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THE COMMUNITY REINTEGRATION OF PATIENTS WITH BURN INJURIES POST-DISCHARGE IN THE NORTH WEST PROVINCE, SOUTH AFRICA

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A dissertation submitted to the Faculty of Health Sciences, School of Therapeutic Sciences, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Master of Science in Occupational Therapy.

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Declaration

I, Anneri Myburgh hereby declares that this thesis is my own work. It is being submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Master of Science in Occupational Therapy. It has not been submitted before for any degree or examination at this or any other university.

1st day of June, 2016

Dedication

I dedicate this work to

my husband Harold and my two daughters Liani and Minke

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I would like to thank and acknowledge the following people for their support and contribution to completing my thesis for my master's degree in occupational therapy.

All honour goes to the Lord who gave me the strength, ability and courage to complete my degree.

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Abstract

In a developing country like South Africa, challenges regarding community reintegration post burn injuries has not been adequately investigated. In this study of 55 adult participants admitted to Tshepong Hospital Burns Unit in the North West Province were assessed on discharge, at one month and six months post discharge using the Activities Health Assessment and Roles Checklist. Quality of life, community integration and access to occupational therapy were also assessed at six months.

The 28 participants retained in the study returned to their previous roles and occupational performance levels but there was a decrease in the variety, comfort, satisfaction and social appropriateness for sleep, leisure and social participation activities. The time spent on worker and home maintainer roles decreased significantly at one month but returned to pre-morbid levels at six months.

In terms of community integration only the social integration was affected with female participants achieving higher home, productivity and total integration scores. Half of the participants reported pain/discomfort and anxiety/depression while both QoL and community reintegration were moderately associated with the depth and extent of the burn injuries.

The distance of the patients’ homes from health services and lack of finances prevented them from accessing occupational therapy which was associated with poor QoL. It is suggested that these services be made available in the community and that a support group model be investigated to help meet the reintegration challenges faced by patients with burn injuries.

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Operational definitions

Activities health:	"…a state of wellbeing in which an individual is able to carry out activities of everyday living with satisfaction and comfort in patterns and configurations that reflect sociocultural norms and idiosyncratic variation in number, variety, balance and context of activities" p 28 (Cynkin & Robinson, 1990).
Burn injury:	"A burn is an injury to the skin or other organic tissue primarily caused by heat or due to radiation, radioactivity, electricity, friction or contact with chemicals" p 1 (World Health Organisation, 2014).
Community integration:	"Full community integration, or participation in society, is the ultimate goal of rehabilitation. Community integration has been traditionally defined by three main areas: employment or other productive activity, independent living, and social activity" p 121 (Sander et al, 2010).
Degree of burn injury:	"Injury to the top layer of skin (the epidermis) is a superficial burn and to the second layer of skin (the dermis) is a partial thickness or dermal injury. An injury that extends down to the subcutaneous tissue, which includes fat, is a full thickness injury" (Burn-Recovery, 2015).
Quality of life:	"Quality of life is defined as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way of a person's health, psychological state, level of independence, social relationships and their relationship to salient features of their environment" (World Health Organisation, 2014).

Total body surface area: “The extent of injury is best described using the percentage of the total body surface area that is affected by a burn” (Victorian Burns Unit, 2012).

Abbreviations

AusTOMs	Australian Therapy Outcomes Measures
BRICS	Brazilian, Russia, India, China and South Africa
BSHS-B	Burn Specific Health Scale – Brief
BSHS-R	Burns Specific Health Scale – Revised
CIQ	Community Integration Questionnaire
COPM	Canadian Occupational Performance Measure
EQ-5D-3L	EuroQol 5 Dimension 3 Languages
EQ-VAS	EuroQol Vertical Analogue Scale
FIM	Functional Independence Measure
NPO	Non-profit organisation
OTA	occupational therapy assistant
OTPF II	Occupational Therapy Practice Framework II Domain and Process
SF-36	Short Form Health Survey 36 items
SF-12	Short Form Survey 12 items
TBSA	total body surface area
UK	United Kingdom
US	United States

CHAPTER 1: INTRODUCTION

1.1 Introduction

South Africa carries a burden of burn injuries with long lasting physical and psychosocial consequences (Allorto et al. 2009). The relatively high percentage of burn injuries is related to the developing nature of the country with large urban as well as rural populations that live in informal housing. Poverty as well as overcrowding in urban shack dwellings are significantly associated with the risk of burn injuries in low-income households. These households are often reliant on unsafe energy sources such as flame and paraffin stoves for cooking, with approximately 45,000 paraffin-related fires reported annually (Rode et al. 2011). Shack fires account for 20% of burn injuries and domestic paraffin stoves for 5%, with assault also being an important cause of burn injury in adults. Thermal burns are the most common cause of injury (Rode et al. 2011).

