for objects placed beyond the arm's length, to facilitate loading of the lower limbs during reaching tasks
2. Sit to stand from different heights
3. Stepping forwards, backwards and sideways onto blocks of varying heights
4. Heel lifts in standing (going onto the toes)
5. Standing with feet in different configurations i.e. feet shoulder width apart, feet together and feet in tandem stance, and reaching for objects in the horizontal and vertical planes
6. Reciprocal lower limb flexion and extension in standing
7. Standing up from a chair, walking a short distance and returning to sit in the chair, focusing on a smooth transition
8. Walking on a treadmill
9. Walking over different surfaces, including through and over obstacles
10. Walking over slopes and ascending and descending stairs

In the study done by Van de Port et al. (2012), the circuit based training group included four stages, namely: Warming up (five minutes), circuit training group (sixty minutes), evaluation and a short break (ten minutes) and a group game (fifteen minutes). The circuit group included eight workstations also targeting balance and walking, with similar tasks to the ones above:

1. Standing and reaching
2. Stair climbing
3. Walking and picking up various objects from the ground
4. Kicking a ball
5. Stepping up and down from varying heights
6. Walking course with obstacles
7. Transfers: lying to sitting and to standing
8. Speed walking

As can be seen above, similar walking and balance tasks are used in circuit based training to target walking speed, balance and improve the functional task of walking. The systematic review concluded that walking deficits after a stroke are classified into three categories: mild (> 0.7 m/s), moderate (0.3 – 0.7 m/s) and severe (< 0.3 m/s). This was important to note, due to the fact that although the effects on gait speed were occasionally small, the participants could still reach a better category of walking. The review found that circuit based training

had positive and clinically significant effects on gait speed after a stroke, but there was insignificant effects on improving balance (Bonini et al. 2018).

In another systematic review done by Wevers et al. (2009) to investigate the effects of task orientated circuit group training after a stroke, whereby ten workstations were set up with similar varying tasks to target mobility and balance as in the studies discussed above. The results showed a significant difference in the walking speed and distance in those participants receiving the task orientated circuit group therapy, with no significant effects in balance control. The systematic review also suggests that circuit group training is most beneficial for walking, and walking related activities, when it is provided in the sub-acute phase of rehabilitation after a stroke, rather than in the chronic phase.

A more recent systematic review by English et al (2017) was done to investigate the effects of circuit group therapy for improving mobility after a stroke. 17 studies were reviewed in the period 2000 – 2015, and all studies used a range of outcome measures related to mobility including: 6MWT, 10 meter walk test, TUG and the Berg Balance Scale. The main finding from this review, was the significant results of circuit group therapy in improving the walking distance after a stroke, as measured by the 6MWT. There was also a smaller, but favourable, effect in circuit group therapy improving the walking speed after a stroke.

There have been studies to compare the effects of group therapy and individual therapy after a stroke. A study by Kim et al. (2016), investigated the effects of individualised versus group task orientated circuit training. There were eight activities included in the circuit training to target walking speed, balance and distance walking, with one group performing these tasks individually and the other group performing tasks in a group. The results of the study found that task orientated training was effective throughout the individual and group interventions, but the group training was more effective in improving balance, walking distance and endurance after a stroke. This was due to the individuals spending more time doing exercises in standing and walking positions during group therapy, as well as improved confidence levels experienced by the individuals participating in group therapy as a result of the peer encouragement and motivation, which does not occur during individual therapy sessions (Kim et al. 2016).

Circuit group therapy was also shown to be more effective than individual therapy in terms of independence of walking once discharged home from rehabilitation (English et al. 2007). Within three days of admission to the stroke rehabilitation unit, participants were randomly allocated to the group receiving individual therapy or to the group receiving circuit group therapy. Individual therapy sessions took place five days a week, for up to sixty minutes per session, whereby each session was tailored to the individual's needs and conventional physiotherapy was performed. In the circuit based therapy group, participants attended two ninety minute group sessions a day, for five days in the week. They were given a core set of activities aimed to improve their functional limitations, ranging from a variety of lower limb and mobility functional tasks to upper limb and reaching tasks.

The key finding from this study that was clinically significant between the two groups, was that a greater number of participants from the circuit group were able to walk independently when discharged from the rehabilitation unit, as compared to the participants that received individual therapy. This could have been due to the circuit group therapy incorporating more walking tasks, as well as encouraging problem solving and increased independence as a result of decreased supervision when compared to the individual sessions (English et al. 2007).

To conclude the effects that group therapy has on mobility after a stroke, literature has found that group therapy has clinically positive effects in improving walking speed, distance and endurance and improving balance after a stroke, although the improvements in balance have been found to be less significant. The most favourable results to mobility are seen where group therapy is performed in a circuit based arrangement with emphasis on task orientated training in standing and walking positions. Examples of effective task orientated activities to include in a circuit group program, for improving mobility, have been provided in literature (Blennerhassett and Dite, 2004; Van de Port et al. 2012; Kim et al. 2016). Group therapy also encourages autonomy from the individuals through facilitating problem solving and independence, which facilitates an improved walking ability once discharged home (English et al. 2007).

2.3.5.2 Activities of daily living

Task orientated training is an important part of group therapy in stroke rehabilitation (Yoo and Park, 2015; Moon et al. 2018). Task orientated training is a clinical therapeutic approach used in rehabilitation that allows individuals to select appropriate tasks and practice these tasks repetitively until there is an improved motor performance, and ultimately until motor learning has taken place. They should then be able to carry over the tasks into their daily lives once discharged home, which impacts on their independence and overall QoL (Moon et al. 2018). The use of task specific training in group therapy after a stroke has been found to be beneficial in improving the independence of ADLs carried out by an individual (Blennerhassett and Dite, 2004; English et al. 2007; Wevers et al. 2009; Yoo and Park, 2015; Moon et al. 2018).

The concept of task orientated training emphasises the repetitive practice of a sequence of functional tasks, rather than just isolated movements (Rose et al. 2011). This is important when we consider the role of task specific training in improving the ability to perform ADLs once discharged home. Repetition of a functional task such as: feeding oneself, cutting food, putting on an item of clothing, tying shoelaces, doing domestic tasks such as sweeping, making a cup of tea etc. allows for motor learning of these functional tasks to take place after a stroke, and therefore improves the performance and independence of these ADL tasks at home (Rose et al. 2011).

It is well known in literature that practice is a necessity for the process of motor learning to take place after a stroke has occurred, in order to stimulate the process of neural plasticity and allow for the functional task or movement being repeated to be retained within the home environment (Carr and Shepherd, 2003; Rose et al. 2011). Practice involves more than just the repetition of a motor skill, it involves the individual using problem solving skills during the execution of a functional task to identify and correct their errors, find ways to improve the technique of conducting the task and progress their technique of carrying out the task (Kitago and Krakauer, 2013). Task specific training allows for this process of motor learning to take place as it involves the repetition of a functional task, that is specific to the individual, with this task being progressed accordingly and giving the individual an opportunity to problem solve the best technique of carrying out the task through identification and correction of errors (Rose et al. 2011; Moon et al. 2018). This process aids in return of independence with the execution of ADLs.

A study done by Jaracz and Kozubski (2002) found that majority of individuals after a stroke had some residual deficits and more than half of them were not independent in basic activities, such as dressing, washing, transferring, walking and domestic tasks. As described, a key feature of group therapy is task specific training, where the daily tasks that individuals are struggling with are practiced repetitively in a functional manner, and progression of the tasks is graded to suit each individual's needs (English et al. 2007; Wevers et al. 2009). A study by Schouten et al (2011) detailed that physiotherapy and OT groups consisted of functional tasks such as: walking, stairs, transfers, cooking tasks, activities for fine motor dexterity involved in dressing and cognitive activities such as puzzles and quizzes. These are examples of task specific activities that can be done in group therapy, leading to an improved performance in ADLs.

A study was done by Moon et al. (2018) to investigate the effects of task orientated circuit training on upper extremity function and performance of ADLs after an acute stroke. Eighteen participants with acute stroke were divided into an experimental group where task orientated circuit group training (TOCT) was done and in the control group neurodevelopmental techniques (NDT) were performed. Both groups participated in the therapy sessions for thirty minutes a day, five to six days a week, for a total of four weeks. The TOCT included six tasks that were performed for five minutes during the circuit group. Each task was based on the individual's level of ability, with there being four difficulty levels. There were six rehabilitation tools used in the TOCT when designing the functional task suited for each participant: putty, skateboard, incline board, stacking cones, range of motion arc and a ring. The outcome measures used were the motor activity log (MAL), that measures the performance of a range of thirty daily activities, and the Stroke Impact Scale (SIS), with the Korean SIS version 3.0 being used in this study.

The results from the study showed that the experimental group displayed significant improvements in the MAL, particularly with improvement in the upper limb and grip strengths on the affected side, as well as improvements in "using the spoon and chopsticks" in the SIS, as compared to the control group. This study concluded that task orientated circuit group training has a higher level of improvement in functional recovery and performance of ADLs after an acute stroke than NDT (Moon et al. 2018). This is of significance when we consider the role of group therapy in improving the independence of ADLs after stroke. Task

orientated training is shown to be the most effective in this regard, with a focus on exercises targeted at performing functional tasks specific to each individual.

It has also been noted in literature that depressive symptoms after a stroke may impact the performance of basic and instrumental ADLs as late as seven years post stroke onset (Blomgren et al. 2019). Since group therapy reduces and manages post stroke depression (Schouten et al. 2011; Van Renner et al. 2016), as will be discussed later, this can lead to an improvement in the performance of basic and instrumental ADLs, as individuals have less signs of depression and are more motivated (Blomgren et al. 2019).

In conclusion to the effects of group therapy and task specific training on the performance of ADLs post stroke, task specific circuit training has shown favourable effects for facilitating motor learning and improving the performance of ADLs. There is a direct link between the incidence of post stroke depression and the performance of ADLs, whereby group therapy has positive effects for indirectly improving performance of ADLs, by reducing the incidence of post stroke depression.

2.3.5.3 Quality of life

The key factor that has been found to influence QoL post stroke is social support and maintaining previous relationships (Jaracz and Kozubski, 2002; Lynch et al. 2008). This has a direct link with post stroke depression, as a loss of social interactions and feelings of self-isolation after a stroke increase the likelihood of post stroke depression (Schouten et al. 2011; English et al. 2012).

Group therapy in inpatient stroke rehabilitation has been found to assist with improving levels of motivation in individuals as a result of the social interactions that occur (Duncan et al. 2005; Schouten et al. 2011). This is an important factor to take into account, when you consider that people that have had a stroke require social support and motivation during therapy to assist in improving their QoL post stroke (Jaracz and Kozubski, 2002; Duncan et al. 2005). Improved levels of motivation assist with improved performance during rehabilitation, improving individuals' functional ability and ultimately their QoL when returning home (Duncan et al. 2005). Group therapy assists with improving levels of motivation by allowing for an increased time for individuals to interact with each other while

doing therapy, thereby providing a level of support and encouragement amongst people with the same diagnosis (Renner et al. 2016).

Group therapy involves individuals working in pairs, which provides a sense of motivation that is given by the other person, as well as a degree of continued support and encouragement (Renner et al. 2016). During group therapy, and specifically working in pairs during the group, allows for levels of motivation and confidence to be improved, thereby improving the physical performance of individuals during rehabilitation and ultimately improving their QoL once discharged home. This level of peer support during group therapy helps to reduce the feelings of self- isolation that commonly occur after a stroke (Schouten et al. 2011), and improves participation and performance during rehabilitation, improving all aspects of an individual's level of functioning, such as the: physical, cognitive and psychosocial domains and leading to an improved QoL once discharged home from rehabilitation (Duncan et al. 2005). This shows how QoL is closely linked to the performance and independence in ADLs, as well as with maintaining psychosocial wellbeing, reducing the feelings of self-isolation after a stroke and the occurrence of post stroke depression.

Another way in which group therapy influences QoL and is closely linked with the performance and independence of ADLs after a stroke, is through the concept of task orientated training (Moon et al. 2018). As it was already discussed above, with the influence of group therapy on ADLs, task orientated training is a clinical therapeutic approach used in rehabilitation that allows individuals to select appropriate tasks and practice these tasks repetitively until there is an improved motor performance, and ultimately until motor learning has taken place and they are able to carry over the tasks into their daily lives once discharged home, which then impacts on their independence and overall QoL (Moon et al. 2018). The more independence that is gained with ADLs and mobility, the higher the perceived QoL will be (Jaracz and Kozubski, 2002; Duncan et al. 2005; Moon et al. 2018).

In the study done by Schouten et al (2011), which was discussed above in the section of group therapy influencing ADLs, it was found that task specific activities done in group therapy, can lead to an improved performance in these ADL tasks, which leads to an improved QoL once discharged home. The level of independence that an individual has in performing ADLs is directly related to their QoL as these tasks would be able to be performed with further independence at home and in the community. The individuals' need

for dependence on others for ADLs is reduced and their levels of motivation subsequently increase as well, leading to an overall improvement in their QoL after the stroke. The more independence that is gained with ADLs and mobility, the higher the perceived QoL will be (Jaracz and Kozubski, 2002; Duncan et al. 2005; Moon et al. 2018).

In conclusion to the role of group therapy in improving the QoL post stroke, group therapy indirectly aids in improving QoL by directly improving independence with ADLs, levels of motivation, peer support and overall performance during rehabilitation. The task orientated training included in group therapy aids in improving the performance of functional tasks in the long term once discharged home, which eventually results in improved QoL.

2.3.5.4 Psychosocial

The last aspect of functioning to be discussed, that group therapy assists with improving post stroke, is the psychosocial wellbeing of an individual. Group therapy plays an important role in peer support when activities are performed in groups, or in pairs (Renner et al., 2016).

In the study done by Renner el al. (2016) to investigate the effectiveness of group therapy versus individual therapy after a stroke, participants in the study were randomly allocated to the experimental or control group. The experimental group received ninety minutes of structured, progressive task orientated training group therapy, five times a week, over a six week period. Each group therapy session included eight workstations that targeted tasks related to walking, speed of walking, balance control, stair climbing and transfers. The participants all worked in pairs at each workstation, with one participant doing the exercises and the other participant counting the reps, and then changing roles. The control group was given individual therapy for ninety minutes, and the same frequency as the group therapy. The individual training was aimed to improve balance, physical condition and walking competency, also with a graded progression.

Of significance from the findings of this study was that the group therapy was as effective as the individual therapy in terms of physical functioning, but interestingly was the relevance of the peer support that took place in the group therapy. Due to the participants working in pairs at each workstation during the group therapy, it was found that these participants had increased levels of motivation during rehabilitation due to the social interactions involved (Renner et al. 2016). The participants reported that they enjoyed working together in pairs,

having the responsibility of counting reps for the other participant and having someone with them for the duration of the group session to provide encouragement and support. It allowed them to form good social relationships with the various participants from working in pairs, which made them look forward to group therapy and assisted them emotionally through their rehabilitation stay.

There have been minimal other studies to show the effects of group therapy on the psychosocial functioning of people post stroke. One study was identified, where the aim of the study was to look at the factors involved in overcoming the long term effects of stroke and managing the common presentation of post stroke depression (Schouten et al. 2011). This study by Schouten et al. (2011) was done in Australia and focused on group therapy in the outpatient setting. It involved the participants meeting weekly over an eight week period, where the participants would receive a physiotherapy group, a short rest break, followed by an occupational therapy (OT) group. The physiotherapy group consisted of: treadmill training, walking, circuit training and Nintendo Wii sports, while the OT group focused on: cooking, activities for fine motor dexterity and cognitive activities such as puzzles and quizzes.

After interviews were conducted with the participants, in the study by Schouten et al. (2011), several themes were identified, one of particular importance being relationships formed in the group and the social aspect of group therapy. The participants expressed that they enjoyed the social interaction within the groups and being able to interact with people that had also had a stroke and going through similar struggles as their own. They also enjoyed the sense of belonging that group therapy gave them, and the fact that it felt like a comforting and normalised environment. Another important aspect that came up with the social interactions during group therapy, was the peer comparisons that occurred. They felt that seeing what other participants were doing in the group, and how they performed the tasks, allowed each of them to push themselves further as they could see that each task was achievable. The participants said that they often felt isolated after their stroke while in rehabilitation, and got feelings of depression from being alone and away from their family and people that they know. The group therapy helped to keep them busy, and the social interactions assisted with improving their general mood and motivation (Schouten et al. 2011). This study is of particular importance, as it is one of the only studies in literature that shows the benefits of group therapy, from a patient's perspective, of the social interactions

that are involved in group therapy and the effects that this has on ones' mood and motivation after a stroke.

In a study done by Van de Port et al (2012) to investigate the effects of circuit training as an alternative to usual individual therapy, it was found there was no significant difference in the levels of post stroke depression between participants receiving a 90 minute group circuit training session twice a week versus standard bi-weekly outpatient therapy sessions. This insignificance of findings of post stroke depression could possibly have been due to the participants having shown low levels of depression at baseline, and future studies are needed to see the effects of circuit group training on depression (Van de Port et al. 2012).

This study is significant when looking at the effects of group therapy on the psychosocial functioning after a stroke and the occurrence of feelings of post stroke depression, as it depicts that further research is needed into the effects that group therapy has on the psychosocial functioning of an individual and the ability to socially interact after a stroke (Van de Port et al. 2012). This information could be obtained by finding out the perceptions, from the individuals involved in group therapy, of the social interactions involved in group therapy and if it assists with maintaining levels of motivation in therapy and preventing feels of depression from occurring.

It has been shown that the majority of people with stroke spend 50% of their day being inactive; 53-60% percent of their day is spent alone and 11% of their time is spent with visitors after a stroke while in hospital (West and Bernhardt, 2011). It was found that in a rehabilitation unit where group therapy was not done, 5.3% of the day was spent with other patients, in comparison to a rehabilitation unit where group therapy was done and 24% of the day was spent with other patients (West and Bernhardt, 2011). This is a very significant difference in terms of time spent with other patients when comparing rehabilitation units with or without group therapy. It suggests that group therapy allows for more time in the day to be spent with other patients and being able to socially interact, while still doing therapy, and spending less time in the day alone (West and Bernhardt, 2011).

It was also found by West and Bernhardt (2011) that during group therapy patients appeared to be more active during the group session, suggesting that by increasing therapy time, this would also increase their time being physically active in the day. This is where group therapy

was suggested as a way in which to increase therapy time, and concurrently more time in the day spent being active and involved in social interactions, to minimise the feelings of being alone and isolated (West and Bernhardt, 2011). Increasing the amount of time spent in therapy and doing physical activity after a stroke, has shown to have beneficial effects on individuals' general health and emotional well-being, with group therapy having been identified as a way in which physical activity time can be increased in rehabilitation (English et al. 2012). This is also a relevant finding to discuss, as group therapy assists with improving emotional well-being, and minimising the feelings of being alone and isolated after a stroke due to the increased time spent active in therapy and socially interacting with fellow patients.

In conclusion, social isolation is a common experience that occurs following a stroke (Schouten et al. 2011; West and Bernhardt, 2011; English et al. 2012), resulting from a high percentage of the day spent inactive and alone in the room while in rehabilitation. The feelings of self- isolation appear to lower the mood and cause feelings of depression after the occurrence of a stroke (Schouten et al. 2011). Group therapy has been identified as an effective way to increase therapy time during inpatient rehabilitation, and a subsequent increase in the amount of time being active in the day, interacting with other patients and reducing the feeling of self- isolation (Schouten et al. 2011; (West and Bernhardt, 2011; English et al. 2012). Only one study has been identified where individuals involved in inpatient stroke rehabilitation have stated that they enjoy the social interactions involved with group therapy, and working together with other patients in pairs (Renner et al. 2016). Further research is required in gaining individuals' perceptions of group therapy related to the social interactions involved and the effects on their psychosocial well-being.

2.3.5.5 Conclusion of the role of group therapy on various aspects of functioning after stroke

It has been shown in this section that group therapy, after a stroke, has been found to be effective in improving levels of mobility, performance of ADLs, QoL and psychosocial wellbeing after a stroke. It has also been shown how these levels of functioning are all closely related and influence one another. There is however limited research into the effects that group therapy has after a stroke on the psychosocial wellbeing of an individual, which is closely related to post stroke depression. A further gap in literature is identified when looking specifically at what patients' perspectives are of group therapy, and particularly related to these levels of functioning.

2.4 Evidence in literature of patients' perspectives of group therapy

There has been evidence in literature on the effectiveness of group therapy during stroke rehabilitation related to mobility, performance of ADLs, QoL and psychosocial wellbeing, although limited research can be found with the influences of group therapy on the QoL and psychosocial wellbeing after a stroke. There is further limited research when looking at the patients' perspectives of group therapy during inpatient stroke rehabilitation.

2.4.1 Group therapy *not* related to stroke

Looking at literature on the patients' perspectives of group therapy is beneficial as it gives an indication of the views individuals have of group therapy across the spectrum of various conditions.

A study done by Raymond et al. (2016), investigated the attitudes of the elderly population participating in group therapy at a rehabilitation hospital. The participants were admitted into the aged care wards at the rehabilitation hospital for a variety of conditions, and were above the age of 65 years. Six themes were identified from the study, namely: Attendance and satisfaction, exercise and physical benefits, qualities of the group instructor, social aspects- comradery and support, self-satisfaction and self-awareness and self-determination and extrinsic motivators. The patients had an overall positive attitude about group therapy with reportedly being satisfied about several factors.

The patients felt that the group therapy gave them physical gains and improved their mobility and strength. It also had an influence on improving their motivation, which the patients found was an important factor in their recovery. They found that during group therapy, comparisons were made between each other while participating in the group, and they found that these comparisons were motivating and reassured them that they were not alone. A limitation to the study was that the interviews conducted were not done for those patients that received individual therapy, therefore adequate comparisons could not be made between patients' attitudes towards individual and group therapy (Raymond et al. 2016).

A second study concerning patients' perceptions of group therapy in an inpatient brain injury rehabilitation setting will be discussed (Patterson et al. 2019). Patients received occupational therapy in a group setting, and their perceptions were gained through interviews conducted

by the researcher. There were three themes that developed from the interviews, namely: "feeling normal, comfortable and connected; learning by doing, seeing and sharing and practicalities of groups and recommendations" (Patterson et al. 2019).

The first theme of feeling normal, comfortable and connected was explained by the patients that they felt normal in the sense that they could still perform activities that they were doing prior to their brain injury. Although they may not be performing these activities with the same technique and independence as before their injury, they still enjoyed the group aspect of seeing what they were still capable of achieving after the brain injury. They felt connected during group therapy when they could work together with individuals that had experienced similar injuries to their own, and felt supported.

The second theme identified was where individuals reported that they felt group therapy assisted them to learn about their abilities and what they were capable of achieving after their brain injury. Although therapy was done in a group setting, they found that their individual goals and needs could be identified. They felt that the group therapy allowed them to practise and refine specific skills and functional activities, which allowed them to feel ready to return home and integrate back into their community. It was also found that by observing other patients performing tasks in the group setting, and observing how they carried out the specified task, it facilitated each individual's learning of this task. Group therapy assisted to improve their confidence in themselves and carrying out the necessary tasks.

The third theme displayed that overall, individuals found that participating in the group therapy after their brain injury assisted them with acquiring the necessary physical and personal skills to be able to return to "real" life again (Patterson et al. 2019).

A third study was identified regarding patients' perspectives of group therapy, whereby patients' experiences of supportive-expressive group therapy following breast cancer was investigated (Brandao et al. 2019). There were several aspects of the supportive-expressive group therapy that patients expressed as being beneficial to their recovery. The most important aspect of the group therapy was the social interactions and support involved with the group therapy. Individuals felt that the social interactions assisted them to express their emotions regarding their condition, and assisted with their personal and psychosocial

recovery. They felt safe and supported in the group environment and enjoyed forming interpersonal relationships (Brandao et al. 2019).

2.4.1.1 Conclusion on literature review of patients' perspectives of group therapy *not* related to stroke

The literature available on patients' perspectives of group therapy with varying conditions, shows positive attitudes towards the group therapy. The general feelings towards group therapy is that of: enjoying the social interactions involved with group therapy and forming relationships with others in the group; feeling supported within the group and being able to express their current emotions; improving self-confidence by watching others in the group perform the same task; improving levels of motivation; having the opportunity to practise skills and functional tasks to allow for return to "real" life again and learning to carry out these tasks from observing others in the group (Raymond et al. 2016; Brandao et al. 2019; Patterson et al. 2019).

It is imperative to review patients' perspectives of group therapy other than stroke in order to identify if there are common benefits and similarities between stroke groups and groups with various other conditions during rehabilitation. It also may give concepts that can be used in stroke groups to allow for effective and appropriate groups to be conducted in stroke rehabilitation.

2.4.2 Group therapy related to stroke

Gaining patients' perspectives is an important aspect of evidence based practice in stroke rehabilitation (Gibson and Martin, 2003). Clinicians so easily tend to focus on the clinical aspect of therapy, but neglect hearing what the patients' perspectives of therapy is. This part of evidence based practice allows for continued efficient and effective therapy to take place, and ensuring each patient is satisfied with how the therapy is being carried out (Gibson and Martin, 2003).

Upon review of the literature available on group therapy in stroke rehabilitation, there is limited research on what patients' experiences of group therapy are during inpatient stroke rehabilitation. There is a gap in knowledge with regards to how patients' feel and what their experiences are of group therapy during inpatient stroke rehabilitation. Three research

articles could be found related to this, based in different phases of rehabilitation after a stroke. These three articles will be discussed below.

2.4.2.1 Group therapy in an outpatient setting after stroke

In a study done by Schouten et al. (2011) in overcoming the long term effects of stroke, individual semi-structured interviews were conducted by the researcher on individuals that had had a stroke and were attending group therapy in the outpatient setting, as well as on the staff members. The interview questions were developed based on information that had been gathered in literature. The interviews were used to gather information on the patient and staff members' perceptions on:

- "The benefits of stroke rehabilitation
- The perceived strengths and weaknesses of the group program
- The understanding of the therapists' roles
- The nature of the patient/ staff relationships
- The patient's level of engagement and perceived personal outcomes of the group" (Schouten et al. 2011).

The physiotherapy groups involved walking, treadmill training, circuit group therapy and Nintendo Wii sports. The main findings in overcoming the long term effects of stroke by obtaining the patients' perceptions of group therapy was that group therapy in the chronic phase of stroke can assist with psychosocial functioning and assist with overcoming the feelings of social isolation after a stroke. The development and facilitation of group therapy in stroke rehabilitation involves the therapist knowing the patient well, in order to appropriately set the tasks and progress them accordingly to suit each individual's needs.
The study was one of the only ones that could be found whereby patients' perspectives were gained from group therapy that involved tasks other than circuit group therapy alone (Schouten et al. 2011).

2.4.2.2 Patients' perspectives on individual versus group therapy after stroke

Two models of inpatient physiotherapy interventions were explored, whereby individuals' perspectives were received on a seven day a week individual therapy or a five day a week circuit group therapy (Bennett et al. 2016). The aim of the study was to gain insight into patients' perspectives and preferences between the two models of therapy in stroke rehabilitation. Semi-structured interviews were conducted on ten participants in the sub-

acute phase of stroke rehabilitation who had received either the seven-a day a week individual therapy or the five day a week circuit group therapy. Three main themes emerged once the interviews had been analysed: “Too much, too little or just right; My experience-alone and together and Meeting MY needs”.

The key findings were that most participants believed that there was a direct relationship between the amounts of time spent in physiotherapy and recovery, and therefore enjoyed the group therapy as this was longer in duration than the individual sessions. Majority of the patients wanted to get as much therapy as possible during their rehabilitation, but simultaneously, these patients also indicated that there was a limit as to how much therapy they could receive due to levels of fatigue experienced with too much therapy. Those that enjoyed the five-day a week group therapy reported that they felt very encouraged by working together with other people that had had a stroke, and the camaraderie during the group session was enjoyable (Bennett et al. 2016).

A majority of the participants indicated a preference for the seven-day a week individual therapy as they felt this therapy was more tailored to their specific needs and they felt that they worked harder in the individual sessions. They also felt that they didn’t get as much time to walk in the group sessions as they did in the individual sessions, due to decreased supervision and ability to do gait tasks in the groups. Some of these participants enjoyed the individual therapy as they didn’t feel that they were losing out on any therapy, whereas some of the participants felt that seven consecutive days was too intense, they felt fatigued and said that they would have appreciated a day or two break to rest (Bennett et al. 2016).

It was clear from the study that patients’ needs are diverse and there is not one model of therapy that will fit everyone. This study provided the following clinically significant points for therapists to be mindful of during stroke rehabilitation: To ensure that group sessions are specifically tailored for each individual’s capabilities, ensuring that tasks are challenging enough; ensuring that patients are not spending too much time inactive during group sessions, particularly when the other patients are arriving for the group; individual sessions should be scheduled so that there is a good balance of active therapy and rest periods to avoid fatigue, particularly if it is a seven-day a week model of therapy and lastly, a list of therapy options should be explained to each patient, with the patient being given an opportunity to decide which model of therapy they would like and be able to change the model of therapy

as needed. Therapists need to therefore offer flexibility and tailored programming according to each patient's needs (Bennett et al. 2016).

Two limitations to this study is that participants' responses may have some bias, as they were interviewed several months after the intervention was finished. Secondly, the participants were also allocated to either receive individual or group therapy, so this also makes it difficult for the participants to make comparisons between the two models of therapy as they were not receiving both models of therapy concurrently and could not change the model of therapy during the study (Bennett et al. 2016).

2.4.2.3 Patients' perspectives of community based exercise sessions after stroke

The aim of this qualitative study was to explore the experiences of individuals that had had a stroke and were participating in a community based exercise group, as well as the impact of the group therapy on their subjective well-being (Dam and Rhind, 2020). Twelve participants that had had a stroke were interviewed after their stroke once they had been discharged home.

The study revealed that community based group therapy sessions had several benefits for the participants after their stroke, such as: improvement in their confidence; enhanced motivation; allowing for the formation of interpersonal relationships and providing support and knowledge. The participants all reported that these physical and psychosocial benefits from group therapy contributed to their well-being after their stroke.

2.4.2.4. Conclusion to literature review on patients' perspectives of group therapy related to stroke

Although these three research articles above have investigated patients' perspectives of group therapy related to stroke in different settings, literature has not gained perspective from patients that receive both individual and group therapy concurrently. This would be an important aspect to consider in order to get an accurate analysis of patients' perspectives and perceived benefits of group therapy and whether they feel they are benefitting from the group model of therapy when compared to individual therapy.

Literature has also not highlighted the patients' perspectives of the social aspect that group therapy brings to rehabilitation after a stroke. This is an important domain of well-being to

look at when we consider looking at an individual holistically and taking in all domains of functioning. There is only one article, to the author's knowledge, that looks at patients' perspectives of group therapy during stroke rehabilitation in the sub-acute phase of stroke, but this study was done only several months after the patients had been discharged home (Bennett et al. 2016). The sub-acute phase of stroke is an important stage to look at in terms of psychosocial functioning, as this is when individuals feel the most isolated after their stroke and tend to have feelings of post stroke depression and anger (Hackett et al. 2005; Williams, 2005). Social interactions and forming relationships are especially significant during this sub-acute phase of stroke to prevent further feelings of social isolation and post stroke depression (Duncan et al. 2005). There is a gap in literature to determine whether the social interactions and relationships formed between individuals receiving group therapy during rehabilitation play a role in the psychosocial functioning during the sub-acute phase of stroke and thereafter.

The limited research that covers patients' perspectives of physiotherapy groups after a stroke, mainly involve circuit training and do not include other types of group activities that could be done during therapy. This is also a gap in literature, as it would be interesting to ascertain what types of groups individuals like or dislike and find beneficial in their recovery after stroke, other than circuit group therapy.

2.5 Conclusion to the literature review

A stroke can cause long-term disability (Lopez et al. 2006; Carod-Artal and Egido, 2009) with long-term effects on the emotional and physical well-being of individuals. These long term effects of stroke can affect various aspects of functioning and can cause decreased mobility, reduced independence with performing ADLs, reduced QoL and post stroke depression (Duncan et al. 2005). Inpatient rehabilitation after a stroke is essential, in order to prevent secondary complications, minimize impairments as a result of the stroke and most importantly to maximise function and independence (Duncan et al. 2005; English et al. 2012).

The effects that stroke has on the various domains of in individual's functioning, such as: mobility, ADLs, QoL and psychosocial function have been discussed. The role of group therapy in rehabilitation to target these domains of functioning have also been discussed in depth.

Group therapy is a model of physiotherapy that can be utilised in the acute, sub-acute and chronic phases of stroke rehabilitation (Duncan et al. 2005; English et al. 2012). Group therapy is a cost effective model of therapy that is as safe and effective to utilise as one-one-one therapy (Wevers et al. 2009; English et al. 2012; Van de Port et al. 2012; Renner et al., 2016 and Knox et al., 2018). This model of therapy addresses the components of well-being affected by stroke, such as the physical, emotional and social well-being (Duncan et al. 2005; English et al. 2012) and assists with improving the four primary domains of functioning, namely: mobility, performance of ADLs, QoL and psychosocial functioning.

The uses and limitations of group therapy have been defined in the literature review. A type of group therapy, known as circuit group therapy, has become a very effective model of therapy in stroke rehabilitation with the key principles of task orientated training and tailoring each task according to the specific needs of each individual (English et al. 2007; Wevers et al. 2009; Van de Port et al. 2012; English et al. 2012; Renner et al. 2016; Knox et al. 2018). A review in literature on the patients' perspectives of group therapy not related to, and related to, stroke has also been done to depict any similarities and common features noted with group therapy in rehabilitation from a patient's perspective.

While group therapy has been shown to be as effective as one-on-one therapy in stroke rehabilitation, there is a gap in literature with regards to how patients feel and what their experiences are of group therapy during inpatient stroke rehabilitation and whether they feel they are benefitting from this model of therapy when compared to individual therapy. Literature has not gained perspective from patients that receive both individual and group therapy concurrently, in order to get an accurate analysis of patients' perspectives and perceived benefits of group therapy and make comparisons between the two models of therapy.

Although group therapy has been shown to be an effective tool to utilise in all levels of stroke rehabilitation, there is a gap in literature to show what patients' perceptions are of group therapy in the sub-acute phase of stroke rehabilitation. The sub-acute phase of stroke is an important level to look at after a stroke, particularly in terms of psychosocial functioning, as this is when individuals feel the most isolated after their stroke and tend to have feelings of post stroke depression and anger (Hackett et al. 2005; Williams, 2005). Only one article was

found that investigated this (Bennett et al. 2016), although this study was conducted several months after the patients were discharged home.

As mentioned above, circuit group therapy is an effective tool to use in stroke rehabilitation. There is however, limited knowledge into other types of groups that can be utilised in stroke rehabilitation that patients enjoy and feel are beneficial for their recovery, besides circuit group therapy, during inpatient stroke rehabilitation.

Lastly, literature has also not highlighted the patients' perspectives of the social aspect that group therapy brings to their recovery after a stroke during rehabilitation. The social domain is an important domain of well-being to look at after a stroke (Duncan et al., 2005 and Jaracz and Kozubski, 2003; Crawford et al. 2008; Kaadan and Larson, 2017; Cai et al. 2019), particularly when we consider looking at an individual holistically and taking into account all domains of functioning, and in preventing post stroke depression.

In conclusion, the effects that stroke has on the various domains of functioning have been reviewed. The model of group therapy and its uses in stroke rehabilitation and in conditions not related to stroke have been highlighted. From the literature review, it has been identified that there is a gap in knowledge of what patients' experiences are of group therapy in stroke rehabilitation, other types of groups that can be utilised in therapy apart from circuit group therapy and the effects that group therapy has on the psychosocial functioning of an individual after a stroke.

CHAPTER 3: METHODOLOGY

This chapter describes the methodology of the study, covering information pertaining to the participants involved in the study, the procedure of the pilot and main study and the ethical considerations that were taken into account during the study.

3.1 Type of Study

This study was a qualitative study design with semi-structured, individual interviews that were conducted with patients with a stroke following inpatient stroke rehabilitation.

3.2 Participants

3.2.1 Source of Participants

Individuals with a primary diagnosis of stroke and receiving inpatient rehabilitation at one of three selected private neurological inpatient rehabilitation centres in Johannesburg, South Africa, were recruited. The individual patient files were screened by the researcher at the rehabilitation units, and individuals were recruited if they met the inclusion criteria for the study.

3.2.2 Group setting

As standard care during inpatient rehabilitation at the private facilities, each patient received one individual and one group therapy session a day during a five day week. On the weekends, either a group or one individual session would be given to each individual. Each individual therapy session was 40 minutes in duration and a group ran for one hour, with a minimum of three patients per group. The one hour group session was divided into:

- 5 minutes transfer time of patients to the rehabilitation gym
- 5 minutes ice breaker/ warm- up
- 40 minutes main exercise
- 5 minutes cool down and deep breathing exercises
- 5 minutes transfer time back to the ward

Various types of group therapy were run at the rehabilitation units on a daily basis (refer to *Appendix I* for a detailed outline of the content of group therapy used at two of the rehabilitation facilities). These groups were rotated daily, depending on the patients that were in each group and the goals that needed to be achieved by each patient during the group

session. Participants received physiotherapy, occupational therapy and speech therapy group and individual sessions as indicated by their presentation post stroke.

3.2.3 Sample Selection

Purposive sampling was used for this study to gather participants, as this is viewed as the most appropriate sampling method for qualitative studies (Polgar and Thomas, 2013).

Interviews were conducted until data saturation was reached, and the researcher was confident that the inclusion of new patients would not yield any new themes and interpretation.

Inclusion Criteria

- First occurrence of stroke.
- Primary diagnosis of stroke, confirmed with a computerised tomography scan.
- Currently receiving neurological inpatient rehabilitation at any three of the selected facilities in Johannesburg, and participating in group therapy during rehabilitation.
  Or
- Discharged home, but had been admitted to one of the three selected neurological inpatient rehabilitation units, and received group therapy, up to six months prior to the interview being conducted.

Exclusion Criteria

- Medically unstable patients and therefore unable to participate in inpatient stroke rehabilitation.
- Patients with aphasia, whereby they were unable to answer questions by any means of communication.

3.3 Procedure

3.3.1 Pilot Study

A pilot study was conducted, to allow the researcher to become familiar with conducting semi-structured interviews and to familiarise herself with the interview schedule. At the time of the pilot study being conducted, the researcher had seven years of clinical experience in neurological rehabilitation and was familiar with the presentation and rehabilitation

following a stroke. The researcher attended an online qualitative research course to become familiar with the process of collecting data and conducting interviews in a qualitative study.

The pilot study was carried out on individuals that received inpatient stroke rehabilitation at one of the selected private rehabilitation facilities. Patients were interviewed until the researcher felt comfortable that the interview schedule was sufficient for achieving the set objectives. Minor changes were made to the interview schedule according to the depth of information gathered during the interviews and to accommodate the use of telephonic interviews (which arose as a result of the Covid-19 pandemic).

3.3.2 Main Study

Patients that partook in inpatient rehabilitation at one of the selected rehabilitation units, who met the study inclusion criteria, were invited to participate in the study. Each patient was given an information sheet (refer to *Appendix II*) and a consent form to participate in the study (refer to *Appendix III*), as well as a consent form for audio recording during the interviews (refer to *Appendix IV*). If the patient was unable to sign consent as a result of the stroke, an immediate family member was asked to sign on their behalf.

All demographic data was collected from each participant upon admission to the rehabilitation unit, or once discharged home from rehabilitation (as per *Appendix V*). The name and contact details of each participant were recorded on a separate sheet (as per *Appendix VI*) and viewed only by the researcher for confidentiality purposes.

Individual semi-structured interviews were conducted with each participant, by the researcher, and took place in a private room where all information gained during the interview was confidential. As a result of the Covid-19 pandemic and lockdown restrictions commencing in March 2020, face to face interviews were unable to be conducted from March 2020 onwards and telephonic interviews were thus conducted with participants. Participants were given the option to do a video call during the interview, but all participants opted to have a telephonic interview due to the convenience and/or cost. Consent to participate in the study, for the interviews that were done telephonically, was obtained from participants via email. The researcher emailed through the consent and audio consent forms to the participants in the study, and the participants signed and emailed the consent forms back to the researcher.

Group therapy in rehabilitation was prohibited, due to restrictions related to the Covid-19 pandemic, from April to November 2020. As a result of group therapy being prohibited for majority of 2020, data for the study included patients that had had a stroke and received group therapy prior to April 2020. These patients were contacted telephonically, and interviews were conducted telephonically within six months of their stroke occurrence.

All interviews, face to face and telephonic interviews, were audio recorded so that they could be transcribed by the researcher and analysed at a later stage. An interview schedule (refer to *Appendix VII*) was used during the semi-structured interviews, to gain insight of the participants' perspectives into:

- Whether patients felt that group therapy was beneficial towards their recovery post stroke, and if group therapy was giving them the same benefits/ progression as individual therapy.
- Whether group therapy had assisted in any way with their interactions with family and other patients in rehabilitation, and whether relationships were formed with other patients in the groups.
- Whether group therapy affected their emotional well-being after the stroke.
- Whether patients enjoyed being a part of different types of group therapy, and what groups they had enjoyed or did not enjoy taking part in.
- Preferences between individual therapy alone or combined individual and group therapy during inpatient stroke rehabilitation.
- Patient satisfaction of group therapy and if there were any improvements that could be made.

The interview schedule was used as a guideline when interviewing the participants, and the researcher expanded upon several of the questions to gain more information, such as: more detail regarding the reasons that participants preferred individual, group or combined therapy; what aspects of the specific group types the enjoyed and in what way group therapy affected their emotional well-being. These are just a few examples of probing questions that were used during the interviews. The researcher also encouraged the participants to provide more information if they were giving single word responses to every question.

3.4 Ethical Considerations

Ethical clearance was obtained by the Human Research Ethics Committee of the University of the Witwatersrand in Johannesburg, South Africa (refer to *Appendix VIII*). An amendment to the ethical permission was obtained by the Human Research Ethics Committee of the University of the Witwatersrand in July 2020, which allowed for telephonic interviews to be done with participants due to restrictions related to the Covid-19 pandemic *(refer to Appendix IX).* Permission to carry out this study was obtained from the hospital managers of the private rehabilitation units in Johannesburg, in the case that the patients were still admitted at the rehabilitation units when the interviews were conducted *(refer to Appendix X).*

Informed, electronic consent was obtained from all participants, prior to their participation in this study, as well as electronic consent from each participant to allow for audio recording of the interviews. The following additional ethical considerations were taken into account during the study:

- Participants remained anonymous and a coding system was used for data collection to ensure that the data collected remained confidential. Participants' names were not used in the study, and each participant was assigned a numbered code to which their information was linked to. All of the interviews had any form of identifier removed during transcription.
- Participants were informed that they could withdraw from the study at any stage for any reason, with no negative consequences.

3.5 Data Management

All of the interviews were audio recorded using the android Audio Note application (which can be downloaded from the google play store), and then transcribed by the researcher. With each interview the researcher wrote notes down during, and directly after the interview, to form key field notes from the interview. These notes were used in conjunction with the audio recordings to accurately transcribe each interview.

MAXQDA software was used to organise, code and analyse the data which allowed for accurate interpretation of the data collected (Appendix VII for analysis report). Access to MAXQDA was granted by the Physiotherapy department of the University of the Witwatersrand.

3.6 Data Analysis

Demographic data collected for each participant was analysed by the researcher and recorded in a table format. The demographic data was analysed with descriptive statistics, using means and standard deviations, and frequencies and percentages. In-depth thematic analysis, using the general inductive approach, was used to analyse the data (Polgar and Thomas, 2013), and a manifest analysis was used to further analyse the data (Bengtsson, 2016). This technique was useful as it allowed for the patients to express their opinions regarding group therapy and allow for the objectives of the study to be obtained (Polgar and Thomas, 2013).

The interview transcripts were read through multiple times by the researcher so as to become familiar with the content and to identify the codes that emerged during the interviews and then form major categories and themes from this (Polgar and Thomas, 2013). The decontextualisation phase of qualitative data involves the researcher becoming familiar with the content of the data, and identifying meaning units (Bengtsson, 2016). The meaning units are groups of sentences or paragraphs that containing information that is related. The term meaning units is often used interchangeably with codes. In the categorisation phase of qualitative data analysis, from the meaning units or codes, categories can be identified and from these themes are then found (Bengtsson, 2016). In this study, the terms codes, categories and themes were used during the data analysis process.

The field notes taken by the researcher during data collection were also used, which improved the validity of the study through triangulation (Bengtsson, 2016). MAXQDA was used to analyse the data and identify codes and categories. A list of codes were identified from the content of all the interviews. The codes were then grouped into categories and a main emerging theme was developed from this.

A second coder analysed and coded the data, and this coding was used with the researcher's coding to identify common categories and form new and relevant themes. In a qualitative study, there is always a risk that different researchers may find dissimilar results from the same data, therefore a second coder helps to improve the validity of the study (Bengtsson, 2016). The second coder did an independent analysis of the data to establish their own categories and themes, and a comparison was made by the researcher between the second coder and the researcher's categories and themes. If there were any discrepancies noted, then a verbal discussion took place to reach a consensus of the most appropriate categories and

themes for the study. This ensured confirmability of the data that was analysed and ensured that all the relevant themes were identified from the data to allow for the objectives of the study to be met.

The above mentioned processes allowed for the four mentioned rigour criteria of a qualitative study to be utilised, namely: credibility, dependability, confirmability and transferability (Forero et al. 2018), which ensured that the study had a good rigour. These four processes will be discussed in further detail according to principles gained from Forero et al. (2018).

Credibility was guaranteed by ensuring that the researcher had clinical experience and knowledge of qualitative research to be able to conduct the interviews and gather the data from participants. A pilot study was conducted for the researcher to become familiar with the interview process and the interview schedule.

An accurate and detailed description of the study methods is detailed, to allow for dependability of the study. A description of the data analysis process is also given to further ensure dependability of the study and allow for interrater reliability. Multiple copies of the research protocol was sent to the supervisor to be checked, and changes were tracked and made by the researcher as appropriate.

Confirmability was ensured by the researcher by making use of triangulation as described above. The interviews were read through multiple times by the researcher to ensure familiarity with the content, and field notes were also taken and used from the interview process.

Lastly, transferability was ensured by the use of purposeful sampling being used to ensure that data saturation was reached.