South Africa only has six established burn centres where patients with severe injuries can be treated. Moderate to severe burns are often treated in regional and district hospitals where specialised care is not available. This means that if patients with large total body surface area (TBSA) burns cannot be moved to specialised burn units the mortality rate may be as high as 40%. The use of conservative approaches in the treatment of burn injuries in South Africa also results in prolonged hospitalisation and delayed surgery meaning patients often spend months in hospital even with relatively small TBSA burn injuries (Allorto et al. 2009).

In South Africa research on burn injuries has focused mainly on aetiology, prevention, wound care and other medical aspects and no published research articles on either hospital or community-based rehabilitation for such patients could be found. Rode et al. (2011) point out that one of the major deficiencies in the treatment of burn injuries in South Africa is access to adequate rehabilitation for physical and psychosocial disabilities post burn injury.

The rehabilitation process in South Africa has limited focus on community-based service and this limitation in service delivery means that rehabilitation has been minimal once the patient is discharged from the specialised burns unit or hospital care. When patients need to be followed up after being discharged for the management of sequelae of their burn injuries including deformities, scarring as well as physical and psychosocial disability, they have to return to the unit or hospital as outpatients. This is the case in the Tshepong Hospital Burns Unit in the North West Province, based in Klerksdorp, which was the site for this research.

While some services are available at community health centres and clinics, from an occupational therapy perspective the rehabilitation services available to the patients with burn injuries, once they return home, are negatively affected by the small number of therapists based in the community in the North West Province. Thus there are limited opportunities for patients with burns to receive rehabilitation services close to their homes. It is also difficult for hospital-based therapists who treat these patients, to assess and understand the contexts in which the patients need to function.

This study investigated whether patients with burn injuries return to their previous occupational performance in a setting where distance from rehabilitation services and finances are a problem in continuing their rehabilitation after they have been discharged.

1.2 Research setting

The Burns Unit in Tshepong Hospital is the only specialised burns unit in the North West Province and has 20 beds. Permission was received to complete the study at this unit (Appendix A).

The Unit has four adult ICU beds and two paediatric ICU beds. The unit is headed up by a plastic surgeon and physiotherapy and occupational therapy services are rendered under a blanket referral that has been provided. Social work and psychology services are available on referral. Occupational therapy has a dedicated treatment area in the Unit. Multi-disciplinary team ward rounds are held once a week and once a year a symposium on the treatment of burn injuries is organised with Smith and Nephew. Presentations are given by the staff working in this unit to other hospitals and clinics in the province to improve overall burn care.

The occupational therapy department at Tshepong Hospital was the only department that rendered the service of issuing pressure garments. No other department in the North West Province had the equipment or materials. I worked at the department for eight years and introduced a protocol so that when patients are discharged from there they come back to Tshepong Burns Unit after one month for their first follow-up visit. This ensures that the patients receive the therapy they need to recover and from there they are then referred to other services or continue with occupational therapy at the Hospital if they require pressure garments.

1.3 Statement of the problem

Literature indicates that deformity and dysfunction that may result from burn injury can have an influence on the client’s psychological and physical functioning making it difficult for them return to previous roles and occupational performance.

Although the reintegration of patients with burn injuries post-discharge into their community has been researched, no studies have been done in South Africa related to occupational therapy services and the patients’ participation in previous occupational performance and roles. Also not known are the factors associated with the ability to participate in occupational performance and roles post burn injury, and the effect the reintegration or lack thereof has on the quality of life of such patients living in a developing country like South Africa.

Access to occupational therapy services post-discharge from the Tshepong Hospital Burns Unit in Klerksdorp is limited as patients are referred from the entire province and then have to return to their homes and environmental contexts which may be many kilometres away in other towns and rural villages. It is also not known what factors affect the patients’ access to the available occupational therapy services and what focus these services should have in assisting patients with burn injury to successfully reintegrate into their previous roles and occupational performance.