The final phase of data analysis included writing up the results and discussing the results of the study, as presented in Chapters 4 and 5.

3.7 Conclusion of the methodology

The study design, aims and inclusion and exclusion criteria have been presented in this chapter. The procedure and method of the pilot study and main study have been described, as well as the data collection, data recording and data analysis process. The ethical considerations for the study were also outlined in this chapter. The results of the data analysis are presented in Chapter 4.

CHAPTER 4: RESULTS

This chapter will present the demographic and clinical details of the participants that were interviewed; the categories, themes and overarching topic that were identified from the data collected and the findings from the study.

4.1 Participant demographic and clinical information

Twelve participants were interviewed and then data saturation was reached. The demographic and clinical details of the participants are presented in Table 4.1. This data was obtained from the patients' computerised records at the rehabilitation unit.

Table 4.1 Demographic and clinical details of participants

Participant	Age (years)	Gender	Side of stroke (CVA) lesion	Currently an inpatient or already discharged home at time of interview	Face to face or telephonic interview	Length of stay in rehabilitation
01	60	Female	Right	Inpatient	Face to face	12 weeks
02	71	Female	Right	Inpatient	Face to face	11 weeks
03	43	Female	Left	Discharged	Telephonic	6 weeks
04	36	Male	Right	Discharged	Telephonic	4 weeks
05	27	Female	Right	Discharged	Telephonic	6 weeks
06	72	Male	Right	Discharged	Telephonic	6 weeks
07	70	Female	Right	Discharged	Telephonic	4 weeks
08	75	Male	Left	Discharged	Telephonic	6 weeks
09	61	Female	Left	Discharged	Telephonic	4 weeks
10	63	Male	Right	Discharged	Telephonic	2 weeks

11	45	Male	Bilateral	Discharged	Telephonic	8 weeks
12	70	Female	Right	Inpatient	Face to face	3 weeks

The mean age of participants was 58.8 years (SD= ± 8.14). Seven participants (58%) were female and five (41%) were male. Eight participants (67%) had right cerebrovascular accidents (CVAs), three participants (25%) had left CVAs and one participant (8%) had bilateral CVAs.

Three participants (25%) were interviewed face to face while still admitted at the rehabilitation facility, and nine participants (75%) were interviewed telephonically once discharged home, as a result of the Covid-19 pandemic restrictions and group therapy not taking place for several months during the pandemic. The average length of stay in rehabilitation after the occurrence of a stroke was six weeks.

4.2 Categories, themes and overarching topic obtained from the data

There were seven categories that emerged from the qualitative interviews. The seven categories identified from the data included: Emotional impact from group therapy; Social interactions; Types of groups that are liked and disliked; Positive experiences of group therapy; Negative experiences of group therapy; Suggestions to improve group therapy; Individual therapy versus group therapy. The frequency of the categories identified from the data are displayed in Table 4.2.

Table 4.2 Frequency of categories of patients' experiences of group therapy during inpatient stroke rehabilitation

Categories	**Frequency** **n= number of times each category appeared in the data collected (%)**
Emotional impact of group therapy	16 (4)
Social interactions	74 (16)
Types of groups that are liked and disliked	75 (17)
Positive experiences	115 (25)
Negative experiences	25 (6)
Suggestions to improve group therapy	30 (7)
Individual versus group therapy	60 (13)

The three most common categories were the social interactions (16%), types of groups that are liked and disliked (17%) and the positive experiences of group therapy (25%).

The seven categories were then grouped into three themes and one overarching topic, as displayed in Table 4.3

Table 4.3 Established categories, themes and overarching topic

Categories	**Themes**	**Overarching topic**
Emotional impact of group therapy	Social experiences of group therapy	Patients' experiences of group therapy during inpatient stroke rehabilitation
Social interactions		
Types of groups liked and disliked	Viewpoints on the different types of groups	
Positive experiences		

Negative experiences		
Suggestions to improve group therapy		
Individual versus group therapy	Type of preferred therapy	

From the seven categories, three themes were formed, namely: Viewpoints on the different types of groups; Social experiences of group therapy and Type of preferred therapy. One overarching topic was established: Patients' experiences of group therapy during inpatient stroke rehabilitation.

The results from each theme and category are presented below.

4.2.1 Social experiences of group therapy

Emotional impact of group therapy

A common notion described by participants after having had a stroke, was that they commonly had 'down' days. This was described as feeling like they just wanted to lie in bed, not wanting to speak to anyone else and not wanting to participate in group therapy. Group therapy helped participants to curb their emotions and improve their mood, particularly when they were feeling down, which resulted in improved participation in group therapy. Listed below are several quotes from participants regarding the effects of group therapy on their emotions.

> "I had my down days, but group therapy would pick me up."
>
> *Participant 3*

> "If I felt down, I didn't do therapy."
>
> *Participant 9*

*"*When I had my down days, then I was excited to do the exercises in the groups."

Participant 8

"The groups would come on and when you get in the group you completely forget how you were feeling and it changes your mood from feeling down to feeling uplifted and inspired."

Participant 3

"Group therapy assisted with being able to control one's emotions and become more aware of how you are feeling after the stroke."

Participant 10

"On the group side, when you are with the people there, I managed to keep in the tears and that type of thing but definitely I felt a lot better in the groups. My emotions were curbed as such, and I could control my anger and depression."

Participant 4

"Group therapy was important after my stroke, as it helped with managing my emotions and psychological well-being, which I found to be of particular importance in my stroke recovery. The groups were fun and lifted my mood."

Participant 12

"When you get someone who is lively and bubbly and laughs at something it certainly gives you sort of a spurt and helps one to feel more upbeat, and being more upbeat generally is certainly healing in itself."

Participant 7

"I do really think that if you have been feeling down and just lying in bed and you come back from a group therapy session, just that unity and collective energy- that in itself is boosting."

Participant 11

"I could speak to my fellow patients about the way I was feeling at the moment and they motivated me to continue."

Participant 5

Social interactions

Inpatient stroke rehabilitation was described by several participants as being a lonely experience, often accompanied by feelings of isolation. They spoke about the influence that group therapy had on their feelings of being socially isolated and feeling alone in their stroke journey.

"I thought I was alone but I wasn't, because I had people with me."

Participant 7

"You've only got each there, because your family can't be there all the time."

Participant 2

"You are with other people, and you talk and laugh about it. It breaks the monotony of being on your own and being serious all the time. It brings lightness into the whole situation."

Participant 4

A majority of the participants said how they felt like they gained a friendship, more than anything else, during rehabilitation. They appreciated having the opportunity to socially interact with other patients during group therapy and form friendships through the rehabilitation process, to allow for support and camaraderie. The social interactions formed were friendships and a support network that helped them through the rehabilitation process, and every now and then continued once discharge home.

"I formed a female friendship while in rehabilitation, although this patient was older than me."

Participant 7

"He and I formed a good friendship, we were in the same room and could talk at night and did the group therapy in the day together. For me it was very good."

Participant 10

"It was uplifting to be able to build friendships in the group sessions, even if there were people that weren't able to talk as a result of their stroke."

Participant 3

They also spoke about their experience of the social interactions during the groups, which carried over after group sessions. The social interactions helped them to know that they could talk about their personal feelings to the others in the group and they knew that they were not alone after their stroke. It gave them feelings of being supported and not feeling alone.

"I liked to talk to the other people and I used to talk to them about personal things too."

Participant 4

"I have seen a few of the people from group therapy at outpatient therapy, and I have enjoyed speaking to them and hearing how they are coping at home."

Participant 2

"Because of the group sessions, the other patients were no longer strangers and you felt like you were a part of a family. The group session was something to look forward to because it wasn't just about you, it was about other people."

Participant 3

"When we were all doing something silly together or knocking a ball together, we all laughed and forgot momentarily what had happened and where we were."

Participant 12

"You are not alone, and with other people things are wonderful."

Participant 7

"I think social interacting is important as you come into rehabilitation and don't know anybody, as you want it to feel like home for the next weeks or months."

Participant 3

Although the participants enjoyed the social interactions in group therapy, it was described by some of the participants that they felt uneasy and uncomfortable at the start of the group therapy as they did not know anyone.

"Initially at the start I was very shy and I felt uncomfortable and uneasy, but once I got into the group therapy, I loved it as that was the only way for me to get to know the other patients. A few people were introverts but they came out of their shell because of group therapy."

Participant 4

"As I attended more groups and became more comfortable, I formed friendships with all the people that used to come to the groups, and I liked the fact that even after the groups, and in the wards, you had people to talk to.

Participant 9

"Good ice breaker for interacting with other patients- and a good learning curve for me to find out how these people are coping."

Participant 4

Several participants expressed that particularly during the Covid- 19 pandemic, when visitors were prohibited at the rehabilitation facilities, the feelings of loneliness and isolation

were significantly escalated and it would have been extremely difficult to overcome these feelings without the social interactions that were gained from group therapy.

> "I enjoyed being together with someone I could talk to. There were no visitors, no nothing, and it was very hard."
>
> *Participant 9*

> "Remember when you are in this rehab centre, and when you are alone, all you can do is read or watch TV so you look forward to that interaction during groups and spending time with your peers or fellow patients. It was so similar to the lock down, now imagine you can't go anywhere or see anybody and you have few options of things to do"
>
> *Participant 4*

> *"*During the lockdown period, we had no visitors and no weekend passouts home or anything of that sort, so everyone was there. On the weekends we had no choice but to basically meet each other and socially interact, so we did form friendships."
>
> *Participant 11*

Participants also said that they found that the social interactions in group therapy had an effect on improving their physical performance during therapy. When participants heard the others' stories on where they had come from since their stroke and how much they had progressed since then, it gave a sense of encouragement to push oneself more during the physical tasks of group therapy.

> "There is more reason to push yourself when you hear the others' stories."
>
> *Participant 3*

> "Hearing their stories, finding out what happened to the other patients and seeing that they could push themselves to the level that they needed to, helped to give me motivation to push myself to the level that I needed to get to."
>
> *Participant 5*

> "If you do the exercises in the group, you compare what you've done, where it is sore, where it is not sore."
>
> *Participant 8*

> "It was nice mingling with other people and seeing how other people with the same problem as you are doing. It gave you encouragement to not say that I can't do an exercise, but rather to just do it."
>
> *Participant 2*

There were not many negative experiences surrounding the social interactions of group therapy, there were two participants that commented on this.

> "I don't like negative people, but I accepted that not everyone can be positive and I didn't let that worry me in the groups."
>
> *Participant 2*

> "It has been difficult to maintain contact with people outside of rehab as a result of not getting their contact details while in rehab or people being busy and trying to get back to their "normal" life once at home."
>
> *Participant 5*

The overall positive experiences of the social interactions involved with group therapy included: being able to socially interact with other patients during the rehabilitation process; forming friendships; having a network of support and camaraderie in the rehabilitation process; being able to build up confidence during the social interactions of group therapy and the social interactions having a positive effect on their physical performance during group therapy.

4.2.2 Viewpoints on the different types of groups

Types of groups that are liked and disliked

The responses received by participants to the types of groups that they liked or disliked were varied, but it was expressed by a majority of participants that they enjoyed the physical and social groups the most. They particularly enjoyed the groups that targeted

mobility and independence in ADLs. Occupational therapy groups were also enjoyed by several participants, particularly the OT groups that were based on physical functioning. Although the focus of this study was on physiotherapy groups, the experiences that the participants shared about other groups is worth considering.

> "On Saturday they come and have a small social group. The coffee club group was nice, you learn to make your coffee and everyone has their coffee while sitting and having a nice chat."
>
> *Participant 11*

> "I definitely liked the physical and OT groups- the physical side."
>
> *Participant 10*

> "Walks inside or outside."
>
> *Participant 9*

> "I enjoyed the physio and OT groups, those groups showed me how to stand and walk and use my hands again. But I enjoyed the physio groups more."
>
> *Participant 8*

> "I enjoyed all the groups because I learnt from them, but I especially enjoyed the education groups and learning more about my stroke."
>
> *Participant 7*

> *"*There weren't any groups I could say that I didn't want to go to. Anything that is not monotonous, is enjoyable"
>
> *Participant 2*

*"*I like the groups that push you a bit, where they challenge you, such as standing and doing a game at the same time."

Participant 1

The participants provided insight into what kind of specific activities they enjoyed doing in the groups.

"I love it when we do exercises actually. I like exercises better than games. I enjoy anything where I stand. I also enjoy the relaxation and dancing groups."

Participant 1

"Board games in speech therapy, baking in OT and sports groups such as: indoor hockey, bowling and balloon volleyball."

Participant 2

"I enjoyed the dancing groups, then even those sitting in the chair, as everyone can participate in this social group - making it more exciting. I also enjoyed the obstacle type groups."

Participant 3

*"*Sports orientated, like a volleyball group. Crossword puzzles and word games, scrabble etc. in speech therapy groups everything as it got my mind stimulated again."

Participant 4

*"*Groups with a time component as it made me feel like I could do more in that time and push myself to achieve my goals."

Participant 5

*"*Arts and crafts groups, and anything where there was balancing, standing and walking."

Participant 6

*"*Education groups, standing up and kneeling down – as I could not do this before, balancing, walking and baking."

Participant 7

*"*Groups on education about stroke, walking inside and outside and floor exercises."

Participant 9

*"*Physical exercises where there were four or five different exercises that one had to do and they rotated you every 20 minutes. I also enjoyed the discussion on various subjects in speech therapy groups."

Participant 10

*"*I enjoyed activities outside in the garden, like giant pick- up sticks and jenga. I also enjoyed the dance groups, dressing groups where the OT taught us how to put on and off a shirt and exercise in the swimming pool. Some activities are short- like 6 minute stations that you rotate between- those worked nicely."

Participant 11

"Balloon volleyball, mindfulness groups, mat work, aerobics where you follow a video. Basically I enjoyed the variation in exercises during group therapy."

Participant 12

There were some groups that were not enjoyed by participants, in particular the speech therapy groups. Speech therapy groups were mentioned by several participants as groups that they did not particularly enjoy or find beneficial for their recovery. There was one participant that did not enjoy the physiotherapy group and one participant that did not enjoy the OT group.

"I didn't like the speech groups. The speech therapists that used to do the one - on - one therapy, I really enjoyed that. I enjoyed the talking and doing the exercises in one - on - one speech sessions. It was just the speech groups and mostly the questions

that irritated me. They would ask one question and then analyse it and went into depth. I found this boring as it was about things that weren't interesting to me and I didn't benefit from it"

Participant 8

"OT groups was a bit of a pain, when they said put on and off your shirt 10 times."

Participant 6

"I disliked the physio groups more as it was harder and more of a challenge."

Participant 5

"Speech and OT groups, it wasn't too much of a challenge to me personally, I needed more the individual help I guess. Those groups were based more on games, which was fun, but I needed to focus more on reading, memory, paying attention etc."

Participant 4

"I didn't enjoy the speech groups. I didn't find the discussions helpful and I liked exercises better than games."

Participant 1

Positive experiences of group therapy

Participants expressed a variety of positive experiences gained from group therapy. The most common factors that created these positive experiences were: The competitive component of group therapy being beneficial; having fun and not realising that they were indeed exercising; being around other people with a similar condition to their own; being able to compare one's physical ability to the others in the group; and being able to encourage the other people in the group.

"The competitive nature of the groups was beneficial for my physical recovery, as it pushed him to do an exercise faster or better than someone else. You learn a lot more about people, what happened to them, how they've progressed since they came in and it gives you that motivation."

Participant 10

*"*The therapists were still able to progress everyone in the group based on their individual needs. When they were trying to move you up a level in the group, they discussed it with each other, and how you were performing in the groups. You have groups with different physios and they have different ideas."

Participant 11

*"*Groups are useful as therapists have different ideas and other patient have different tricks of how to do things such as putting a shirt on and off, and you pick this up as you observe other people in the group."

Participant 9

*"*All people in the group being at a similar level of function helped a lot."

Participant 5

*"*Having fun and not realising that you were working out. I enjoyed the healthy competition in the groups. I did not get bored because it was challenging to get my fitness up. Jumping around gave me a boost of energy."

Participant 12

*"*I enjoyed groups because everyone had the same problem and everyone struggles but at the end of the day the results were so good. I liked that they encouraged family to sit in and join the groups as my family could see how I had improved."

Participant 8

"Groups taught me to do things with confidence and not to be afraid to participate and share ideas. It built up my self – esteem after the stroke."

Participant 7

"Groups made me realise that there were other people also suffering with the same problem as I did. I liked that I could build my strength up in groups."

Participant 5

"The interaction and the comradery between everybody. The teamwork all formed a unity."

Participant 2

"The chatter that occurs between patients. A big positive of group therapy is also to see other patients improving."

Participant 1

"Having music in the groups would uplift peoples' spirits and take the focus off a lot of things."

Participant 3

Several participants also spoke about the influence that the therapists had on shaping their experience of group therapy.

"Therapists were always laughing and happy to be around, well that's the impression you gave, and that made it enjoyable. And you always encouraged people so much, it's really great."

Participant 2

"Therapists were great and made everyone comfortable and helped them according to their needs."

Participant 3

"We would all encourage each other, and the therapists were good at that and assisting the other patients so that everyone felt included and part of the game or the task in the group."

Participant 4

"In the physio groups they knew my capabilities. Even in a group setting, they would test me at a higher level and wouldn't give me the same tasks as some of the other patients who had problems with walking etc. They would give me tougher exercises to do. "

Participant 5

"The therapists liked you to participate in the groups whether you wanted to or not. They pushed you, they don't force you, but they pushed you to take part in the groups, which I found beneficial. I think it is important to be pushed. When a stroke happens, you become very negative and you become very stubborn."

Participant 6

"I enjoyed what the therapists taught us in the groups, and to continue the exercises at home and not stop."

Participant 7

*"*The therapists were outstanding, I must say. They put a lot of effort into the groups and made it interesting."

Participant 8

*"*Even if you are doing the exercises incorrectly or out of balance, the therapists are good at picking that up and correcting you without disturbing the whole vibe of a group."

Participant 12

There were several comments given by participants regarding the safety in groups. Eight participants (67%) stated that feeling unsafe in the group was never an issue, despite there usually only being one therapist running a group.

"I felt safe in the groups. There was always one or two therapists around or something to grab onto."

Participant 1

"There is always a constant fear that you are going to fall and hurt yourself, and knowing that the therapists are there and reassuring you and telling you that you can do it makes you feel better."

Participant 3

*"*There was never a time that I felt unsafe."

Participant 4

*"*Definitely the safety factor hasn't worried me at all as we are not a bigger number and the therapist assesses the capacity that we all have, and will monitor and tell one individual not to overdo it and to only do perhaps half the strength or resistance of the particular exercise."

Participant 12

*"*I trusted the therapist in the group. I did the exercises and felt safe."

Participant 8

"When you were doing an activity they knew that your balance wasn't great or you had a higher chance of falling, they were there with you. Overall from a falling point of view, you were protected and I never felt unsafe."

Participant 11

Negative experiences of group therapy

Despite participants having expressed numerous positive experiences of group therapy, there were also several negative experiences that were noted by a few of the participants.

"I think the group session at the end of the day, before everyone is leaving, like 3 - 4pm. Then you are tired and everyone is cranky."

Participant 11

*"*I found group therapy a bit boring, because the therapy was talking to this person and that person and then to you. I also sometimes found it difficult to talk up in the group therapy sessions. I was always more tired afterwards."

Participant 6

*"*At first I wasn't quite happy with my group therapy because I felt like it was too hard but as time went by it became easier, so I became more motivated. But I do think it's set that way on purpose, to be harder at the beginning"

Participant 5

*"*When the group sessions happened in the morning, we used to get our breakfast at a certain time every day and sit in the dining hall, but we would then need to leave our breakfast and attend the group sessions before finishing our breakfast."

Participant 3

"Distraction of others in the groups can be hard, especially when I was balancing."

Participant 2

"Sometimes there was one therapist and seven of us in the group, and you feel like you can't do certain physical tasks because there is only one therapist. This is very limiting.

Participant 1

Suggestions to improve group therapy

Following the previous five categories, and valuable viewpoints gained from participants about group therapy, this category described constructive criticism given by the participants on improvements which could be made to group therapy to make it more beneficial for stroke

recovery. The most significant suggestions given by participants included: Decreasing the size of groups to a maximum of four participants, so that appropriate attention can be given by the therapist to each participant; including music in the group sessions with good quality sound; being pushed physically in the groups but still ensuring that the activities are not too challenging; and looking at the timing of groups in the day so that groups do not clash with meal times and are preferably in the afternoon.

> "The groups could have been less challenging so you could achieve more."
>
> *Participant 5*

> *"*I enjoyed having music in the groups, but sometimes the therapists played music from their phone, and the quality is diminished with the music sounding noisy and tinny. I would then find this more distracting in a group session, and not enjoyable. Music should be played through a speaker for better quality."
>
> *Participant 12*

> "Patients should also not be allowed to bring their cellphone to a group session, as it becomes very distracting when it rings. Having a maximum of 4-5 people in a group at a time."
>
> *Participant 11*

> *"*Some of the groups had assistants and the physios would correct the assistants in showing the patients what to do. I feel it would have been more beneficial for the therapists to rather correct each patient and from there the assistants could continue to help do the exercises."
>
> *Participant 8*

> "Being pushed more in physio groups."
>
> *Participant 6*

"Playing music in physical group sessions to uplift everyone and take the focus off having had a stroke. The timing of group sessions should be looked at so that it doesn't clash with meals, and is at a consistent time everyday. I would prefer to have individual sessions in the morning and group therapy in the afternoon."

Participant 3

"Having some group sessions outside. Playing the news in the background of some physical groups.

Participant 5

"Having four to five people in a group so that individual attention can still be given."

Participant 12

"Having physio groups more in the afternoon, and individual sessions in the morning when we have more energy. Having assistants to bring patients to and from the gym so that the therapists can start running the group instead of having to sit and wait for the other patients to arrive."

Participant 2

"Maximum of three to four people in a group at a time."

Participant 1

4.2.3 Type of preferred therapy

Individual therapy versus group therapy

During inpatient rehabilitation, all twelve participants participated in individual and group sessions on a daily basis. This gave them the opportunity to compare these different models of therapy. Participants gave their viewpoints on both models of therapy and expressed if they preferred one model of therapy over the other.

Eight participants (67%) said that they enjoyed having the combination of individual and group therapy, with two participants stating they liked the individual therapy initially in rehabilitation and once they had gained their confidence and started improving physically, then they liked the group therapy as well. Three participants (25%) preferred having only individual therapy as they felt that they received more one-on-one attention from the therapist and this type of therapy felt more intense and beneficial. One participant (8%) preferred having only group therapy as she really liked the social interactions of group therapy.

> "Often there was not enough staff during the Covid- 19 pandemic, with people being off sick. But if there were staff shortages, group therapy meant that therapy could still happen."
>
> *Participant 10*

> "I do think as opposed to a one- on- one session, which is necessary, group therapy adds a bit of a fun aspect, and the variation is good. I like having the combination of individual and group therapy."
>
> *Participant 12*

> "The individual therapy was much nicer as it is focusing on you and getting things better that way. But I would say that the combination of individual and group therapy is a good option. I still think you need individual therapy but I think that groups should be included as well. Group therapy also allows you to get more therapy time in a day, which is better."
>
> *Participant 11*

"Initially I think individual therapy, to get the person's confidence back and make sure they are doing things right and you don't make a complete fool of yourself, once you've got that confidence back I think group therapy was definitely better for me. As a whole, I preferred the groups over individual therapy, as you always had someone to talk to and laugh with."

Participant 10

*"*You are lying in a hospital bed day after day, I would rather be with a group than be alone all the time. I enjoyed having both the individual and group therapy."

Participant 9

*"*Individual I think is personally more beneficial as you've got the therapist that tells you what to do and talks to you only and not to anyone else. If you are stronger in the one exercise, or if you are weaker, then you do the exercise with the therapist together and they help you."

Participant 8

*"*Initially at the beginning, I preferred individual therapy, but as time went on I liked having both types of therapy. I enjoyed being with other people in the groups.*"*

Participant 7

*"*I enjoyed individual therapy more as it felt more structured and I found it more beneficial for me. I sometimes got bored in the groups. I would do the groups only because the therapists' think it is a good idea to do groups."

Participant 6

"I enjoyed the combination of group and individual therapy, but preferred the individual therapy as you could set goals with the therapist and try and achieve your goals in sessions. The individual session felt more intense and like the therapist was focusing more on you and your goals. But I would still like to have the groups as well, and be with other people."

Participant 5

*"*I prefer having both types of therapy. The individual sessions were of higher importance to me because it's one- on- one and catered for my difficulties, and things that I am having problems with. I had more of an interest in the individual sessions, purely based on that it was tailored around myself and particular difficulties. Group therapy was more interacting with the other patients and doing fun exercises as a group, but definitely the individual was of higher importance to me. Group sessions were insightful and helpful and I enjoyed the interaction with the other patients."

Participant 4

*"*The individual therapy was where it really focused on me and my strengths and what I needed to do to get better and that was a different aspect as it was working on getting me physically stronger. I liked the individual attention and input received from the therapist. Whereas in the group session, the focus wasn't on me, it was everyone together and it was helping to build relationships, so I liked having both the individual and group therapy daily. I liked having my individual needs met and at the same time, I got out the group session what I wanted to."

Participant 3

*"*I enjoyed both. I enjoyed the individual therapy, in the fact that you got to know all the therapists and each therapist had something different to give. Every time I had a different therapist they brought something new to the table for me to do, and that was great. Whereas in a group, you don't do anything new like that. But in the

groups meeting and seeing the others and seeing where they're at, that helps you. So I think both individual and group therapy are beneficial."

Participant 2

"I prefer the individual by far as I feel it gets me further in my recovery post stroke."

Participant 1

4.3 Conclusion of the results

The results of the study have been presented in this chapter, and display a variety of viewpoints from participants about their experiences of group therapy during inpatient rehabilitation post stroke. The majority of participants enjoyed participating in the group therapy and found it beneficial for their overall recovery post stroke, with 67% having preferred the combination of individual and group therapy. In particular, they enjoyed participating in a variety of groups, which were not limited to circuit group training. Based on their positive and negative experiences of group therapy, participants gave suggestions on how group therapy can be improved and made more beneficial for recovery post stroke.

A discussion about participants' experiences of group therapy will be discussed in the next chapter.

CHAPTER 5: DISCUSSION

This chapter will discuss the results of the study, and compare what was found in this study to what is available in literature. It is imperative to review the literature on not only patients' perspectives of group therapy in stroke rehabilitation, but also in other forms of group therapy not related to stroke. Common or new positive and negative experiences can then be identified and compared between stroke groups and groups with various other conditions during rehabilitation.

This study explored twelve peoples' experiences of group therapy during inpatient rehabilitation following the occurrence of a stroke. Three themes emerged from the data collected (Table 4.3): Social experiences of group therapy; Viewpoints on the different types of groups and Type of preferred therapy. These three themes will be discussed in detail.

5.1 Social experiences of group therapy

This study looked at participants' experiences of group therapy on their emotions and social interactions, specifically in the sub-acute phase of stroke while admitted at an inpatient rehabilitation unit, which differs from other studies done in acute or more commonly in outpatient settings.

From the interviews, a common view that was expressed by participants was the increased occurrence of having "down days" and not feeling like seeing people or participating in therapy. They expressed their feelings post stroke as being "down" rather than as feeling depressed, as has been described in literature with post stroke depression being a common symptom (Wulsin et al. 2012; Hackett and Pickles, 2014). Several participants also shared that they had difficulty in controlling their emotions after their stroke, and went through uncontrollable feelings of anger and feeling down.

Participating in group therapy assisted to curb and/ or control one's emotions after the stroke, and reduced the feelings of anger and depression. Several participants explained that group therapy was important after a stroke in terms of managing their emotions and psychological well-being. The groups were described as being fun and helped with uplifting their mood, with a subsequently elevated mood directly after a group session that could be maintained throughout the day. Feelings of improved energy and motivation were further described after

having had a group session. Improved feelings of motivation with group therapy are consistent with findings from other studies, where group therapy has been done for conditions other than stroke, such as: traumatic brain injuries, breast cancer and the elderly population (Raymond et al. 2016; Bennett et al. 2016; Brandao et al. 2019; Dam and Rhind, 2020). These studies show similarities to the current study with group therapy improving an individual's motivation to recover, and giving an individual the energy to continue with daily rehabilitation. Regardless of the condition, group therapy allows for individual's emotions to be expressed, improves their social skills and levels of motivation (Brandao et al. 2019; Dam and Rhind, 2020).

Due to the improved levels of motivation that were experienced by the participants with group therapy, it was found that participation in therapy was subsequently improved, even if participants were feeling down prior to the group. This led to perceptions of improved physical performance, which further improved levels of motivation for therapy. Studies show that individuals enjoy watching the other people in the group and seeing their physical progress, as it gives them motivation and hope to continue on their journey of recovery (Bennett et al. 2016; Dam and Rhind, 2020). This is similar to the current study where some participants said that seeing how the other patients in the groups were progressing and improving physically helped with improving their mood and emotions, as well as gave them motivation to keep going. They felt that if they saw an individual progressing in the group, then they had the potential to also improve and continue to progress.

Feelings of loneliness and social isolation were described by majority of the participants in this study, particularly during the Covid-19 pandemic when they were unable to get visitors or go home on weekend passouts. This is consistent with other studies that have also described feelings of loneliness after a stroke, with group therapy being able to help individuals feel supported, feel like they have a sense of belonging and that they are not alone (Schouten et al. 2011; West and Bernhardt, 2011; English et al. 2012; Volz et al. 2016).

Social isolation is a frequent psychosocial limitation following a stroke (Schouten et al. 2011; English et al. 2012; Volz et al. 2016) followed by the occurrence of post stroke depression (Wulsin et al. 2012; Hackett and Pickles, 2014). The feelings of self-isolation are often as a result of spending a high percentage of the day inactive or alone and in bed (West and Bernhardt, 2011). The sub-acute phase of stroke is an important stage to view when

looking at psychosocial functioning, as this is the phase when individuals feel the most isolated after their stroke and tend to have feelings of post stroke depression and anger (Hackett et al. 2005; Williams, 2005). There is currently a lack of research that looks at social isolation, specifically in the sub-acute phase after a stroke, the ability to socially interact after a stroke and the role of social interactions during group therapy in reducing feelings of social isolation (Van de Port et al. 2012). An intervention that is utilised to manage the feeling of social isolation after a stroke is social interactions and the forming of relationships. There is a direct relationship between social interactions and feelings of social isolation (West and Bernhardt, 2011; English et al. 2012).

Participants in this study expressed how group therapy helped them not to feel alone during inpatient rehabilitation, especially when they could not have their family there with them for the majority of the day and night in rehabilitation. They explained how group therapy allowed for the opportunity to meet new people, to feel supported as they knew other people were going through the same thing as they were and most importantly to form friendships and relationships that not only lasted during the group sessions but also when they went back to the ward after therapy. It also helped them to know that they could talk about their personal feelings to the others in the group and they knew that they were not alone. This building of relationships during group therapy helps to overcome the feelings of loneliness and social isolation usually experienced after a stroke, particularly when inactive and not participating in therapy (West and Bernhardt, 2011).

A common view that arose, was that participants enjoyed being able to share their story in the groups, hear other peoples' stories and how other people had dealt with their stroke. This allowed for them not to feel alone in their stroke recovery journey, and helped them to form friendships outside of the groups, as well as someone to talk to during the day and at night when they were back in their rooms in the ward. One of the participants adequately summarised the importance of building relationships and forming friendships in rehabilitation by saying that "You are living with the other patients under the same roof, so you get to know them and their families personally and how each person is overcoming their own hurdles and in the end it is not only you struggling". This remains true in conditions besides stroke, whereby individuals are able to feel supported in rehabilitation by being able to be with other people who have a similar story, sharing in similar experiences and expressing their emotions in group therapy (Brandao et al. 2019). This again demonstrates

how group therapy helps to minimise the feeling of social isolation after a stroke, as well as in other conditions.

Several participants enjoyed the camaraderie that took place in the groups and being able to laugh with other people while doing therapy. The participants emphasised that it made therapy fun and often did not feel like they were exercising. The biggest factor for several of the participants was being able to do the rehab with other people, allowing for them to feel supported and to know that they were not alone in the rehabilitation journey. This is consistent with the study done by Bennett et al. (2016), where individuals appreciated the opportunity to socialise and experience camaraderie during group therapy, which they were not able to experience during individual therapy.

Several participants in this study reported that after their stroke, they had severe fatigue and constantly felt like they had no energy and wanted to sleep all the time. Fatigue is a common challenge experienced after a stroke and has a direct impact in affecting levels of motivation during therapy (Bennett et al. 2016; Kazuaki et al. 2020). Participants were motivated to get out of bed and participate in a group session, leaving them feeling uplifted and with more energy after the group sessions. One participant said he was fatigued all the time, and group therapy made his fatigue worse. This could be attributed to the fact that he did not particularly enjoy group therapy and this may have made his fatigue feel worse. But the rest of the participants expressed that their fatigue levels diminished when they participated in group therapy and despite having been tired prior to the group, they had more energy after the group sessions. Group therapy helps to boost energy levels, in addition to providing emotional stability (English et al. 2012). With the improved energy levels from group therapy, levels of motivation also improve which directly impacts performance in group sessions (English et al. 2012; Bennett et al. 2016).

A struggle that a few of the participants had was being able to speak up initially in the groups, but as they attended more groups and got to know the other people they felt that they could speak up more easily and it helped with improving their confidence and self-esteem. They were then able to form and build friendships while in rehabilitation.

Another point that was brought up was that although they formed friendships while in rehabilitation, it was difficult to maintain these friendships once everyone was discharged home as contact numbers were not exchanged or the participants were more focused on

returning to their pre-stroke life. It was expressed that although they would have liked to have maintained contact with people that they formed friendships with in rehabilitation, it was a challenge to do so upon return to their normal life. Those that did manage to keep in contact with one or two people from rehabilitation, conveyed that it was refreshing to hear how the other people were doing at home and helped one to not feel so alone.

It is interesting to note the importance of social interactions and the forming of friendships in rehabilitation during the Covid- 19 pandemic. Self- quarantine and social isolation have now become common terms worldwide as a result of the pandemic. Imposed quarantine and social isolation involves the separation from one's family and friends, and a separation from a daily routine (Usher et al. 2020). The self- quarantine, social isolation and social distancing protocols of the Covid-19 pandemic may magnify feelings of loneliness and social isolation in those people that were already experiencing these feeling prior to the pandemic (Hwang et al. 2020). Isolation is known to cause psychosocial problems, particularly in people who are vulnerable to this (Usher et al. 2020). Individuals in stroke rehabilitation can be viewed as a vulnerable population, as feelings of loneliness and isolation are common after a stroke (West and Bernhardt, 2011; English et al. 2012; Volz et al. 2016). Social isolation leads to loneliness and boredom, which if experienced long enough can have detrimental effects on physical and mental well-being (Banerjee and Rai, 2020).

The participants in the study expressed how they could not have any visitors or see their family for several weeks, which in some cases was the whole rehabilitation stay. This exacerbated their feelings of social isolation and loneliness, which was already experienced as a result of the stroke. Participants reported how appreciative they were to be able to see other people in the group therapy and form friendships in rehabilitation. With the forming of friendships in groups prior to the lockdown period of the pandemic, they were able to see and talk to people from group therapy on the weekend which was important to them because weekend passouts home were prohibited during the Covid-19 pandemic and they were not allowed any visitors from family while in rehabilitation. This allowed them to be able to maintain social connections whilst in rehabilitation during the pandemic, which has been viewed as an important preventative measure of loneliness (Hwang et al. 2020). The forming and maintaining of social relationships is an important consideration as there has been no evidence in literature to date, about the repercussions of the Covid-19 pandemic on social isolation, particularly during stroke rehabilitation, and the effects of group therapy thereof.

This study shows that group therapy after a stroke has psychosocial benefits which are achieved by the building of effective relationships and rapport, lasting not only in rehabilitation, but continuing to when the individuals return home and attend outpatient therapy. The group therapy helps to minimise feels of social isolation after a stroke, and helps to overcome fatigue that is commonly experienced after a stroke. In addition, group therapy is of particular importance during the Covid-19 pandemic, to maintain social connections and prevent further exacerbations of feelings of social isolation and loneliness.

5.2 Viewpoints on different types of groups during inpatient stroke rehabilitation

The second theme to be discussed involves participants' viewpoints and experiences on different types of group therapy, aside from circuit group therapy, which has been well researched in literature.

Circuit group therapy has become an effective model of therapy in stroke rehabilitation (Wevers et al. 2009; Van de Port et al. 2012; English et al. 2012; Renner et al. 2016; Knox et al. 2018). Although this has been reviewed well in literature, there still remains a gap in knowledge about patients' perspectives of circuit group therapy, as well as other forms of groups that can be run during inpatient stroke rehabilitation.

From this study, there were many positive experiences of group therapy that were given by the participants, including: being able to observe others in the group and seeing how they would progress physically; always feeling safe and supported within the group; having fun and not realising that it was exercise; getting motivation and encouragement from the other participants as well as the therapists; improved confidence and not getting bored due to the variation in the groups. Several of these experiences are consistent with other studies involving group therapy in stroke rehabilitation where it has been shown that groups improve levels of confidence and motivation, provide support and knowledge and encourage oneself to push further, particularly when observing others in the group (Schouten et al. 2011; Bennett et al. 2016; Dam and Rhind, 2020). Each of these positive experiences will be discussed in further detail below.

Participants from the study expressed how group therapy gave them the opportunity to observe how the others were doing in the group sessions. This often allowed them to see how an individual was progressing physically in the group therapy, and helped to give motivation and reassurance that they themselves could also progress. Group therapy can include individuals with similar or varying degrees of functioning (Wevers et al. 2009; English et al. 2015). It is of particular importance though when everyone in the group is at a similar level of functioning, as the groups become more enjoyable when the activities can be done together, and gives individuals an opportunity to compare themselves to their peers, as well as work together with their peers (Duncan et al. 2005; English et al. 2015). It is easier to compare their progress when they are at a similar level of functioning to the others in the group. This also brings in an element of healthy competition, whereby an individual can see their peer progressing, encouraging themselves to keep going and also try and improve at the same rate (Van de Port et al. 2012).

Safety in the group sessions was not a key issue expressed by the participants. They did not feel unsafe in the groups, and felt that the therapist was nearby the whole time and the level of physical exercise was appropriate and manageable. If the therapist was busy with another patient, then the therapist would ensure that there was enough external support for each participant to still exercise safely without constant supervision. The risk of falls does increase with group therapy as a result of the semi-supervised nature of the groups (English et al. 2015) and the patient to therapist ratio ideally being around 1:3 (Blennerhasset and Dite, 2004; English et al 2007). Although falls may occur in group therapy, no serious adverse events have been reported, suggesting that group therapy is a safe intervention in stroke rehabilitation (English et al. 2012).

Despite there not being individual supervision by the therapist during group therapy, the risk of falls can still be kept low. This is done by the therapist knowing each patient in the group well, and knowing their level of functioning (English et al. 2007; Van de Port et al. 2012). Each exercise or task in the group session is adapted according to the capability of each individual, while still keeping the goals of each individual in mind (Wevers et al. 2009).

Knowing each individual's capabilities allows the therapist to push each person to a certain degree so that they are still progressing physically, but also safely (English et al. 2007; Van de Port et al. 2012). Keeping to the suggested staff to patient ratio of 1:3 in group therapy in

the inpatient and outpatient settings, allows for there to still be a semi-supervised environment (Blennerhasset and Dite, 2004; English et al 2007). Going beyond this ratio may decrease the supervision that can be given by the therapist and increase the falls risk during group therapy. This is when it also helps to have individuals that are at similar levels of functioning, so that similar level tasks can be done together and tasks can be progressed equally and safely (Van de Port et al. 2012; English et al. 2015). This ratio gives the therapist the opportunity to correct individuals while they are doing the exercises, ensuring the exercises are done correctly and effectively, and progressed according to each individual's level of functioning (Blennerhasset and Dite, 2004; Van de Port et al. 2012).

A positive experience of group therapy worth discussing is the fact that the groups were often fun and did not feel like exercise was being done. This was especially seen in groups such as coffee/ social groups or sports groups, which was expressed by participants as being very enjoyable. Although these groups were fun for the patients, they were done with the intention of improving social, physical and cognitive skills. Sports groups enjoyed by the participants included: balloon volleyball, wheelchair hockey, bowls and soccer.

There is evidence of the positive effects of sports groups in varying conditions and age groups, but not specifically to the stroke population. Groups involving sports activities result in improved cognitive skills, particularly with attention and memory, as well as social skills (Dkang et al. 2011). A sporting activity requires selected attention for the task at hand with external distractions being present, as well as being able to remember the rules of the sport activity, how to perform the required movements and coordination of movements (Dkang et al. 2011). In cardiac rehabilitation, sports groups are used in outpatient rehabilitation to improve not only the physical functioning of an individual, but also to improve and maintain the psychological well-being and to accelerate social integration back into the home environment and the community (Halle et al. 2008).

"I know it is only exercise, but to me it is something that keeps me going" is a suitable comment made by a participant in a qualitative study regarding the relationship between sports groups and mental health (Crone and Guy, 2008). Sports therapy is an accepted adjunct to conventional therapy in people with mental health problems (Crone and Guy, 2008). Sports activities allow for the development of social relationships between

individuals in the groups, which maintains psychosocial health and provides a supportive framework during recovery from any condition (Georgian and Lorand, 2016).

Owing to the fact that sports groups are more fun and leisure based for the patients, it encourages participation during the group sessions and improves levels of motivation. The sports groups open up a platform for social interactions and support, leisure based activities to reduce stress levels and help to improve psychological well-being (Crone and Guy, 2008). Individuals find that they want to keep participating in these sports groups and they push themselves more without being aware of it, as the groups are fun and enjoyable for them (Crone and Guy, 2008; English et al. 2012).

Sports groups break up the monotony of exercising, and allow for individuals to socially interact with each other, promoting the psychosocial benefits of group therapy that have already been mentioned (English et al. 2012; Georgian and Lorand, 2016). Although there is no evidence on the benefits of sports groups in the stroke population, the benefits found in other conditions and age groups can be carried over to the stroke population to improve physical, cognitive and psychosocial well-being in a non-conventional and fun manner. Participants in this study expressed that they found the sports groups fun, enjoyed the camaraderie and social interactions with the other individuals in the group and it gave them motivation to continue on their recovery journey.

A huge benefit of group therapy, and a positive experience expressed by several participants, was the factor of getting motivation and support from the others in the group. The sense of camaraderie that is experienced during group therapy, plays a big role in forming friendships and relationships and the feeling of being supported (Duncan et al. 2005; English et al. 2012). Group therapy, specifically in the adolescent population, encourages social motivation and gives individuals a sense of belonging (Bird and Braun, 2017). This age category is interesting to note, as it can be seen that the motivation and social support derived from group therapy is not specific to a certain age group or condition and it can be seen in adolescents and older age categories, of between 30-70 years of age, as defined in the study. Individuals can also benefit from giving support and encouragement to others in the group (Carless and Douglas, 2008). Receiving and giving encouragement and support builds a sense of teamwork within the groups and allows the participants to laugh and joke around together, allowing them to briefly forget the situation they are in (Carless and Douglas,

2008). This allows for an improvement in one's mood and motivation, which is shown to improve functional performance after a stroke (English et al. 2012).

In addition to receiving support from others participating in the group, it was also found that encouragement from the therapists also played an important part in feeling supported during rehabilitation. Adequate encouragement and constructive feedback from the therapist during group therapy enables an individual to know which aspects they are improving on and where they need to continue to improve (English et al. 2012). It allows an individual to see how they are progressing, even if it is only a small amount of progression. The encouragement from the therapists gives a feeling of satisfaction from the group therapy, improving one's mood and motivation to continue with the group exercises (Wevers et al. 2009; Schouten et al. 2011; English et al. 2012).

Many of the participants were found to have a lack of confidence after the stroke, as their ability to do something they normally would have been able to do was diminished. Initially, group therapy was found to be intimidating, particularly when not yet knowing the other participants in the group. But once everyone got to know each other, there was a sense of feeling more comfortable to carry out the activities in the group. This sense of confidence is often regained by practising certain tasks that have become difficult to perform, as a result of the stroke (English et al. 2012). The active and repetitive task practice in group therapy is required not only for the facilitation of neuroplasticity, but also to improve one's confidence when carrying out these tasks (English et al. 2012). In terms of levels of confidence after a stroke, participants generally preferred to start with a higher frequency of individual therapy until their confidence levels had been boosted and they felt more comfortable to participate in group therapy. The confidence level during the group therapy was also based on personality differences that arose from one person to the next, whereby some participants were not overly confident and extroverted prior to the stroke.

A key point from the positive experiences of group therapy, was that several participants expressed how they never got bored during the groups and they enjoyed having different types of groups to accommodate for different interests. Each participant had different interests and therefore enjoyed different types of groups. This is an important consideration in group therapy, as each individual has different interests and goals, but the activities in the group should be targeted towards each person's interests (Wevers et al. 2009; Schouten et

al. 2011; English et al. 2012). The relevance of running different groups that consist of different activities becomes highly pertinent. If a group activity is interesting for an individual, then it increases the likelihood of improved participation and engagement during the group session and consequently improved physical results (Crone and Guy, 2008; Schouten et al. 2011).

As has been previously mentioned, there is sufficient evidence regarding the benefits and effectiveness of circuit group therapy (Van de Port et al., 2012; Renner et al., 2016; English et al. 2017; Knox et al., 2018), but with little evidence regarding patients' experiences of the circuit groups. From this study, participants had positive experiences of circuit groups. They enjoyed the healthy competition between the other participants in the group, which motivated each individual to push harder in the specific task. The timed based element that was often incorporated into the circuit training was also found to have a positive result. A certain time was allocated to each exercise before rotating to the next exercise in the circuit, which encouraged each participant to push harder and compete against themselves to try and better themselves from the previous time, as well as compete against the others in the group. This helped them to progress physically through observing others and with the healthy competition involved with circuit training.