1.4 Purpose of this study

The purpose of this study was to determine adult patients' level of reintegration into their communities after discharge from the Burns Unit in Klerksdorp, North West Province. The patients' engagement in their roles and occupational performance and how this differed from their pre-morbid function was assessed one month and six months after discharge, to evaluate how participation in activities and roles was associated with their reintegration. These variables were correlated with the perceived quality of life of these patients; access to occupational therapy services post-discharge was determined. The environmental contexts to which these patients returned and factors facilitating and preventing access as well as their actual access to occupational therapy services were therefore also investigated.

1.5 Research question

What is the level of community reintegration for adult burn injury survivors six months post discharge and the factors associated with it?

1.6 Aims of the study

The aims of the study were to determine the reintegration into the community and the changes in role enactment and occupational performance of adult patients with burn injuries, treated at the Burns Unit in the North West Province, at one month and six months post-discharge. Their perceived quality of life and the access they had had to occupational therapy services during this time were explored.

1.7 Objectives of the study

- To describe the demographic profile of adult patients with burn injuries who have been discharged from the Burns Unit in the North West Province.
- To determine the change in patients' activities health and roles at one month and six months post-discharge for patients discharged from the Burns Unit in the North West Province.

- To determine the patients' perceived quality of life and their community integration six months post-discharge from the Burns Unit in the North West Province.
- To determine the association between perceived quality of life and their community integration as well as demographic factors.
- To determine the geographical areas to which patients with burn injuries were discharged and the effect of this and other factors on the patients' access to occupational therapy post-discharge.
- To determine the correlation of factors affecting access to services with the patients' community reintegration and quality of life.

1.8 Justification for the study

It is important in occupational therapy to understand the problems patients have reintegrating back into the community after burn injury. Outcomes in occupational therapy entail the quality of life and resumption of occupational performance and roles. In order to plan and evaluate rehabilitation services for patients with burn injuries after they have been discharged from the Burns Unit at Tshepong Hospital, the factors affecting these patients need to be investigated specifically in relation to their reintegration into the community. This could lead to better overall occupational therapy outcomes and the establishing of support groups for adult patients' with burn injuries at local level. "A coordinated, well-structured community reintegration program is a key component in a comprehensive rehabilitation effort" p 345 (Goggins et al, 1990).

This study has the potential to provide valuable new information in the South African context and thus support a comprehensive rehabilitation effort for people who suffered burn injuries.

1.9 Layout of the research

Chapter 1

Introduction: This chapter reviews the problem of lack of successful reintegration of patients with burn injuries into their communities as well as problems with participation in their roles and occupational performance post-discharge. The role of occupational therapy in getting patients to return to their previous roles and occupational performance areas is mentioned. This chapter also presents the problem statement, the research question, and the purpose, aims, objectives and justification of the study.

Chapter 2

Literature review: This chapter gives an overview of studies done with patients with burn injuries looking at their reintegration, roles, occupational performances and quality of life.

The characteristics of burn injuries in developing countries like India, China, South Africa and Brazil are considered. The researcher also reviewed the rehabilitation issues for patients with burn injuries which indicate that more post-discharge support in rehabilitation is needed than what is currently available. Literature reports that between a half to a third of patients with burn injuries do not return to their pre-morbid occupational perfomance or roles.

Chapter 3

Methodology: The researcher discussed the type of research design that was used and the selection criteria for the participants in the study. The following outcomes measures were used and are explained: a demographic questionnaire, activities health questionnaire, role check list, EQ-5D-3L, community integration questionnaire and access to occupational therapy. Research procedures are discussed as well as the ethical considerations and data analysis.

Chapter 4

Results: Here the researcher explored the patients' demographic data compared to their medical history. Pre-morbid functioning regarding activities health is compared to one month post-discharge on a weekend and during a weekday. One month occupational functioning is compared to six months post-discharge. The researcher identified the roles patients fulfilled pre-morbidly compared to one month post-discharge and again comparing role participation at one month compared to six months. Roles were divided into vocational roles, family roles, social roles and leisure roles. Eq-5D-3L and community integration scores of the participants were correlated with their demographic data. The researcher investigated the access to occupational therapy and the main reasons for patients not returning for their follow-up appointments.