There are a variety of physical groups that can be run in stroke rehabilitation, to accommodate for each person's interests and to prevent individuals from getting bored with doing the same groups and the same exercises (Schouten et al. 2011; English et al. 2012). In the current study, groups included all aspects of functioning, such as: strengthening, stretching/ flexibility; functional task training such as sitting to standing, walking, stairs and floor transfers; mobility indoors and outdoors, balance re-training; sports groups such as indoor hockey, balloon volleyball, bowls etc. and endurance training. With a range of groups such as this, all aspects of the participants' functioning was addressed without there being too much repetition of the same activity, and without the participants becoming bored with a group and losing motivation.

If we take a look at group therapy that is done for conditions other than stroke, we find that patients generally have positive experiences of the group therapy (Raymond et al. 2016; Brandao et al. 2019; Dam and Rhind, 2020). These groups were targeted at conditions such as traumatic brain injury, breast cancer and physical therapy in the elderly. Some of these positive experiences of group therapy include: physical gains; improved mobility and

strength; improved motivation; feelings of performing activities "normally" even if not done the same as before rehabilitation; acquiring necessary physical and personal skills to return to "real" life again and being able to observe others in the group, which assists to facilitate learning. These positive experiences are similar to the ones mentioned above for groups pertaining to stroke rehabilitation and shows that group therapy, regardless of the condition, helps to improve physical functioning, motivation and performance through observing others in the group.

Despite the positive experiences of group therapy, there were also several negative experiences of group therapy. Negative experiences of group therapy is not a well explored topic in literature. A negative factor explored in the study by Bennett et al. (2016), is trying to minimise the waiting time for patients before a group and in-between exercises during group therapy. Individuals felt that they spent too much time inactive in groups while waiting for the other patients to get there, or they felt that they were left alone for too long during the group therapy (Bennett et al. 2016). This did not seem to be a problem expressed by participants in the current study, as not all the groups were circuit type related and there was adequate supervision by the therapist for all patients to continue with their exercises despite being in a group setting.

A negative experience expressed by participants was in the timing of groups during the day. Timing in the day of when groups are run is an important factor to take into account with group therapy (English et al 2012). There is little evidence regarding the most appropriate time of day to run a group in stroke rehabilitation, but from the current study, it can be found that there should be careful consideration from the therapist regarding this. The therapist should take into account the time that meals get served in the rehabilitation unit, as well as fatigue levels of the patients at certain times of the day. Groups should not interfere with meal times, as individuals need to be getting in the right amount of nutrition and should not become frustrated with having meal times interrupted and not finishing their meal. Participants seemed to prefer having group sessions in the afternoons after lunch, as they felt that they had more energy in the mornings to do the individual sessions and enjoyed having the fun, yet still intense part of therapy, in the afternoons with the group therapy.

There was conflicting feedback regarding the level of difficulty of the groups. Some participants felt that the groups were too difficult at the beginning of rehabilitation when

they were still regaining their confidence. Whereas other individuals preferred to have the tasks in the groups more difficult so that they felt like they were being sufficiently challenged. As discussed previously, the level of difficulty should be based on individual needs and goals, which needs to be monitored by the therapist (Wevers et al. 2009; Schouten et al. 2011; English et al. 2012). There needs to be a fine balance between making the exercises in the group being challenging enough so that individuals can progress, but not making them too challenging where individuals cannot complete the exercises effectively (Schouten et al. 2011).

Participants suggested that a different way of bringing a challenge into the group sessions was to include external distractions. They felt that this targeted their dual tasking ability and prepared them for a real life situation where they would likely have to complete a physical task simultaneously with another physical or cognitive task. An example that was given was to include music in group sessions, or the therapist and other participants talking to each other while completing a task, to facilitate dual tasking abilities.

Based on their negative experiences of group therapy, participants were given an opportunity to make suggestions on how group therapy could be improved in stroke rehabilitation to make it more beneficial for the patients. One of the main suggestions was to keep the number of people in a group to a maximum of four to five people. They felt that with a maximum of four to five people, each person in the group still got enough assistance and supervision from the therapist. The current evidence suggests that a staff to patient ratio of 1:3 is utilised (Blennerhasset and Dite, 2004; English et al 2012; Renner et al. 2016). A maximum of three people in a group allows for the therapist to be able to correct an individual if they are doing an exercise incorrectly and provide enough supervision to minimise the risk of falls (Renner et al. 2016). If there are more people in a group, it makes it more difficult for a single therapist to provide enough guidance to each individual during the group session and may not always create a safe environment for physical exercises (Renner et al. 2016).

Music was an effective element to include during group therapy, but there were a few considerations that participants suggested should be taken into account, such as: playing a genre of music that is enjoyed by everyone in the group, ensuring that the music quality is good and clear and playing the music at a volume that will not cause a big distraction from the main group task. The inclusion of music in group therapy has positive effects on mood,

reducing anxiety and depressive symptoms after a stroke (Kim et al. 2011; Raglio et al. 2015). Music also promotes improved social interactions between participants and improved social participation in group therapy, which is rated according to an individual self-rating scale, as well as rated by the therapist and a family member (Nayak et al. 2000).

5.3 Type of preferred therapy

The third and final theme to be discussed is the type of therapy that the participants prefer, between individual and group therapy.

There have been previous studies that have compared individual based therapy to group therapy in stroke rehabilitation and found that group therapy is clinically as effective as individual therapy (English et al. 2007; Van de Port et al. 2012; Bennett et al. 2016). This is derived from a clinical point of view and did not involve patients' experiences of either model of therapy, and patients were restricted to receiving one type of therapy. There is no current evidence in literature (to the author's knowledge) where individuals receive both individual and group therapy concurrently in stroke rehabilitation, and give their experiences on both models of therapy. The current study has concentrated on closing this gap in literature by finding out patients' experiences of group, as well as individual therapy, as they had the opportunity to receive both models of therapy.

A majority of 66.7% of participants from this study preferred having the combination of individual and group therapy. The combination of the two models of therapy allowed for one-on-one therapy sessions with the therapists, as well as receiving the benefits of group therapy. Participants found the individual therapy to be beneficial for their physical recovery as they felt that they were really being challenged with the level of difficulty of the physical exercises, the intensity of the therapy seemed to be more than in group therapy and their individual goals of functioning were targeted.

With this being said, the inclusion of a daily group session allowed for the exercises to be intense yet more fun, targeted their specific interests and prevented therapy from becoming monotonous. Most importantly, participants emphasised that the groups allowed for social interactions between the other individuals participating in rehabilitation, which they enjoyed

and found beneficial. Group therapy also helped to improve confidence in performing functional tasks such as sitting to standing, walking, doing stairs etc. as the tasks were done in front of others. An additional benefit of the combination of the two models of therapy, was that the participants felt that they were able to spend a longer amount of time in therapy which they felt further promoted their recovery. There is a direct relationship between the amount of time spent in therapy and physical recovery (Bennett et al. 2016).

The duration of group therapy is found to be most effective when run for 60 to 90 minutes, with a frequency of three to five times a week (Van de Port et al. 2012; Kim et al. 2016; Knox et al. 2018), and individual sessions being 30 to 40 minutes in duration (English et al. 2007). This is consistent with the current study whereby group therapy ran for 60 minutes, five/ six days a week and individual therapy was 40 minutes in duration, five days a week. Individuals that have group therapy receive a greater amount of therapy in a day than those receiving individual therapy alone due to the differences in duration of individual versus group therapy (English et al. 2007).

Therefore in the current study, participants were receiving more therapy daily when getting both an individual and a group session in a day, as opposed to having either one group session or one individual session daily as has been described in literature. The combination of having daily individual and group therapy therefore increased the total amount of time spent in therapy, which participants expressed to be beneficial for their physical recovery.

5.4 Objectives of the study being addressed

The study has determined the positive and negative factors experienced by patients participating in group therapy during inpatient stroke rehabilitation. The types of groups, aside from circuit group therapy, that participants have liked or disliked participating in during inpatient stroke rehabilitation have been established. Lastly, participants' preferences between individual and group therapy have been determined.

5.5 Conclusion to discussion

From patients' perspectives during stroke inpatient rehabilitation, a combination of individual and group therapy was preferred. Individual therapy was necessary to receive one-

on-one attention from the therapist and to target one's specific goals, whereas group therapy was needed to get that social interaction with other people to aid in psychosocial well-being. Receiving both types of therapy in rehabilitation yielded positive experiences from the participants and was expressed to have been beneficial for their physical and psychosocial recovery after having had a stroke.

Various forms of physical group therapy, aside from circuit group therapy, were enjoyed by participants. Constructive feedback was provided to further improve group therapy during inpatient rehabilitation, according to the participants' experiences of the group therapy.

Lastly, group therapy was found to have a positive effect on the psychosocial well-being of an individual during stroke rehabilitation with benefits such as: improved levels of motivation, curbing one's emotions, prevention of feelings of social isolation through the building of relationships, being able to see how other people in the group are progressing and reducing levels of fatigue and post stroke depression.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

6.1 Conclusion

This qualitative study gained insight into patients' perspectives on their experiences of participating in group therapy during inpatient rehabilitation after having had a stroke. Seven categories were identified and from this, three themes were formed, namely: Personal opinions on different types of groups during inpatient stroke rehabilitation; Social experiences of group therapy and Type of preferred therapy. One overarching topic was established: Patients' experiences of group therapy during inpatient stroke rehabilitation.

The study yielded mostly positive experiences of group therapy, and where there were a few negative experiences expressed, constructive feedback was given by the participants to further improve the utilisation of group therapy during inpatient stroke rehabilitation. Group therapy played a role in the emotional functioning of participants and assisted to curb ones' emotions and prevent the feelings of having "down" days.

Group therapy encouraged social interactions and the forming of relationships during rehabilitation. This allowed participants to get to know the other patients in rehabilitation, helping them to feel supported and not alone in the rehabilitation process. This was effective in preventing feelings of social isolation after their stroke, which was of particular importance during the Covid-19 pandemic whereby no family or friends were allowed to visit the participants.

Overall, the participants expressed enjoying the variety of groups that were run, particularly because it targeted various aspects of their functioning such as: Mobility, independence with ADLs and their social interactions. They also enjoyed sports related groups as it was beneficial for their physical recovery, as well as having benefits emotionally and socially.

Participants did not enjoy groups where they felt like it was too challenging for them and they were not able to perform the required physical tasks. Speech therapy groups were not

always enjoyed, particularly when it involved topics of discussion that one was not interested in.

There were several positive experiences of group therapy, such as: the competitive component of group therapy being beneficial; having fun and not realising that they were indeed exercising; being around other people with a similar condition to their own; being able to compare one's physical ability to the others in the group; and being able to encourage other people in the group.

There were few negative experiences of group therapy, but some factors worth mentioning was: the timing of groups in the day so that they do not interfere with meal times or at a time of the day when participants felt tired; groups having too many participants (above five) and not enough therapists and some groups being too challenging.

Participants gave constructive suggestions to improve the provision of group therapy in the future. They gave suggestions such as: including good quality music in group session to improve mood and motivation; having a maximum of 4-5 people in a group; including physio assistants to help with bringing patient to and from the groups and looking at having some groups outside for a change in environment.

A majority of 67% (n=8) participants enjoyed having the combination of individual and group therapy, and found it beneficial to their recovery in rehabilitation post-stroke. Twenty five percent (n=3) of the participants preferred having individual therapy only and no group therapy and only 8% (n=1) would have liked group therapy without the individual therapy. Those participants that enjoyed the combination of individual and group therapy liked the individual therapy initially in rehabilitation and once they had gained their confidence and started improving physically, then they enjoyed participating in the group therapy.

This is the first study (to the author's knowledge) to conclude that individuals receiving inpatient stroke rehabilitation, in the subacute setting, prefer partaking in a combination of both individual and group therapy. They have positive experiences of receiving this combination of therapy, and feel that it is beneficial for their physical and psychosocial recover after a stroke.

6.2 Strengths of this study

Data for this study was collected from three rehabilitation units in Johannesburg, all having the same structure of individual and group therapy in place. The inclusion of three facilities strengthened the data collected. The study was restricted to getting patients' experiences of group therapy during inpatient subacute stroke rehabilitation, which has not been well researched in literature. The study also determined various forms of groups that patients enjoyed and found beneficial, as well as patients' preferences of which model of therapy they prefer in the inpatient rehabilitation setting, which fills this gap in knowledge in literature.

6.3 Limitations of this study

The majority of interviews could not be conducted while participants were still admitted in the rehabilitation units, as initially intended, due to group therapy being prohibited during the lockdown period of the Covid-19 pandemic. This meant that telephonic interviews were done with participants after having received group therapy several months prior to the interview (before Covid-19 restrictions). This could have limited some of the data collected, particularly if the participants had difficulty in remembering the specific details of their experiences of group therapy when they had been at the rehabilitation facility. The study tried to control this limitation by ensuring that the telephonic interviews were not done longer than six months since the participants received the group therapy.

Having to do the telephonic interviews meant that there was the loss of the personal one-on-one interview setting. This created a limitation as the interviewer was not able to accurately gauge the participants' emotions, and the participants were not always as descriptive and willing to elaborate on their responses. The study overcame this limitation by encouraging participants, at the end of each telephonic interview, to email the researcher if they had any more information that they wanted to share and by the researcher establishing a rapport with each participant prior to starting the telephonic interview.

The last limiting factor of the study is regarding the interview schedule. If the schedule is used in future studies directly from Appendix VII, then there are several closed ended

questions. This could result in future study participants not expressing themselves and giving as much information regarding group therapy as they might do with open ended questions. In this study, this was controlled by the researcher unpacking several of the close ended questions and encouraging the participants to provide more information if they were giving single word responses.

6.4 Clinical Recommendations

The following recommendations can be made by clinicians in the rehabilitation units when running group therapy post-stroke.

Individual versus group therapy

- The clinical recommendation to therapists working in the subacute inpatient stroke rehabilitation setting is to utilise a combination of individual and group therapy to facilitate improvements in both physical and psychosocial functioning after a stroke. As described in the study by Bennett et al (2016) and also found in the current study, each patient should ideally be given an opportunity to decide which model of therapy they would like and be able to change the model of therapy as needed. Therapists need to therefore offer flexibility and tailored programming according to each patient's needs.

Types of groups that are liked or disliked

- The use of varying forms of physical groups during inpatient stroke rehabilitation, and not being limited to only circuit group therapy. Patients enjoy having a variety of groups with varying forms of activities and structure.

Suggestions to improve group therapy

- Therapists to have more discussions with patients in the future regarding the level of difficulty of group therapy and the reasoning for the specified level of difficulty. This is to ensure that patients are aware that the level of difficulty might be more intense initially in group therapy, but as the groups commence and they get stronger, the level of difficulty would become more manageable.
- Placing patients in a group where all individuals have similar levels of function, and limiting group numbers to a maximum of three to four patients in a group.

- Therapists to look at the timing of group therapy in the day, ensuring that groups do not clash with meal times, and are not right at the end of the day when patients are typically more fatigued.

6.5 Recommendations for Future Studies

This study investigated patients' experiences of group therapy and their viewpoints on receiving a combination of both individual and group therapy in rehabilitation. Further research is required to investigate the clinical benefits of receiving a combination of individual and group therapy on a daily basis during inpatient stroke rehabilitation. It would be interesting to note whether there would be any quantitative differences in physical and psychosocial functioning in patients receiving a combination of both therapies as opposed to receiving either individual or group therapy.

Another recommendation for future qualitative studies that may be carried out in the Covid-19 pandemic where face-to-face interviews cannot be done, is to attempt doing video or zoom calls where the participant and researcher can still see each other to create a more personal relationship during the data collection process.

Declaration of interest

The author has no potential conflict of interest to declare.

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APPENDICES

APPENDIX I: GROUP THERAPY CONTENT

Group Physiotherapy In Stroke Rehabilitation



Compiled by Physiotherapy Department

Important considerations for group therapy

Informed consent

- Patients should be aware that they will be in a group
- Patients should verbally agree to participate

Precautions:

- Wipe down all plinths before and after use
- Ensure safety of all patients during the group

Number of patients:

- 3-4 patients
- 5+

Location:

- Gym- patients may share a plinth if no there are no infection control precautions
- Bed- If patients are in the same room

Equipment:

- Radio
- Balls
- Weights (hand- held and ankle)
- Mats
- Wedges

Billing (group macros used):

- Group rehab
- Condition management
- Myofascial release



Set- up of group therapy at Rosebank:

The total time allocated for group therapy is ***1 hour***.

1. Transfers to the group: 5 minutes
2. Introduction and warm up: 5 minutes
3. Main exercise: 40 minutes
4. Warm down and feedback session: 5 minutes
5. Transfers back to their room: 5 minutes

Introduction & Warm Up (5 minutes)

Introduction:

- Therapist should introduce him/herself to the patients
- Therapist should communicate the aim of the group to the patients
- Patients may then introduce themselves to one another
- Ice breaker ideas: Can throw a ball to each other and whoever catches the ball has to speak…See ideas below

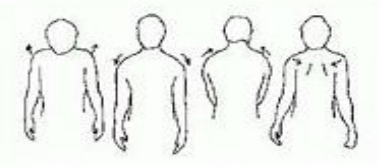
Roll the Dice
Break the Ice





1. My favorite television show is…
2. My favorite movie is…
3. My favorite place is…
4. My favorite band/singer is…
5. My favorite song is…
6. My favorite store is…
7. My favorite book/author is…
8. My favorite sports team is…
9. My dream car is…
10. My favorite food is…
11. My favorite actor/actress…
12. My dream job is…
13. In ten years I will be…
14. If I were a millionaire I would…
15. For a hobby, I…
16. The craziest thing I ever did was…
17. If I could travel anywhere new I would go…
18. The thing that makes me the happiest is…
19. The most important thing in my life is…
20. Make up your own question for the whole group!

General Upper limb and trunk warm- up stretches (part of introduction):



Active neck movements/ stretches



Shoulder rolls forward and backwards



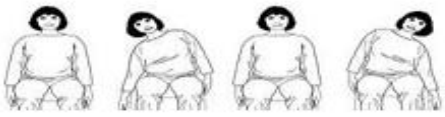
Elbow and wrist stretches



Upper limb + chest extension



Trunk rotations in sitting



Trunk lateral flexion in sitting

General Lower limb and trunk stretches (part of introduction):



Trunk forward flexion in sitting



Active knee flexion and extension in sitting



Ankle pumps



Gluteal stretch in sitting

Main exercise ideas (40 minutes)

1. Lower limb and pelvic strengthening- Level 1

Equipment needed:
- Plinths
- Small soccer/ exercise ball

Patient positions:
- Supine on the plinth
- Side lying on the plinth
- Prone lying

5 minutes warm up

- Refer to the lower limb and trunk stretches above in the introduction.

40 minute group exercise:

- Heel slides of the affected lower limb
- Alternate lower limb flexion and extension
- (heel slides)
- Straight leg raises
- Pelvic stability: crook lying with feet together and moving lower limbs from side to side with trunk maintained flat on the plinth
- Crook lying with feet together and externally rotating one lower limb at a time and bringing it back to centre
- Bridging. Progress with variations: one legged bridging, ball between the knees, feet together





- Clams in side lying



Progression using theraband

- Knee flexion in prone (if patient is able to lie in prone)



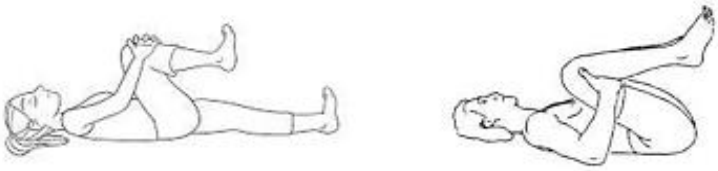
- Straight leg raises in prone



Pillow can be placed under abdomen

5 minutes cool down

- Flexion of both or alternate lower limbs to the chest and holding for 30 seconds



- Trunk rotations with arms out to the side





- Neck rotations and lateral flexion in supine or sitting
- Deep breathing exercises in supine or sitting over edge of plinth (if patient has the balance), and incorporating upper limbs and trunk extension if possible

- Neural stretch in sitting



2. Lower limb and pelvic strengthening- Level 2

Equipment needed:
- Plinths
- Exercise ball

Patient positions:
- Standing

5 minutes warm up

- Refer to the lower limb and trunk stretches in the introduction.

40 minute group exercise:

- Sit to stand from chair or plinth



- Squats against a wall. Progressing by using an exercise ball behind the back



- Forward lunges



- Side lunges



- Marching on the spot with emphasized hip flexion



- Alternate lower limb stepping up and down a step



- Sitting to standing re- training from a low surface with no hand support

5 minutes cool down

- Active stretches of the quads in standing



- Hamstrings stretch in standing or sitting

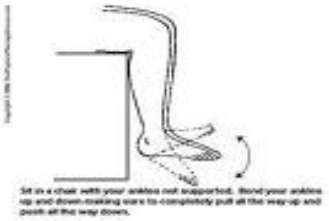




- Gastrocs stretches in standing



- Ankle pumps



- Neck rotations and lateral flexion in sitting
- Deep breathing exercises in supine or sitting over edge of plinth and incorporating upper limbs and trunk extension if possible
- Neural stretch in sitting



3. Bed mobility

Equipment needed:
- Plinths

Patient positions:
- Supine lying

5 minutes warm up

- Refer to the general upper and lower limbs and trunk stretches in the introduction.

40 minute group exercise:

1. Rolling to the right and rolling towards the left. Use pillows or wedges to grade activity for those that are unable to perform the full movement independently.

2. Transitions from supine – side lying – sitting over the edge of the bed. If appropriate, time 5 transitions per patient to use as an outcome measure, or get patients to see who can do it in the fastest amount of time

3. Positioning and bridging
   - Positioning in bed: side lying, supine and safety of affected limb
   - Bridging to move up in the bed, and scooting sideways

5 minutes cool down

- Flexion of both or alternate lower limbs to the chest and holding for 30 seconds





- Trunk rotations with arms out to the side





- Neck rotations and lateral flexion in supine or sitting
- Deep breathing exercises in supine or sitting over edge of plinth (if patient has the balance), and incorporating upper limbs and trunk extension if possible

- Neural stretch in sitting



4. Core and trunk control- Level 1

Equipment needed:
- Plinths
- Exercise ball

Patient positions:
- Supine lying
- Sitting

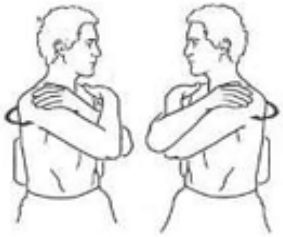
5 minutes warm- up:

1. Tuck chin to chest and round back, then straighten up and look straight ahead



2. Circular movements in sitting –clockwise and anticlockwise motion

3. Trunk rotations while engaging abdominals



Lateral side flexion

Forward flexion with rotations (touching toes)



Education:
Every time we move, we depend on some muscles to hold us steady, and other muscles to actually move us. Core stabilization is the general term for how the muscles of your trunk keep

your spine and body stable. This helps you stay balanced when you move. If your core muscles are strong and they contract when they should then:

- Your posture is better
- Your body is balanced
- Your movement is more efficient and powerful
- You may be less likely to be injured and suffer from back pain

The main muscles involved in core stabilization are deep muscles such as the transverse abdominus, the multifidus, and the muscles of the pelvic floor. The transverse abdominus is like a corset around your abdomen. It's the muscle you work if you pull in your stomach. The multifidus is a muscle that lies along your spine from your neck to your pelvis, with short fibers connecting one bone (vertebra) of the spine to other vertebrae near it. The muscles of the pelvic floor are most noticeable when you squeeze to keep yourself from urinating.

40 minutes main exercise group

Can be performed with patients all sitting in a circle

Sitting
Passing a ball to one another
Forward flexion – pushing exercise ball forward and backwards
Reaching out towards the sides – touch the patient on the opposite side
Lateral side flexion with hand weights
Hip hitch in sitting (demonstrate elongation and contralateral contraction of oblique)
Marching on the spot – ensure patient not leaning against back of chair



Sitting balance with no back support and engaging core- can use upper limb support if needed

Supine
Bridging - graded: standard, weight over pelvis for added resistance, holding position and counting
Knee lifts in crook lying
Knees to chest with LLs on exercise ball
Trunk rotations/rotating knees from side to side with LLs on ball



Activation of transverse abdominals –isometrics
contraction in crook lying
Side lying Clams engaging core

5 minutes cool down

1. Reaching with hands above head and feet pointed – imagine you are an elastic band being pulled on from opposite sides



2. Trunk lateral flexion
3. Trunk rotations and hold position



5. Core and trunk control- Level 2

Equipment needed:
- Large sized gym balls
- Exercise mat

Patient positions:
- Standing

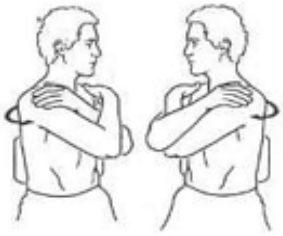
5 minutes warm- up:

1. Tuck chin to chest and round back, then straighten up and look straight ahead



2. Circular movements of neck in sitting –clockwise and anticlockwise motion

3. Trunk rotations while engaging abdominals



4. Lateral side flexion

5. Forward flexion with rotations (touching toes)



Education:
Every time we move, we depend on some muscles to hold us steady, and other muscles to actually move us. Core stabilization is the general term for how the muscles of your trunk keep your spine and body stable. This helps you stay balanced when you move. If your core muscles are strong and they contract when they should then:
- Your posture is better

- Your body is balanced
- Your movement is more efficient and powerful
- You may be less likely to be injured and suffer from back pain

The main muscles involved in core stabilization are deep muscles such as the transverse abdominus, the multifidus, and the muscles of the pelvic floor. The transverse abdominus is like a corset around your abdomen. It's the muscle you work if you pull in your stomach. The multifidus is a muscle that lies along your spine from your neck to your pelvis, with short fibers connecting one bone (vertebra) of the spine to other vertebrae near it. The muscles of the pelvic floor are most noticeable when you squeeze to keep yourself from urinating.

40 minutes main exercise group

1. Planking in various positions- beginning with elbows flexed



2. Four point positions- keeping the core engaged



3. Sitting on gym ball. Maintaining static sitting balance and progressing to performing dynamic balance tasks i.e. moving upper and lower limbs



4. 

5 minutes cool down

1. Reaching with hands above head and feet pointed – imagine you are an elastic band being pulled on from opposite sides



2. Trunk lateral flexion
3. Trunk rotations and hold position



6. Neck and upper limb group

Equipment needed:
- Chairs
- Hand weights
- Therabands

Patient positions:
- Sitting
- Standing

5 minutes warm- up:

Education:

The neck is an important structure that supports the head and the cervical spine. Because of this, the neck most commonly experience stress and tension leading to pain. Neck pain usually involves muscle spasms and strain. The presence of problems on the muscles and bones at the neck causes limitation of motion of the neck joint. Most commonly, people complain of stiff neck or the inability to rotate the neck to one' side with significant tenderness and pain.

Brief anatomy explanation of head, neck and upper limbs

What is neural tension?

Nerves can become sensitized to stress under certain circumstances, such as the presence of inflammation or physical damage. In this event, normal ranges of motion can cause pain, numbness, tingling or other signs of distress

How to alleviate neural tension?

Stretching the muscles, nerves and getting the joints moving, ensure they are treating it medically as indicated.

- Head and neck: rotations, neck flexion/extension, lateral side flexion, circular motions
- Neural upper limb stretches





- Upper limb stretching – round the shoulders, biceps, deltoids, pectorals






40 minutes main exercise group

Sitting:

- WB through ULs and weight shifting
- Reaching for objects and picking up objects
- Push ups in sitting
- Exercises with theraband/hand weights
- Weight bearing through ULs and reaching with opposite hand
- UL cycle machine/air cycle
- Sustained position of upper limbs – shoulder abduction to 90degrees and hold to 1 minute, can be graded by doing smaller circles forwards, backwards, bigger circles, pulses up and down

Prone lying:

- Prone lying and into puppy prone – head and neck extension
- Puppy prone and reaching to touch target
- Puppy prone and to hold position for weight bearing through ULs
- Pushing up onto extended upper limbs in prone



- Push- ups with elbows tucked into trunk
- Scapular retraction in puppy prone

5 minutes cool down

- Gentle stretches as done in warm up: Head and neck
- Deep breathing exercises

6. Cardiovascular endurance group

Equipment needed:
- Stationary bicycle
- Treadmill
- Upper limb Bicycle

Patient positions:
- Standing
- Sitting

5 minutes warm- up:

1. Neck and trunk stretches in standing
2. Sitting to standing re- training
3. Marching on the spot

40 minute group exercise:

(The group can be run in stations where the patient alternates from one station to the next as a circuit group)

1. **Walking on the treadmill**- changing speed and incline



2. **Stationary Bicycle**



3. **Upper Limb Bicycle**



4. **Stepping up and down a step**



5 minutes cool down

1. Hamstring Stretch:



2. Quadriceps stretch



7. Flexibility and meditation group

Equipment needed:
- Plinth/ exercise mat
- Tablet/ radio for music
- Heat packs

Patient positions:
- Sitting
- Lying supine

5 minutes warm- up:

1. Deep breathing exercises
2. **Education:**
   a. What is flexibility?
      Flexibility is the ability of your joints and body parts to execute their full range of motion. Flexibility is required in all your day-to-day activities such as bending, walking, lifting, etc. Being flexible allows your muscles to remain mobile. Flexibility however decreases with age and it is very important to include flexibility exercises in your daily workout regimen.
   b. What is range of motion? It is the full movement potential of a joint
   c. How can you improve your flexibility or range of motion? Stretching – active or passive, general movements – "use it or loose it"
   d. Secondary consequences of immobility: stiffness, pain, loss of range of movement, limited functional mobility.
   e. Explaining the benefits of relaxation and maintaining a strong mind for rehabilitation

40 minute group exercise:

Therapists are encouraged to use the session to provide passive PNF or other stretching techniques while other group members are doing their stretches

1. <u>Sitting</u>
   - Neck stretches: flexion, extension, lateral flexion and rotations to either side
   - Trunk lateral flexion and rotation to either side
   - Forward slump test- can added knee extension and ankle dorsiflexion

2. <u>Lying supine</u>
   - Knees to chest and rocking side to side
   - Knees to chest and dropping them to one side- keeping the opposite shoulder flat on the plinth



- Self-lower limb neural stretches- or assisted by physio. Increase neural stretch with neck flexion and ankle dorsiflexion



- Piriformis and gluteal stretch





3. Prone lying
   - "Cat and cow" stretches with emphasis on breathing



   - "Child's pose" stretch for the lower back



4. Standing
   - Hamstring and lower back stretch- touching toes
   - Reaching down for feet and rocking arms and trunk from side to side
   - Quadriceps stretch



- Gastrocnemius stretch



Meditation and relaxation

- Patients lying supine with eyes closed. Soft, meditation music can be played
- A small heat pack can be placed over the eyes or any tense muscles that the patients may have
- Deep breathing exercises: In through the nose and out through the mouth
- Getting to patient to focus on being in their favourite place i.e. the beach, and making them aware of all their senses: touch, smell, taste, hearing and sight.



OR

- Talk patient through relaxing their whole body **(refer to progressive muscle relaxation script)**



8. Falls prevention/ balance group

Equipment needed:
- Chairs
- Tablet/ radio for music

Patient positions:
- Sitting
- Standing
- Walking/ moving

5 minutes warm- up:

1. **Education:**

List factors that could result in a fall?

Ask patients to list a few examples
- Gait and balance disturbances
- Vision/hearing impairment
- Medication
- Age
- Environmental hazards
- Medications
- Cognitive impairment
- Medical conditions
- Inadequate diet/exercise
- Alcohol

What are the consequences of having a fall?

Ask patients to comment and to engage in any previous falls? How did they feel after a fall? Fractures,cuts,bruises,head injury
- Pain
- Loss of confidence
- Fear of falling
- General physical decline

How to reduce your risk of falling:
- Keep your body active and improve your balance
- Have your doctor or pharmacist review your medications
- Make your home safer environment
- Have your eyes checked by an optometrist once a year

Videos are available from MH&P's fall prevention program: please refer to the tablet for folder and links to videos.

2. **WARM UP:**
- Standing up and sitting (STS) stand several times. Can do a timed 5 times STS for each patient, so that they have a score to improve on for the next group.
- Performing a Timed up and Go as a warm- up exercise
- Standing with eyes open and closed

- If patients require help to stand- then get patients to perform a seated stretch (reach down to touch floor and then elevate arms above head) while waiting for therapist to get to them.



40 minutes main exercise group

- Refer to attached SAIL #1, #2 or #3 depending on the patients' current functional levels. A group may consist of a mixture of SAIL levels 1, 2 and 3.

  (Washington State Department of Health, 2006).

- For levels 2 and 3, you may include **chair to floor and vice versa transfers**, to improve confidence and skill for if a fall occurs at home.
- For level 2 and 3- the exercises may be performed with patients all standing around a raised plinth, so that they are all still working together and have the social facilitation during the group and have support in front of them from the raised plinth.

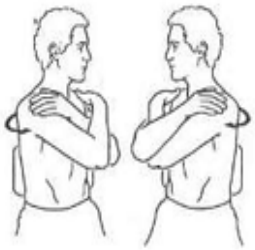
5 minutes cool- down:

1. Feedback from the group on what they enjoyed and found effective or ineffective
2. Tuck chin to chest and round back, then straighten up and look straight ahead



3. Circular movements of neck in sitting –clockwise and anticlockwise motion

4. Trunk rotations while engaging abdominals



3. Lateral side flexion

4. Forward flexion with rotations (touching toes)



9. Walking group

Equipment needed:
- Chairs
- Tablet/ radio for music

Patient positions:
- Standing
- Walking/ moving

5 minutes warm- up:

1. **Education:**

Benefits of walking (ask patients to let you know of any benefits):

- It improves circulation – increase blood flow, increase healing process
- Improves bone mass, strengthens joints and muscles
- Improves mood, breathing, sleeping
- Preventing falls
- Reducing the risk of developing cardiovascular disease, diabetes and cancer
- Assists in managing stress levels

2. **Exercises:**

- Sitting to standing. Can do a timed 5 times STS for each patient, so that they have a score to improve on for the next group.
- 2 Minute walk test (2MWT) – can be used as a warm- up and outcome measure
- Seated LSVT floor to ceiling exercises x5

40 minutes main exercise group

Mark out a 20 meter stretch in a straight passage for the group. Refer to table below- one and/ or all three aspects can be done in a group session.

Endurance	Speed	Dual tasking
1. 20m walking laps until patient needs a rest. • Patients to collect an elastic band after each lap covered. • At the end of session to count the number of elastic bands collected. 2. Outdoor endurance and strengthening:	1. Relay – One patient starts walking to the chair (placed at 20m, or closer if needed) and passes an object (weight) to the next patient seating on the chair. This patient will then continue walking the distance. • Record the time of entire relay and try to	1. Walking a set distance while carrying a tray with a cup of water on it. Progress to counting aloud while doing the above functional task. • Time it for each patient so that they can improve in the future group.

- Walking up and down the ramp outside the hospital. Progress by changing direction. - Lunges up and down the ramp.	improve time taken with all participants.	

5 minutes cool- down:

1. Marching on the spot



2. Lower limb stretching









3. Deep breathing exercises



10. Community re- integration group

Equipment needed:
- None

Patient positions:

- Walking/ moving

5 minutes warm- up:

Education:

Discuss what is community integration?
- In home/work/social environment

Discuss what difficulties/challenges would you find going into the community?
- Environmental hazards
- Social discrimination/Isolation
- Limited accessibility/resources
- Lack of information/education to assist others

Discuss what the specific group will entail.

40 minutes main exercise group

Do one/two of the options within the 7 day cycle- and coordinate with OT and ST to join the group session if necessary.
Please ensure that a community mobility consent form has been signed by each patient participating in the group (they only need to sign it once).

Task	Detail
Mall visit with a group of patients. Can combined with OT.	Buying groceries from the mall. Cognitive skills include: - Finding a recipe for a baking/ cooking session with OT - Making a shopping list during OT session - Mobilising outdoors to the mall: includes stairs, ascending and descending a big ramp and escalators - Finding and remembering their way within the mall - Finding the groceries and using money to make payment- includes communication with the cashier - Mobilising back to the hospital carrying the groceries - Perform a cooking/ baking session with OT at a later - stage
Coffee shop visit	Mobilising to the coffee shop (Motherland) down the road. Includes outdoor mobility and safety awareness: - Includes stairs, ramps and crossing the road to the coffee shop - Standing at the counter and ordering drinks/ food - Paying with cash at the till- includes communication with the cashier and with the other patients in the group

	- Mobilising back to the hospital - The more functional patients that can mobilise may assist with pushing a fellow patient in a wheelchair

5 Minutes cool- down:

1. Reflection on the session- what each participant enjoyed and didn't enjoy.
2. Ideas for future community re- integration groups from the participants.
3. Brief lower limb stretches if there is time available.

---

11. Obstacle course

Equipment needed:

- Step
- Cones/ weights
- Compliant mat
- Pegs and a piece of string

Patient positions:

- Walking/ moving

5 minutes warm- up:

- General upper and lower limb general stretches, as described at the beginning of the document.
- Demonstration by the therapist of the obstacle course.

40 minutes main exercise group

Various obstacles can be performed depending on the needs of the participants. Obstacles courses can be performed with two participants simultaneously, or each participant individually with a **time trial** component added.

Obstacle group focus	Obstacle group components
Balance, plyometrics and function	- Alternate lower limb stepping up and off a step. - Stepping up onto a step and lifting up weights once ontop of the step. - Mobilising in-between cones/ objects placed in a straight line on the floor - Standing with feet together on compliant surface. Can be progressed to performing a bilateral upper limb activity such as lifting an object above shoulder height OR an functional upper limb task i.e. placing pegs on a line above shoulder height. - Jumping up onto and backwards off a compliant surface - Hopping sideways with feet together to either side of a line while moving forwards. Can be progressed to one legged hopping.
Strength, balance and dual tasking	- Squats on a compliant surface. Can be progressed to single leg squats. - Lunge walks. Can be progressed to holding weights while doing lunge walks. - Jumping burpees. - Walking on a compliant beam while performing another task i.e. carrying a cup of water, holding a ball. - Walking while bouncing a ball. Can be made more difficult by adding in a counting component while doing this task.

5 Minutes cool- down:

1. Reflection on the session- which components each participant enjoyed or didn't enjoy.
2. General upper and lower limb stretches as at the beginning of the group therapy document
3. Deep breathing exercises.

---

12. Circuit group

Equipment needed:

- Step
- Cones/ weights
- Compliant mat
- Pegs and a piece of string

Patient positions:

- Walking/ moving

5 minutes warm- up:

1. **Education:**

What is a circuit group therapy and what is the purpose of it?

It is the provision of activity and functional based rehabilitation in a group setting to people that have suffered a stroke. The key component of circuit class therapy is repetitive task practice, with participants rotating between different stations and the tasks being progressed according to each person's needs (English and Hillier, 2011).

2. **Warm- up exercises:**
   - Neck and trunk stretches in standing
   - Sitting to standing re- training
   - Marching on the spot

40 minutes main exercise group

Circuit group therapy can be done with participants with varying levels of function and independence. Participants requiring assistance can be supervised by the therapist.

Depending on the number of participants in the group, it can be divided as 8 separate tasks with each participant at each task for 5 minutes OR 4 separate tasks with each participant at each task for 10 minutes.

Tasks included in the circuit group should aim at all components of recover i.e. upper and lower limb strengthening, core training, endurance, balance, functional re- training, walking etc.

Tasks that may be included as part of the circuit group:

1. Upper limb strengthening: Wall push- ups or theraband/ weights strengthening
2. Lower limb strengthening: Squats or lunges
3. Core strengthening: Varying levels of planks in prone
4. Endurance: Star jumps or burpees or alternate stepping up and down a step
5. Balance: Tandem walking on a straight line or single leg standing
6. Functional re- training: Hanging pegs on a piece of string above shoulder height

7. Functional re- training (2nd station): Making a cup of tea at a table in 5 minutes or folding clothes.
8. Walking: Walking drills- walking along a corridor and changing direction i.e. forwards, backwards and sideways to either side.

Tasks can be adapted according to the needs of the group, but the circuit group should still target each component of recovery.

5 Minutes cool- down:

4. Reflection on the session- which components each participant enjoyed or didn't enjoy.
5. General upper and lower limb stretches as at the beginning of the group therapy document.
6. Deep breathing exercises.

13. Sport group

Equipment needed (depending on the sport being done):

- Balloons
- Soccer ball
- Hockey sticks made from newpaper
- Bowls balls

Patient positions:

- Walking/ moving
- Sitting

5 minutes warm- up:

1. Warm up exercises:
- Neck and trunk stretches in standing
- Sitting to standing re- training
- Marching on the spot

2. Ask participants what sports they have played before or enjoy watching.

3. Explanation from the therapist on the sport group and the rules.

40 minutes main exercise group

Usually works best with splitting all participants into two groups to play against each other. The sports group can be run with an OT.

Grade the sport activity – if too easy to be done in standing (floor or standing on airex to make it more challenging):

- Playing soccer
- Bowls- using mats to roll the balls on
- Balloon volley ball
- Ten pin bowling
- Putt Putt
- Hockey- using newspaper sticks (found in cognitive gym)
- Dance Routine- all participants standing/ sitting in a circle. First person gives a dance move and each person adds on to it as they go around the circle (great for memory as well).

5 Minutes cool- down:

1. Reflection on the session- which components each participant enjoyed or didn't enjoy.
2. General upper and lower limb stretches as at the beginning of the group therapy document.
3. Deep breathing exercises.

APPENDIX II: PATIENT INFORMATION SHEET



STUDY INFORMATION SHEET

Study title: Patients' experiences of group therapy during inpatient stroke rehabilitation

Good day. This is an information document regarding the research study by Kerrie Hoff, taking place at private stroke rehabilitation units in Johannesburg. This document will provide all the information to you regarding the research taking place.

Introduction:

I, Kerrie Hoff, am doing research on group therapy during inpatient stroke rehabilitation. I would like to find out your experiences of group therapy and your satisfaction with participating in group therapy as part of rehabilitation.

Research is a process used in seeking new knowledge. In this study we want to learn more about how individuals that have had a stroke, and are participating in inpatient rehabilitation, feel about group therapy during rehabilitation. This study is being done to gain further knowledge from a patient's perspective on group therapy in the stroke inpatient rehabilitation setting, so that this treatment modality can be used as part of rehabilitation in the future.

Invitation to Participate: I am asking you to take part and volunteer to participate in this research study either while you are attending inpatient rehabilitation at a private rehabilitation unit, or have been discharged home, in which case the interview will take place telephonically.

What is involved in the study:

1. This study is a content qualitative study and would involve you answering several questions in an interview conducted by the researcher, Kerrie Hoff, in a private room. The interviews will be audio recorded, so that they can be accurately interpreted and analysed after the interview by the researcher.
2. There has been research done into the benefits of group therapy during rehabilitation, and I would like to gain further insight into how the patients that are participating in the group therapy feel about being involved in therapy in a group setting.
3. This study will be carried out at the private rehabilitation facility, while you are an inpatient at the facility and participating in rehabilitation, or will be done telephonically if you have been discharged home. The interview will take a maximum of one hour to complete.
4. The types of questions that will be asked will be open ended and are designed to gauge your feelings and experiences of group therapy.

Risks of being involved in the study: There are no risks to participating in this study. It is a study that is designed to obtain your feeling and perspectives from the point of view of a patient participating in rehabilitation.

Benefits of being in the study: There will be no direct benefit for you in participating in this study, but the study will allow for future changes to be made in relation to group therapy during inpatient rehabilitation. It will allow for effective treatment modalities, such as group therapy, to be included as part of rehabilitation in a way that is beneficial and enjoyable for individuals in rehabilitation post stroke.

You, as the participant of the study, will be given pertinent information regarding the study while involved in the study and after the results are available**.**

Participation is voluntary: Refusal to participate in this study will involve no penalty or loss of benefits during rehabilitation. You may choose to withdraw from the study at any time and you do not need to provide a reason for withdrawing. If you withdraw from the study, all data collected from you will in default be destroyed, unless you specifically consent to its

retention. There will be no payment or added cost associated for your participation in the study.

Confidentiality: Personal information will be treated in the strictest confidence and will only be available to the Principal Investigator (PI) and her supervisor, in this case wherein the PI is a postgraduate student. The only exceptions - and all of them are rare - would normally be:

1. Personal information may be disclosed if required by law
2. The Human Research Ethics Committees of the University may exceptionally require personal data to respond to a formal complaint, or for a compliance audit
3. The South African Health Products Regulatory Authority (SAHPRA), which is the successor body to the South African Medicines Control Council (SAMCC), might conceivably require access to personal data, if conducting an investigation into a drug trial

If results are published, this may, exceptionally, lead to cohort, or more rarely, individual identification. All data collected in the course of the study will be securely retained for two (2) years, if a scientific publication arises from the study and six (6) years, if there is no publication. Thereafter it will be destroyed accordingly.

Anonymity: All responses during the interview will remain anonymous. Any written responses and the audio recorded copies of the interview will be anonymous.

Outputs: The output of the study is to be able to use group therapy as part of stroke rehabilitation where it is seen to be as beneficial as individual therapy and has adequate benefits and patient satisfaction as determined from the patients' perspective. The results of the study will be made available to you via email, whereby the researcher will email you the results once they become available.

Contact details of researcher and supervisor:

Should you require further information or have any questions regarding the study, please do not hesitate to contact:

Kerrie Hoff
Principal Researcher
Cellphone number: 072 202 5458
Email at khoff026@gmail.com

Contact details of Human Research Ethics Committee (HREC) administrator and chair:

For reporting of complaints / problems while participating in the study.

This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg ("Committee"). A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to participate in a research project and the integrity of the research.

If you have any concerns over the way the study is being conducted and if there are any complaints that you would like to bring forward, then please contact:

Professor Clement Penny
Chairperson of the Ethics Committee
Telephone number: 011 717 2301, or by e-mail on Clement.Penny@wits.ac.za.

You can also direct complaints to the Committee secretariat telephonically on 011 717 2700/1234 or via e-mail at Zanele.Ndlovu@wits.ac.za and Rhulani.Mukansi@wits.ac.za.

Thank you for reading this Study Information Sheet.