Chapter 5

Discussion: This chapter presents an overview of the results and the findings according to the demographics of the participants, their activities health and role change over a six-month period. The effect of burn injuries on the participants' quality of life and community integration is considered in conjunction with the activities health and roles six months post burn injury in the home, work and leisure contexts. Comparisons to other research and literature were included to support the findings. The only difference found was that females had better integration than males into home and work.

The factors that affect access to occupational therapy were described and correlated to the quality of life and community integration.

Chapter 6

Summary: This is a summary of the whole study and also gives recommendations regarding future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The chapter will review literature in terms of the issues related to adult burn injuries in developing countries, rehabilitation of patients with burn injury and factors affecting their return to pre-injury occupational performance, as well as the methods of assessment of occupational performance. The effects of burn injury on the quality of life and the assessment of quality of life of patients with burn injuries are also reviewed, as is reintegration into the community after burn injury and the methods of assessment of that reintegration into the community.

Databases that were searched were Science Direct, Elsevier, EBSCO Host Databases, Proquest and Pubmed. The following keywords were used for this literature search: burn injury and community reintegration, burn injury and quality of life, roles and activities of daily living, occupational performance and adjustment post burn injury.

2.2 Burn injuries in other developing countries

2.2.1 Socio-economic status

In South Africa, like in other developing countries, burn injury is more common in under-resourced communities. This was confirmed in a study in Brazil completed in 2014 on 73 patients with burn injury, mostly from a lower socio-economic class, five to seven months post-discharge (Ricci et al. 2014). This study provided some insight into the demographics of patients with burn injury as well as the cause of those injuries, which are comparable to those reported in South Africa.

2.2.2 Gender

In the Brazilian and Chinese studies between 68.5% and 77.4% of the patients were male which is similar to the gender distribution reported in South African studies, with a mean age of 38.4 and 41.4 years respectively (Ricci et al. 2014; Zhang et al. 2014)). This is slightly higher than those reported by Eyal et al. in

2007 in South Africa but similar to the age of 40 years reported by Allorto et al. in 2009 in South Africa.

A study on 143 patients’ with flame burns in India differed in the gender distribution. They reported more female than male participants with a mean age of 30.73 years mostly due to a high percentage of self-inflicted burn injuries (47%) in a sample where 80% of the participants came from rural areas, although their socio-economic status was not indicated (Tirumala et al. 2013).

2.2.3 Level of education

Although level of education has been shown to play a significant role in the outcome of burn injuries, this was only reported in the Indian study presented with varying levels of education with 40% having finished high school, whilst in the Brazilian study the participants had an average of 8 years education (Rossi et al. 2005; Tirumala et al. 2013). Just fewer than 50% of these participants were employed but factors like employment were not reported on in the South African studies.

2.2.4 Area and degree of burns

The mean %TBSA of the burns reported in India was 49% with 40% having full thickness burn injuries (Tirumala et al. 2013). Again this differed from studies in other developing countries such as Brazil, where patients with burn injuries had a mean TBSA of 13% while 22% had full thickness injuries which required a mean hospital stay of 24.5 days (range 2 to 174 days) (Ricci, et al. 2014). In South Africa the average length of stay for adult patients with a mean TBSA of 23%, of whom 50% had full thickness injuries, is 68 days (range 1–161 days), which is much shorter than the 131 days in China, where the mean TBSA was 17.4% and 42.1% of patients were reported to have had full thickness burns (Allorto et al. 2009; Ricci et al. 2014; Zhang et al. 2014).

In the Indian study between 26% to 28% of the injuries occurred on the trunk and upper limbs (Tirumala et al. 2013), while in the Brazilian study 50% percent of the burns injuries were on the trunk, face and upper limbs (Ricci et al. 2014).

2.2.5 Causes of burns

According to Allorto et al. (2009) burns to the face, trunk and upper limbs were more common in South Africa, with open flame being the most common cause of burn injury in adults in all studies. In Brazil and China burn injury are mostly caused by accidents while in South Africa a high percentage of burn injuries (37%) are caused by assault (Rode et al. 2011). Most of the assault victims are male and are often injured in alcohol-related domestic violence incidents (Duminy & Hudson, 1993).