20180329

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APPENDIX III: PATIENT CONSENT FORM

WITS UNIVERSITY

PATIENT CONSENT SHEET

***Study title*: Patients' experiences of group therapy during inpatient stroke rehabilitation**

1. I have been given a Study Information Sheet which explains the nature and processes involved in this study, which is attached hereto;
2. I was given time to read it, or had it read to me, in the language I best understand;
3. I was given time to ask any questions I wanted to and found any answers given to me to be reasonable and satisfactory;
4. I believe I fully understand why the study is being conducted and what the intended outcomes will be;
5. I understand that there will be no immediate benefit to me, should I agree to participate, nor will I receive any payment; conversely, participation will not cost me anything but my time;
6. I understand that, even if I initially consent to take part in the study, I may subsequently withdraw at any time and would not be required to give any reasons; if that happens, any data collected about me for the purposes of the study would immediately be destroyed, unless I give consent for it to be retained;
7. I understand that a family member might need to be brought in to assist me with answering the questions during the study as a result of communication difficulties due to the nature of my stroke. If a family member's presence is needed, then I will identify/ recommend the family member and give my consent for them to be present in the interview.
8. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study I am free to speak to any of these contacts.

Contact details:

Please direct any queries to:
Kerrie Hoff
Principal Researcher
Cellphone number: 072 202 5458
Email at khoff026@gmail.com

Please direct any concerns or complaints to:
Professor CB Penny
Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand
Telephone number: 011 717 2301

E-mail at Clement.Penny@wits.ac.za

Ms. Z Ndlovu or Mr Rhulani Mkansi
Committee Secretariat
Telephone numbers: 011 717 2700 or 1234
E-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Date: _____

Place: _____

Signature: _____

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APPENDIX IV: AUDIO CONSENT FORM



CONSENT FORM FOR AUDIO RECORDING OF STUDY PARTICIPATION

***Study title*: Patients' experiences of group therapy during inpatient stroke rehabilitation**

I hereby consent to audio recording of the interview that will be conducted during the study.
.
I understand that:

- The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher, Kerrie Hoff.
- The recording will be transcribed and any information that could identify me will be removed,
- The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg
- Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

Name of Participant: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Date: _____

Place: _____

Signature: _____

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APPENDIX V: PATIENT DEMOGRAPHIC DATA SHEET



Demographic data to be collected for each participant in the study upon admission to private inpatient rehabilitation.

Participant code:

Age:

Gender:

Date of stroke:

Side of lesion:

Communication/ language difficulties as a result of the stroke:

Date of admission to private inpatient stroke rehabilitation unit:

Predicted length of stay in rehabilitation:

Participating in group therapy during rehabilitation:

Frequency of group therapy:

Participating in individual therapy during rehabilitation:

Frequency of individual therapy:

APPENDIX VI: PATIENT CONTACT DETAIL SHEET



Participant contact details
(Viewed only by the researcher)

Name of participant:

_____

Participant code:

_____

Contact number:

_____

Email address:

_____

Name of spouse/ immediate family member:

_____

Contact details of family:

_____

APPENDIX VII: INTERVIEW SCHEDULE

1. Did you enjoy participating in group therapy during your inpatient rehabilitation?

2. Do you feel that group therapy has been beneficial for you when you were in rehabilitation post stroke? Please elaborate on this.

3. Did group therapy have an effect on your emotions? Please elaborate.

4. Describe your feelings surrounding the social interactions that were involved with group therapy.

5. Which groups did you like or dislike during rehabilitation? Please elaborate with reasons as to why you liked or disliked certain groups.

6. Did you prefer having just individual therapy, or would you have continued with receiving combined group and individual therapy? Please elaborate.

7. Name some positive and negative experiences you had while participating in group therapy.

8. Have you been satisfied with group therapy during your stroke rehabilitation? Is there anything that you feel could be improved on in group therapy?

APPENDIX VIII: WITS ETHICS CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R14/49 Miss Kerrie Lisa Hoff

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M190661

NAME: (Principal Investigator)	Miss Kerrie Lisa Hoff
DEPARTMENT:	Physiotherapy Netcare Rosebank Clinic
PROJECT TITLE:	Patients' experiences and perceived benefits of group therapy during inpatient stroke rehabilitation
DATE CONSIDERED:	28/06/2019
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Mrs Nicolette Comley- White
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	09/09/2019

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in June and will therefore be due in the month of June each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX IX: WITS ETHICS CLEARANCE CERTIFICATE ALLOWING FOR TELEPHONIC INTERVIEWS, INCLUDING OTHER PRIVATE REHABILITATION FACILITIES

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

2020/07/24

Ms KL Hoff
School of Therapeutic Sciences
Department of Physiotherapy
Medical School
University

Sent by e-mail to: khoff026@gmail.com

Dear Ms Hoff

Re: **Protocol Ref No: M190661**
Protocol Title: *Patients' experiences and perceived benefits of group therapy during inpatient stroke rehabilitation*
Principal Investigator: Ms KL Hoff

Thank you for your e-mail of 2020/06/29.

I confirm that your request to interview former patients of Rosebank Clinic and Intercare Sandton, in person or by telephone, has been noted and approved.

Thank you for keeping us informed.

Yours Sincerely

.....
Mr I Burns
For the Human Research Ethics Committee (Medical)

.....
Dr CB Penny, Chairperson, Human Research Ethics Committee (Medical)

cc: Ms N Comley-White

APPENDIX X: LETTERS OF PERMISSION FROM PRIVATE REHABILITATION FACILITIES

RESEARCH OPERATIONS COMMITTEE FINAL APPROVAL OF RESEARCH

Approval number: UNIV-2019-0042

Ms Kerrie Hoff

E mail: khoff026@gmail.com

Dear Ms Hoff

RE: PATIENTS' EXPERIENCES AND PERCEIVED BENEFITS OF GROUP THERAPY DURING INPATIENT STROKE REHABILITATION

The above-mentioned research was reviewed by the Research Operations Committee's delegated members and it is with pleasure that we inform you that your application to conduct this research at private Hospital, has been approved, subject to the following:

i) Research may now commence with this FINAL APPROVAL from the Committee.

ii) All information regarding the Company will be treated as legally privileged and confidential.

iii) The Company's name will not be mentioned without written consent from the Committee.

iv) All legal requirements regarding patient / participant's rights and confidentiality will be complied with.

v) All data extracted may only be used in an anonymised, aggregated format and for the purposes of this specific study as specified in the proposal. The data may under no circumstances be used for any other purpose whatsoever.

vi) The research will be conducted in compliance with the GUIDELINES FOR GOOD CLINICAL PRACTICE IN HUMAN PARTICIPANTS IN SOUTH AFRICA (2016).

vii) The Company must be furnished with a STATUS REPORT on the progress of the study at least annually on 30th September irrespective of the date of approval from the Committee as well as a FINAL REPORT with reference to intention to publish and probable journals for publication, on completion of the study.



RITA HENN & PARTNERS INC REHAB

Tel: +27(0)11 489 1226 Fax: 086 545 5557 info@rhprehab.co.za

HEAD OFFICE:
Netcare Rehabilitation Hospital, 2 Bunting Road, Auckland Park, 2006.
PostNet Suite 224, Private bag X 9, Melville, Johannesburg, 2109

Reg.no. 2003/024744/21 Vat no.4040209365

17 August 2020

To Whom it May Concern

This letter serves to confirm that Kerri Hoff has been granted permission to conduct Research Accessing records from discharged clients from RH&P Auckland park facility for her MSc degree at the University of the Witwatersrand in 2020. She has been given permission to access patient records to source potential research subjects from our discharged patient record. This sourcing may not in any way interfere with patient therapy and in therapist's time in sourcing the information. Further all subjects must sign consent where no liability is held by RHP for the researcher or the subject while conducting the study. Please do not hesitate to contact us for further information.

Yours Truly,

Megan Knox PhD (Wits) Physiotherapy
Clinical Director, RHP Inc

.

Directors of Rita Henn & Partners Inc
Rita Henn • Megan Knox

APPENDIX XI: Turnitin plagiarism report

Research report

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Patients' experiences of group therapy during inpatient stroke rehabilitation

Kerrie Lisa Hoff

Student number: 457791

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APPENDIX XII: Report from MAXQDA for summary of the codes

Code	Coded segments	Summary
Emotional impact from group therapy	especially in rehab when it is quite important to watch the emotion side and the psychological effect as well. Interview 12: 35 - 35 (0)	Boosts energy levels and it is important to maintain emotional and pscyhological well- being.
	When you get someone, who is lively and bubbly and laughs at something it certainly gives you sort of a spurt and to also feel more upbeat, and being more upbeat generally which is certainly healing in itself Interview 12: 41 - 41 (0)	
	you start questioning and put in place some gratitude list or some gratitude thoughts or visualisation. So I think that each personality brings out another aspect Interview 12: 41 - 41 (0)	
	I do really think that if you have been feeling down and just lying in bed and you come back from a group therapy session, and as I said, just that unity and collective energy- that in itself is boosting. So I definitely think that a group adds to that feeling on the emotional level Interview 12: 49 - 49 (0)	
	Any bit of physical activity is boosting Interview 12: 51 - 51 (0)	
	On the group side, when you are with the people there, I managed	Groups helped to curb my emotions so that I wasn't always

to keep in the tears and that type of thing but definitely I felt a lot better in the groups. My emotions were curbed as such. Interview 10: 43 - 43 (0)	crying and emotional around others.
The biggest thing to me was doing it with other people. Interview 10: 49 - 49 (0)	
If I felt down, I didn't do therapy. Interview 9: 29 - 29 (0)	Gives a feeling of fear and uncertainty as you hear more about strokes, that you didn't know before.
I think it makes you scared because it makes you realise that there are lots of different strokes you can have. I didn't know anything about a stroke before I came to rehab. Interview 9: 111 - 111 (0)	
I thought I was alone but I wasn't because I had people with me Interview 7: 68 - 68 (0)	Helped with not feeling alone, especially while dealing with having had a stroke. Good to be surrounded by people going through the same thing as you.
Initially I was afraid, but I saw people doing things and then that made me confident Interview 7: 70 - 70 (0)	Boosts one's confidence when you see someone doing something- then you feel like you can also do that activitiy.
It helped my mood a lot Interview 7: 84 - 84 (0)	Helps to stabilise your moods on a daily basis.
At first I wasn't quite happy with my group therapy because I felt like it was too hard but as time went by it became easier so I became more motivated Interview 5: 156 - 156 (0)	Groups are a good motivating factor during rehab, particularly as you do them more and become more familiar with the group process.

	I could speak to my fellow patients about the way I was feeling at the moment and they motivated me to continue Interview 5: 166 - 166 (0)	
	I had my down days , but group therapy would pick me up Interview 3: 23 - 23 (0)	Helps to pick up and improve your mood on those days when you feel down and don't feel like seeing people.
	The groups would come on and when you get in the group you completely forget how you were feeling and it changes your mood from feeling down to feeling uplifted and inspired Interview 3: 29 - 29 (0)	Lifts your mood up when you are surrounded by others in a group and inspires you to keep going.
Improvements	some of the questions are so random that I actually think to myself that to hear the conversation from somebody else, there is just no specific input or adds value in my situation Interview 12: 57 - 57 (0)	Speech therapy- questions and discussions did not feel relevant to me and I wasn't interested in hearing what other people had to say on the specific topic.
	Sometimes the therapists put music on, and the last few days the music has been nice, but then someone said that the speaker is being charged and then the music is actually almost diminished in quality and so noisy and tinny Interview 12: 121 - 121 (0)	Music quality needs to be monitored, as it is nice to have music in a group, but the music needs to be good quality.
	I'm fairly impartial to music, you know, whatever it is. But when it is tinny and noisy, it is more disturbing Interview 12: 123 - 123 (0)	
	people constantly interrupt in the groups Interview 11: 55 - 55 (0)	

everyone should get a chance to chat and people mustn't go on about stuff that is irrelevant

Interview 11: 55 - 55 (0)

People talking about different things, and talking past the point and not interacting. Groups like that I felt were a waste of time

Interview 11: 57 - 57 (0)

cellphone and it rang all the time in the group

Interview 11: 79 - 79 (0)

disturbing us

Interview 11: 79 - 79 (0)

There should be some rules in the groups

Interview 11: 79 - 79 (0)

helps to have someone who is a little higher or lower than you, just seeing people improve makes a huge difference

Interview 11: 79 - 79 (0)

just the rules to keep the groups a manageable size, as some activities need a lot more people, then the other activities get neglected

Interview 11: 79 - 79 (0)

I only really got to use the pool with the group towards the end. And I wish I'd done more of that

Interview 10: 71 - 71 (0)

later in the morning

Interview 10: 79 - 79 (0)

May I mention that the group therapy got assistants, the physios are correcting the assistants to show the patients what to do that is also why the groups are not as beneficial

Interview 8: 90 - 90 (0)

have more interesting topics in the speech therapy groups

Interview 8: 106 - 106 (0)

I thought the people in the group didn't always know how to share ideas in the group, they were selfish

Interview 7: 156 - 156 (0)

I would like if you got a chance to tell army stories, because I've got interesting stories from the army that I would tell

Interview 6: 187 - 187 (0)

I felt the therapists could have done more in the physio groups.

Interview 6: 193 - 193 (0)

could have been pushed more in the physio groups

Interview 6: 200 - 200 (0)

play music which would uplift peoples' spirits and take the focus off a lot of things and I think that should be a key point to adding group sessions
Interview 3: 25 - 25 (0)

I think somehow I think look at another way of encouraging people to participate in the group session. There's a lot of people who wants to be a part of the group session, and because the other didn't want to come then the cancelled the group session
Interview 3: 69 - 69 (0)

Also the timing of when they have the group session in the day should be looked at. There was never a consistency in the timing of the groups
Interview 3: 69 - 69 (0)

focus on the individual therapy first and then later in the day do the group sessions.
Interview 3: 69 - 69 (0)

using props in groups, things that are colourful and entertaining. That would make a lot of difference. Also, most people are not able to go outside, see the garden etc. that also helps if you could have group session outside
Interview 3: 75 - 75 (0)

the news to know what's going on. If that is playing in the background in a group session it helps everyone to be apart of the world and know what is going on and happening outside
Interview 3: 79 - 79 (0)

physio would be better in the afternoon, I enjoyed that more in the afternoon
Interview 2: 171 - 171 (0)

	it's nicer to do the intense stuff in the morning and afternoon the more light hearted and less intense things Interview 2: 178 - 178 (0) runners to bring the people to you from the ward Interview 2: 187 - 187 (0)	
	I feel the groups are better with 3-4 people rather than 6 or 7 Interview 1: 83 - 83 (0) one therapist and 7 of us, and you can't do that because there is only one therapist. This is very limiting Interview 1: 85 - 85 (0)	
Positives and negatives of group therapy	I find anything when there is a collective energy, it always seems to be that much more powerful Interview 12: 9 - 9 (0) It spurs one on to try that much harder. Interview 12: 9 - 9 (0) You have an innate challenge to yourself but also the person standing next to you Interview 12: 9 - 9 (0) the therapist will watch and direct one, so it certainly is a safe environment Interview 12: 11 - 11 (0) 4-5 people. It's good enough to almost give the individual attention, so it is good as compared to an enormous group where it wouldn't be as beneficial. 4-5 seems to be a nice balance	

Interview 12: 23 - 23 (0)

with fewer numbers you still have the group participant and the liveliness of the group and you still have the therapist zoning in on your own weakness

Interview 12: 23 - 23 (0)

being in a smaller crowd, even if you are doing it incorrectly or out of balance the therapist can still pick that up and correct you without disturbing the whole vibe of a group

Interview 12: 25 - 25 (0)

Definitely the safety factor hasn't worried me at all as we are not a bigger number and the therapist assesses the capacity that we all have, and will monitor and tell one individual not to overdo it and to only do perhaps half the strength or resistance of the particular exercise

Interview 12: 29 - 29 (0)

So you get comfort from other people, to be able to do slightly better and to encourage you to try that much more. Or if you are managing then it might boost one as well. So it works both ways

Interview 12: 35 - 35 (0)

on the physical level of a bit more serotonin or just jumping around but I think it definitely must boost one.

Interview 12: 47 - 47 (0)

I don’t get bored because it is challenging to get my fitness up, so I find I don’t get bored

Interview 12: 75 - 75 (0)

healthy competition

Interview 12: 91 - 91 (0)

having such fun and not realising that we were working

Interview 12: 91 - 91 (0)

It was nice that you basically interact a lot more with the patients and you also saw what different people could or couldn’t do

Interview 11: 27 - 27 (0)

it gave you a nice overall insight of what is going on with everyone else and you could gauge yourself accordingly

Interview 11: 27 - 27 (0)

even though you are each doing your own activity, you can encourage each other which I think makes a big difference. And you are sharing the pain together.

Interview 11: 27 - 27 (0)

It helped increase the number of sessions that you could get there

Interview 11: 27 - 27 (0)

increase the amount of sessions you have. Especially in physio it made a big difference

Interview 11: 31 - 31 (0)

there are just some activities you just can't do in all the groups that other people can do

Interview 11: 35 - 35 (0)

Some activities are short- like 6 minute stations- and those worked nicely

Interview 11: 37 - 37 (0)

similar levels which makes a huge difference as well

Interview 11: 37 - 37 (0)

they tried very hard to match the groups, so I think most of us were well grouped so I think that made a big difference

Interview 11: 39 - 39 (0)

groups are nicely sized I thought as well. There were four and occasionally five people

Interview 11: 41 - 41 (0)

4-5 is the maximum it should go.

Interview 11: 43 - 43 (0)

physio with assistants as well in the groups, which made a big

difference, so they could keep an eye on everyone

Interview 11: 43 - 43 (0)

knew what your shortfalls were

Interview 11: 45 - 45 (0)

when you were doing an activity they knew that your balance wasn't great or you had a higher chance of falling, they were there with you

Interview 11: 45 - 45 (0)

overall from a falling point of view, you were well protected. So I never felt unsafe

Interview 11: 45 - 45 (0)

times with group therapy when you look at people doing an activity and think you're better off than they are or they are better off than you. I found it more encouraging

Interview 11: 55 - 55 (0)

tough initially.

Interview 11: 57 - 57 (0)

very useful as people have different ideas and different tricks and you can also see how different people cheat to do what they need to

Interview 11: 57 - 57 (0)

Initially it was tough, but you could see what people were doing and trying

Interview 11: 57 - 57 (0)

Even the speech therapy groups, some were fine and some I thought I don't need this

Interview 11: 57 - 57 (0)

you have groups with different physios and they have different ideas

Interview 11: 59 - 59 (0)

open plan thing that they have in the unit, is nice. Different people gave the ideas in the groups, or they watch you and if you don't do it properly and they actually show you how it should look and correct you

Interview 11: 59 - 59 (0)

When they were trying to move you up a level in the group, they discussed it. And they discussed how you were performing in the group. They had that mixture which made a huge difference as well

Interview 11: 61 - 61 (0)

If you don't have enough staff, people are sick especially during Covid. I think during this time, group therapy will make things a lot easier. If there are staff shortages you can actually put groups together and get therapy going

Interview 11: 69 - 69 (0)

The fact that they pushed you made a big difference

Interview 11: 77 - 77 (0)

overall I thought it was very positive and the benefits were the good social interactions that we all had

Interview 11: 79 - 79 (0)

I think the session just before lunch is the hardest and the session before everyone is leaving, like 3-4pm. Then you are tired and everyone is cranky.

Interview 11: 85 - 85 (0)

pool made a difference in terms of the weightlessness. I could do things so much better and get balance

Interview 11: 89 - 89 (0)

Being outside on the grass was really nice

Interview 11: 91 - 91 (0)

APPENDIX XIII: Code Book

Color	Document name	Code	Beginning	End	Segment
●	Code 1 typed interview	Group preferences	9	9	I didn't enjoy the speech.
●	Code 1 typed interview	Quotes	11	11	I was in a group where I just got impatient actually, let me just be honest. One day we played scrabble and it took 20 minutes to make four words as the other people were more damaged in terms of their language and sequencing than I am.
●	Code 1 typed interview	Group preferences	21	21	I love it when we do exercises actually. I like exercises better than games
●	Code 1 typed interview	Individual vs group therapy	25	25	I'd say 60%. Not 100%.
●	Code 1 typed interview	Social interactions	31	31	I am happy that I have formed bonds with other patients
●	Code 1 typed interview	Quotes	31	31	I have enjoyed the relationship side of it
●	Code 1 typed interview	Social interactions	34	34	I am very interested in people, and I like meeting different kinds of people that I probably wouldn't have met in any other situation, you know
●	Code 1 typed interview	Social interactions	36	36	I think it is a big motivator when you see other people, when they came in and how they improve
●	Code 1 typed interview	Positives and negatives of group therapy	42	42	they are quite competitive (laughing). So it pushes you and encourages each other, which I love
●	Code 1 typed interview	Positives and negatives of group therapy	36	36	I think that is a big positive to see other patients improving
●	Code 1 typed interview	Quotes	36	36	I think that is a big positive to see other patients improving.
●	Code 1 typed interview	Positives and negatives of group therapy	44	44	competition can be a good and bad thing. I am not a very competitive person,
●	Code 1 typed interview	Group preferences	49	49	relaxation group

●	Code 1 typed interview	Group preferences	49	49	dancing
●	Code 1 typed interview	Group preferences	49	49	anything where I stand
●	Code 1 typed interview	Group preferences	51	51	I like the groups that push you a bit
●	Code 1 typed interview	Group preferences	57	57	standing and doing a game at the same time
●	Code 1 typed interview	Positives and negatives of group therapy	61	61	chatter that occurs between patients
●	Code 1 typed interview	Positives and negatives of group therapy	62	62	speech groups
●	Code 1 typed interview	Positives and negatives of group therapy	63	63	People getting irrationally angry in groups
●	Code 1 typed interview	Positives and negatives of group therapy	69	69	nausea and the discombobulation that I feel when I feel there are too many people in the gym
●	Code 1 typed interview	Individual vs group therapy	79	79	I am satisfied with about 60% of the groups
●	Code 1 typed interview	Improvements	83	83	I feel the groups are better with 3- 4 people rather than 6 or 7
●	Code 1 typed interview	Improvements	85	85	one therapist and 7 of us, and you can't do that because there is only one therapist. This is very limiting
●	Code 1 typed interview	Positives and negatives of group therapy	85	85	one therapist and 7 of us, and you can't do that because there is only one therapist. This is very limiting
●	Code 1 typed interview	Individual vs group therapy	91	91	I prefer the individual by far because I feel it gets me further
●	Code 2 interview	Social interactions	11	11	It was nice mingling with other people and seeing how other people with the same problem as you are doing. It gave you encouragement to not say that I can't, but to do it
●	Code 2 interview	Quotes	11	11	It gave you encouragement to not say that I can't, but to do it

●	Code 2 interview	Social interactions	15	15	I met a lot of new people
●	Code 2 interview	Social interactions	19	19	I have met and seen a few of them at outpatient therapy, and I have also met new people at outpatient therapy.
●	Code 2 interview	Social interactions	21	21	Just chatting to them gives you the encouragement
●	Code 2 interview	Positives and negatives of group therapy	21	21	Just chatting to them gives you the encouragement
●	Code 2 interview	Group preferences	27	27	I especially enjoyed playing games and things like that
●	Code 2 interview	Quotes	27	27	It was a break from all the exercising and that type of thing. It was nice to have a difference in therapy.
●	Code 2 interview	Group preferences	29	29	indoor hockey, bowling and balloon volleyball
●	Code 2 interview	Social interactions	33	33	the interaction and the comradery between everybody. The teamwork all formed a unity
●	Code 2 interview	Positives and negatives of group therapy	33	33	the interaction and the comradery between everybody. The teamwork all formed a unity
●	Code 2 interview	Group preferences	39	39	baking in OT
●	Code 2 interview	Group preferences	41	41	board games in speech
●	Code 2 interview	Positives and negatives of group therapy	55	55	push me with the competitiveness and brought out the best in me I suppose
●	Code 2 interview	Group preferences	57	57	There wasn't any groups I could say that I didn't want to go to
●	Code 2 interview	Positives and negatives of group therapy	63	63	Yes I felt safe. There was always one or two therapists around or something to grab onto
●	Code 2 interview	Positives and negatives of group therapy	71	71	You see other people doing it, and you think if they can do it then you can do it too. It builds up your confidence
●	Code 2 interview	Quotes	71	71	You see other people doing it, and you think if they can do it then you can do it too. It builds up your confidence

●	Code 2 interview	Social interactions	85	85	you are with other people, and you and talk and laugh about it. Breaks the monotony of being on your own and serious all the time. Brings lightness into the whole thing
●	Code 2 interview	Quotes	85	85	Breaks the monotony of being on your own and serious all the time
●	Code 2 interview	Social interactions	95	95	I don't like negative people, but I accept that not everyone can be positive. But I didn't let that worry me
●	Code 2 interview	Positives and negatives of group therapy	105	105	there are awful things there to see, and yet people got on with it and this gave you the encouragement. If they can do it with what they have.
●	Code 2 interview	Positives and negatives of group therapy	109	109	always laughing and happy to be around- well that's the impression you gave and that made it enjoyable. And you always encouraged people so much, it's really great.
●	Code 2 interview	Positives and negatives of group therapy	121	121	Distraction can be hard, especially when I was balancing
●	Code 2 interview	Positives and negatives of group therapy	133	133	near the end of rehab there was a lot of changing of the daily schedules, and I didn't know where we were going
●	Code 2 interview	Quotes	145	145	I think when you're doing something fun, you forget how tired or sore you are
●	Code 2 interview	Individual vs group therapy	149	149	I enjoyed both. I mean, I enjoyed the individual in the fact that you got to know all the therapists. And everyone had something different to give. Every time I had a different therapist they brought something new to the table for me to do, and that was great. Where as in a group, you don't do anything new like that

	Code 2 interview	Individual vs group therapy	153	153	I think it is good to have both. I really do. That's why I say, it's just meeting and seeing the others and seeing where they're at, it helps you. And the individual it helps that you have that one on one contact, it's good, you need that.
	Code 2 interview	Improvements	171	171	physio would be better in the afternoon, I enjoyed that more in the afternoon
	Code 2 interview	Individual vs group therapy	174	174	group in the afternoon would be less intense than what an individual session would be in the afternoon
	Code 2 interview	Improvements	178	178	it's nicer to do the intense stuff in the morning and afternoon the more light hearted and less intense things
	Code 2 interview	Improvements	187	187	runners to bring the people to you from the ward
	Code 2 interview	Quotes	201	201	You know anything that is not monotonous, is enjoyable
	Code 2 interview	Group preferences	201	201	You know anything that is not monotonous, is enjoyable
	Code 3	Social interactions	19	19	I had a room of elderly ladies- and I would think why am I with all those older people? And in the end I realised you know that it was actually a blessing as I could see how they are and how they coped
	Code 3	Emotional impact from group therapy	23	23	I had my down days , but group therapy would pick me up

●	Code 3	Social interactions	23	23	Just being there and watching them, you learn a lot from each other. And for me this helped a lot, you're not in your own world and become cooped up all about you and think it is only you going through this. You get to see other people and get to learn about their experiences, even if they don't share immediately in the group, you can approach them and ask them what happened. Everyone is open enough to share and want to tell you what happened to them. It is very healing when they share the information. I made friends there
●	Code 3	Quotes	23	23	you're not in your own world and become cooped up all about you and think it is only you going through this
●	Code 3	Positives and negatives of group therapy	23	23	You get to see other people and get to learn about their experiences
●	Code 3	Social interactions	23	23	more reason to push yourself more when you hear the others stories
●	Code 3	Improvements	25	25	play music which would uplift peoples' spirits and take the focus off a lot of things and I think that should be a key point to adding group sessions
●	Code 3	Positives and negatives of group therapy	25	25	music which would uplift peoples' spirits and take the focus off a lot of things
●	Code 3	Quotes	25	25	music which would uplift peoples' spirits and take the focus off a lot of things
●	Code 3	Individual vs group therapy	25	25	the therapists gives you the specific attention or individual input even though there is a group session going on. But they somehow give you that individual attention, and that's what I liked also

●	Code 3	Social interactions	27	27	I was honoured to do that, maybe I overshared but I wanted him to know what was happening and what he would go through. I think this is important as you come into the place and don't know anybody, and you want it to feel like home for the next weeks/ months
●	Code 3	Positives and negatives of group therapy	27	27	therapists were great and made everyone comfortable and helped them according to their needs
●	Code 3	Quotes	27	27	The group sessions for me were vital in this whole process/ recovery. Some days people didn't want to get up and go for these sessions but in the long run it made such a big difference and people realised it's good, even if you didn't do the exercises, being with the people in the group made a difference.
●	Code 3	Social interactions	27	27	The group sessions for me were vital in this whole process/ recovery. Some days people didn't want to get up and go for these sessions but in the long run it made such a big difference and people realised it's good, even if you didn't do the exercises, being with the people in the group made a difference.
●	Code 3	Emotional impact from group therapy	29	29	The groups would come on and when you get in the group you completely forget how you were feeling and it changes your mood from feeling down to feeling uplifted and inspired

●	Code 3	Quotes	29	29	The groups would come on and when you get in the group you completely forget how you were feeling and it changes your mood from feeling down to feeling uplifted and inspired
●	Code 3	Positives and negatives of group therapy	31	31	the group wouldn't happen if there were only two people. It wouldn't make sense to have a group with just 2 people. That would be a little bit disappointing because the group was determined by how many people were there. So for me that would put a damper on things
●	Code 3	Quotes	33	33	The group session was something to look forward to because it wasn't just about you, it was about other people
●	Code 3	Social interactions	33	33	The group session was something to look forward to because it wasn't just about you, it was about other people
●	Code 3	Positives and negatives of group therapy	33	33	The group session was something to look forward to because it wasn't just about you, it was about other people
●	Code 3	Social interactions	35	35	it was all because of the group sessions that we could make friends like this. She was like a mother figure
●	Code 3	Social interactions	35	35	In group sessions you build friendships, whether people can talk or not
●	Code 3	Quotes	35	35	In group sessions you build friendships, whether people can talk or not
●	Code 3	Positives and negatives of group therapy	37	37	If I couldn't do something, he wouldn't push you too hard but I also felt that he challenged me a lot. For me I needed to know that I could go further.
●	Code 3	Positives and negatives of group therapy	37	37	everybody had a say and what you said or did mattered

●	Code 3	Quotes	37	37	everybody had a say and what you said or did mattered
●	Code 3	Group preferences	39	39	obstacle course
●	Code 3	Positives and negatives of group therapy	39	39	Just seeing someone else knowing you can do it, and having that encouragement and belief, that motivated me even more
●	Code 3	Quotes	39	39	Just seeing someone else knowing you can do it, and having that encouragement and belief, that motivated me even more
●	Code 3	Group preferences	45	45	I enjoyed every one of them
●	Code 3	Social interactions	47	47	Because of the group session they are no longer strangers and you feel like you are apart of the family
●	Code 3	Quotes	47	47	Because of the group session they are no longer strangers and you feel like you are apart of the family
●	Code 3	Quotes	49	49	if I didn't have the group sessions I would have been so out of place
●	Code 3	Positives and negatives of group therapy	49	49	if I didn't have the group sessions I would have been so out of place
●	Code 3	Social interactions	49	49	You only have each other there, because your family cannot be with you all the time and if they do come to see you it is like for an hour. The rest of the time you are with everyone else that is there and you are all going through something so you automatically be a family
●	Code 3	Positives and negatives of group therapy	53	53	there is always a constant fear that you are going to fall and hurt yourself, and knowing that the therapists are there and reassuring you and telling you that you can do it makes you feel better. There was a lot of guidance

	Code 3	Positives and negatives of group therapy	57	57	they knew about my situation and even though I was challenged to do certain things- knowing that they were there helped a lot
	Code 3	Individual vs group therapy	59	59	The individual therapy was where it really focused on me and my strengths and what I needed to do to get better and that was a different aspect and it was working on getting me physically stronger. Whereas the group session was both- it wasn't so much of focus on me, it was everyone together and it was helping to build relationships, so I liked that of the two. I liked having my individual needs met and at the same time, I got out the group session what I wanted to for example if I wanted to be making friends or be encouraging to someone while doing the physio activities
	Code 3	Individual vs group therapy	65	65	The individual therapy was focused on me and I was getting a lot more out of that. But then again, you need that diversity to do something different and that was the group session with other people, and you get more out of that in a different way. So for me, it had its own perks
	Code 3	Improvements	69	69	I think somehow I think look at another way of encouraging people to participate in the group session. There's a lot of people who wants to be a part of the group session, and because the other didn't want to come then the cancelled the group session

	Code 3	Improvements	69	69	Also the timing of when they have the group session in the day should be looked at. There was never a consistency in the timing of the groups
	Code 3	Improvements	69	69	focus on the individual therapy first and then later in the day do the group sessions.
	Code 3	Group preferences	75	75	dancing group, then even those sitting in the chair can participate in a social thing, making it more exciting
	Code 3	Improvements	75	75	using props in groups, things that are colourful and entertaining. That would make a lot of difference. Also, most people are not able to go outside, see the garden etc. that also helps if you could have group session outside
	Code 3	Improvements	79	79	the news to know what's going on. If that is playing in the background in a group session it helps everyone to be apart of the world and know what is going on and happening outside
	Code 3	Positives and negatives of group therapy	81	81	when the group sessions happen in the morning, we used to get our breakfast at a certain time and we would sit in the dining hall and try have our breakfast and we would then need to leave our breakfast and attend the group sessions. So the timing is important as people look forward to their breakfast
	Code 4	Social interactions	31	31	Initially at the start I was very shy and I felt uncomfortable and uneasy, but once I got into the group therapy, I loved it as that was the only way for me to get to know the other patients

●	Code 4	Social interactions	31	31	that's where I started to interact with the other patients, even in our own spare time, it became more of a family. Before the group therapy, you don't really know how to approach these people and speak to them. But in group therapy, if I was early or while the therapist had gone looking for other patients, we would get talking and find out more about each other
●	Code 4	Quotes	31	31	that's where I started to interact with the other patients, even in our own spare time, it became more of a family. Before the group therapy, you don't really know how to approach these people and speak to them. But in group therapy, if I was early or while the therapist had gone looking for other patients, we would get talking and find out more about each other
●	Code 4	Quotes	33	33	That was all part of the group therapy, which helped to watch him and see the little extra movement that he could get in his limbs
●	Code 4	Positives and negatives of group therapy	33	33	That was all part of the group therapy, which helped to watch him and see the little extra movement that he could get in his limbs
●	Code 4	Social interactions	35	35	It all started through the group therapy, if there was no group therapy I would have never met these people and found out these things about them

●	Code 4	Quotes	37	37	The purpose of group therapy is improving you in what you need but it is also a good ice breaker for interacting with other patients- and a good learning curve for me to find out how these people are coping.
●	Code 4	Social interactions	37	37	The purpose of group therapy is improving you in what you need but it is also a good ice breaker for interacting with other patients- and a good learning curve for me to find out how these people are coping.
●	Code 4	Positives and negatives of group therapy	37	37	The purpose of group therapy is improving you in what you need but it is also a good ice breaker for interacting with other patients- and a good learning curve for me to find out how these people are coping.
●	Code 4	Group preferences	40	40	sports orientated, like a volleyball group
●	Code 4	Group preferences	41	41	speech therapy group was more of crossword puzzles and word games, scrabble etc. so everything was beneficial to me because it got my mind stimulated again
●	Code 4	Social interactions	45	45	Remember when you are in this rehab centre, and when you are alone, all you can do is read or watch TV so you look forward to that interaction and spending time with your peers or fellow patients. And you look forward to that, it is so similar to lock down now and imagine you can't go anywhere or see anybody and you have few options of things to do

●	Code 4	Quotes	45	45	Remember when you are in this rehab centre, and when you are alone, all you can do is read or watch TV so you look forward to that interaction and spending time with your peers or fellow patients. And you look forward to that, it is so similar to lock down now and imagine you can't go anywhere or see anybody and you have few options of things to do.
●	Code 4	Social interactions	47	47	You listen to people and what they said back then is making sense to me now
●	Code 4	Positives and negatives of group therapy	47	47	You listen to people and what they said back then is making sense to me now
●	Code 4	Quotes	47	47	I learnt and listened as much as I could. And it would have only been possible because of the group sessions, otherwise you wouldn't have gotten to know these people, you would have just woken up, stayed in your room had your session with the therapist and then go back to your room
●	Code 4	Social interactions	47	47	I learnt and listened as much as I could. And it would have only been possible because of the group sessions, otherwise you wouldn't have gotten to know these people, you would have just woken up, stayed in your room had your session with the therapist and then go back to your room

●	Code 4	Positives and negatives of group therapy	47	47	I learnt and listened as much as I could. And it would have only been possible because of the group sessions, otherwise you wouldn't have gotten to know these people, you would have just woken up, stayed in your room had your session with the therapist and then go back to your room
●	Code 4	Individual vs group therapy	49	49	I prefer having both types of therapy. The individual sessions were of higher importance to me because it's one on one and catered for my difficulties, and things that I am having problems with. Group therapy was more interacting with the other patients and doing fun exercises as a group, but definitely the individual was of higher importance to me. We could focus specifically on my faults. Group sessions were insightful and helpful and I enjoyed the interaction with the patients. I had more of an interest in the individual sessions, purely based on that it was tailored around myself and particular difficulties
●	Code 4	Positives and negatives of group therapy	51	51	in the PT groups they knew my capabilities. Even in a group setting, they would test me at a higher level and wouldn't give me the same tasks as some of the other patients who had problems with walking etc. They would give me tougher exercises to do
●	Code 4	Individual vs group therapy	53	53	They brought the exercise to your capabilities and challenged you
●	Code 4	Quotes	53	53	They brought the exercise to your capabilities and challenged you

●	Code 4	Positives and negatives of group therapy	59	59	there was never a time that I felt unsafe
●	Code 4	Positives and negatives of group therapy	63	63	I could see that some couldn't really speak and probably didn't want to be in the group or felt bad that they weren't able to participate in the group, or maybe felt intimidated. But I had no issue, could be another patient's issue. Other than that I loved the groups
●	Code 4	Positives and negatives of group therapy	63	63	we would all encourage each other, and the therapists were good at that and assisting the other patients so that everyone felt included and part of the game or the task in the group
●	Code 4	Social interactions	63	63	we would all encourage each other
●	Code 4	Individual vs group therapy	65	65	Sometimes the PT groups were tougher than the individual PT sessions
●	Code 4	Group preferences	65	65	speech and OT groups, it wasn't too much of a challenge to me personally, I needed more the individual help I guess. Those groups were based more on games, which was fun but I needed to focus more on reading, memory, paying attention etc
●	Code 4	Quotes	71	71	Just listening to other people, you are always learning. I would say to myself that everyday I will learn and improve on myself and learn from others.
●	Code 4	Positives and negatives of group therapy	71	71	Just listening to other people, you are always learning. I would say to myself that everyday I will learn and improve on myself and learn from others.

	Code 4	Social interactions	71	71	Just listening to other people, you are always learning. I would say to myself that everyday I will learn and improve on myself and learn from others
	Code 4	Social interactions	73	73	Initially reserved and quiet and after groups they felt comfortable and started talking and interacting more.
	Code 5	Positives and negatives of group therapy	58	58	made me realise that there were other people also suffering with the same problem as I did
	Code 5	Quotes	58	58	made me realise that there were other people also suffering with the same problem as I did
	Code 5	Positives and negatives of group therapy	48	48	At first it was difficult, but later it was easier to connect with them
	Code 5	Positives and negatives of group therapy	64	64	My memory and writing has improved. My reasoning skills have also improved
	Code 5	Group preferences	70	70	a challenge to overcome obstacles within that time
	Code 5	Group preferences	79	80	What did you like about the time component? P: It made me feel like I could do more in that time and to push myself to achieve my goals
	Code 5	Positives and negatives of group therapy	92	92	It still felt like a safe environment
	Code 5	Group preferences	98	98	OT groups was where we had to put on clothes and take them off
	Code 5	Group preferences	106	106	I disliked the physio more as it was harder and more of a challenge
	Code 5	Group preferences	110	110	I felt like it did change as I got more strength. That was a positive side of the PT groups
	Code 5	Positives and negatives of group therapy	115	115	could have been less challenging so you could achieve more

●	Code 5	Positives and negatives of group therapy	126	126	I liked the fact that I could communicate with other people and sort of get myself to build up my strength through the groups
●	Code 5	Positives and negatives of group therapy	128	128	more motivational than anything else because each person went through their struggles and they were still motivated to get better.
●	Code 5	Social interactions	128	128	more motivational than anything else because each person went through their struggles and they were still motivated to get better.
●	Code 5	Quotes	128	128	more motivational than anything else because each person went through their struggles and they were still motivated to get better.
●	Code 5	Social interactions	134	134	hearing their stories and finding out what happened to them and seeing that they could push themselves to the level that they needed to
●	Code 5	Positives and negatives of group therapy	134	134	hearing their stories and finding out what happened to them and seeing that they could push themselves to the level that they needed to

FIGURES

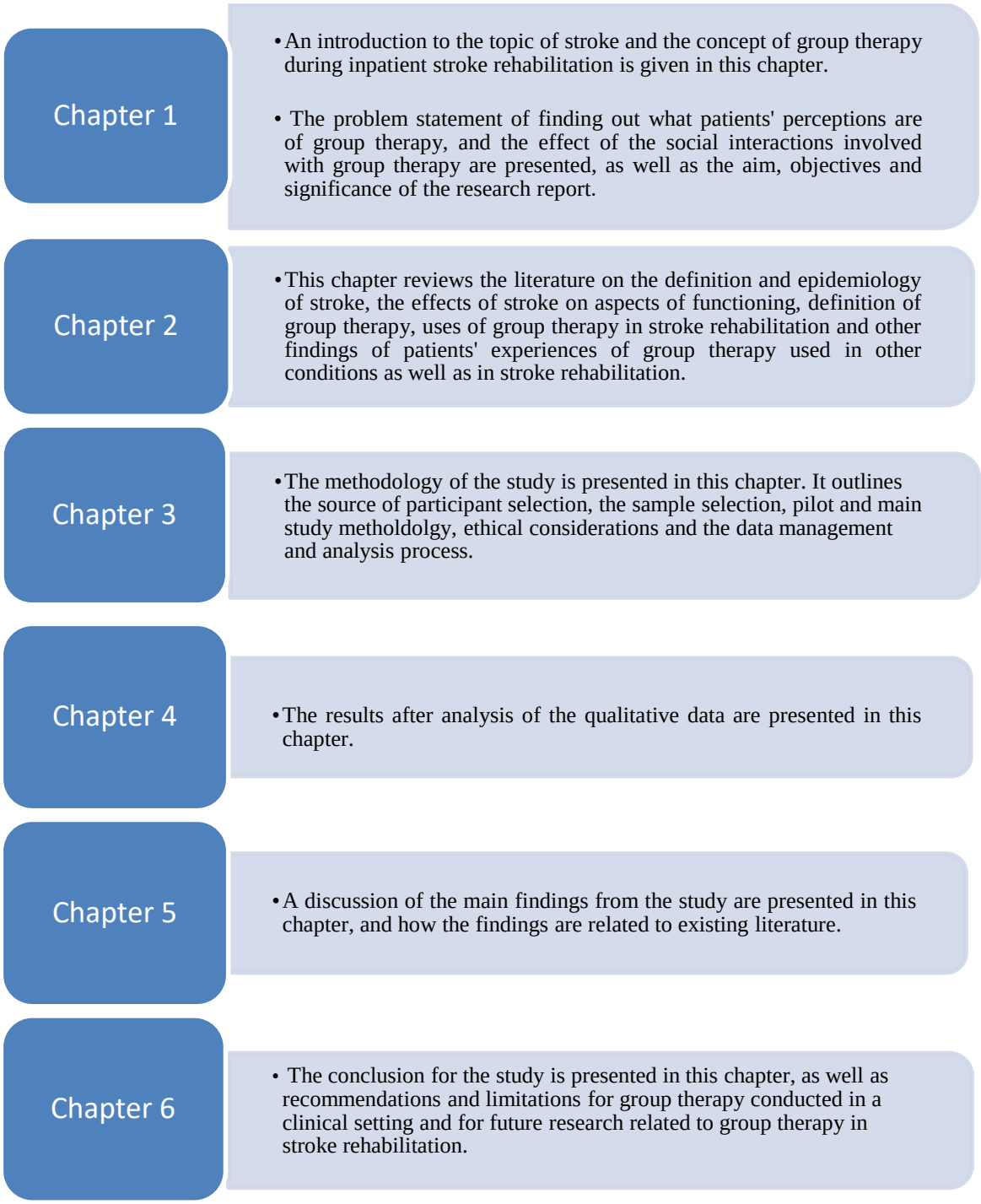

Figure 1.1 Organisation of the research report

TABLES

Table 4.1 Demographic and clinical details of participants

Participant	Age (years)	Gender	Side of stroke (CVA) lesion	Currently an inpatient or already discharged home at time of interview	Face to face or telephonic interview	Length of stay in rehabilitation
01	60	Female	Right	Inpatient	Face to face	12 weeks
02	71	Female	Right	Inpatient	Face to face	11 weeks
03	43	Female	Left	Discharged	Telephonic	6 weeks
04	36	Male	Right	Discharged	Telephonic	4 weeks
05	27	Female	Right	Discharged	Telephonic	6 weeks
06	72	Male	Right	Discharged	Telephonic	6 weeks
07	70	Female	Right	Discharged	Telephonic	4 weeks
08	75	Male	Left	Discharged	Telephonic	6 weeks
09	61	Female	Left	Discharged	Telephonic	4 weeks
10	63	Male	Right	Discharged	Telephonic	2 weeks
11	45	Male	Bilateral	Discharged	Telephonic	8 weeks
12	70	Female	Right	Inpatient	Face to face	3 weeks

Table 4.2 Frequency of categories of patients' experiences of group therapy during inpatient stroke rehabilitation

Categories	**Frequency** **n= number of times each code appeared in the data collected (%)**
Emotional impact of group therapy	16 (3.52)
Social interactions	74 (16.26)
Types of groups that are liked and disliked	75 (16.48)
Positive experiences	115 (25.27)
Negative experiences	25 (5.49)
Suggestions to improve group therapy	30 (6.59)
Individual versus group therapy	60 (13.19)

Table 4.3 Established categories, themes and overarching topic

Categories	**Themes**	**Overarching topic**
Emotional impact of group therapy	Social experiences of group therapy	Patients' experiences of group therapy during inpatient stroke rehabilitation
Social interactions		
Types of groups liked and disliked	Viewpoints on the different types of groups	
Positive experiences		
Negative experiences		
Suggestions to improve group therapy		
Individual versus group therapy	Type of preferred therapy	