2.2.6 Summary

Demographic and medical factors were compared in literature review to investigate what is the profile of a person with a burn injury. Comparing to literature in other developing countries like South Africa it seems like a person with a burn injury will be more likely a male between 30-40 years of age. They would have sustained burn injuries to the trunk, face and upper limbs due to open flames and would have a poor socio economic status and have a lower education level.

2.3 Rehabilitation issues for patients with burn injuries

In South Africa the increased exposure to fire is associated with factors related to poor socioeconomic circumstances, resulting in a large number of people suffering from burn injuries (Allorto et al. 2009). These burn injuries result in disfigurement and dysfunction which last long after discharge from hospital. This affects the patient’s ability to assume their previous lifestyle and roles and their reintegration into both their home and community life (Xie et al. 2012). The ultimate goal of rehabilitation for a patient with burn injuries should be to assist them in gaining independence and optimal functioning in their previous occupations and in their community. The United Kingdom National Burn Care Group stated that the ideal goal of treatment for a patient with burn injury is:

> “…to recover the individual to the pre-injury state and for them to return to their place in society with unaltered potential” p 620 (Falder et al. 2009).

Burn rehabilitation is therefore a multi-phase treatment which consists of months and even years of committed intervention if this goal is to be achieved (Spires et al. 2007). In their review of the literature, Wrigley et al. (1995) founded that research indicates that rehabilitation should start immediately after resuscitation or when a patient is admitted and continue as long as the patient can improve and realistically achieve the proposed rehabilitation outcomes. Falder et al. (2009) suggest that a multi-disciplinary team look at seven core domains when they evaluate the outcomes for patients with burn injuries.

All of these core domains, namely occupational performance, physical function, community participation and perceived quality of life, skin function as well as physical (neuromuscular, sensory/pain) and psychological functioning have an impact on how the patient with burn injury reintegrates back into society (Falder et al. 2009) (Chamania et al. 2013) (Din et al. 2015) (Druery et al. 2005) (Goggins et al. 1990) (Wiechman et al. 2015).

> “Nothing short of a multidisciplinary burn team that is dedicated to securing the patient’s physical, psychological, social and spiritual wellbeing is required to ensure that a burn victim can return to their families, their work and their society and lead a long and fulfilled life” p 35 (Charmania et al. 2013).

Outpatient follow-up post-discharge, which may take place over a few years to improve the outcome of burn injury, both in terms of everyday functioning and the quality of life, is therefore recommended (Pavoni et al. 2010; Malik et al. 2012). The emphasis of treatment for patients with burn injury should not only be on hospital-based management such as wound healing, avoiding disfigurement and minimising dysfunction but also on the reintegration of the patient into society.

Research indicates that the awareness for ensuring reintegration as an outcome for patients with burn injuries is increasing in developing countries such as China and Brazil (Xie et al. 2012; Ricci et al. 2014). The progress in achieving this is slow however, due to the shortage of occupational and physiotherapists, which affect the quality of rehabilitation that is provided for patients with burn injuries, particularly post-discharge (Chen et al. 2013). The situation in South Africa is similar for a large majority of the population who live in under-resourced circumstances, as rehabilitation facilities in the hospitals they access and their communities are limited. Treatment of the long-term consequences of burn injuries is also compromised by the 90% dropout rate from rehabilitation reported in the country, within a year of injury, which impedes community reintegration (Rode et al. 2011).

Evidence from international occupational therapy research emphasises the need to provide support and rehabilitation for patients with burn injuries, taking their occupational performance in their everyday activities post-discharge into account (Chen et al. 2013) (Din et al. 2015) (Falder et al. 2009) (Goggins et al. 1990). The factors which affect the ability of patients with burn injuries to assume their pre-morbid roles and activities and thus facilitating their reintegration into society in their own context must therefore be considered (Cheng & Rogers, 1989). This includes factors which affect all areas of occupational performance including personal management, survival skills, leisure, social participation, sleep and work (Pendleton & Schultz-Krohn, 2013; American Occupational Therapy Association, 2008).

Research indicates that patients with burn injuries need a multi disciplinary rehabilitation for months to years after the incident. In a developing country like South Africa, where the majority of patients come from poor socio economic status this outcome is not being achieved. Although there is an increase in awareness about the need for rehabilitation and reintegration into the community after a burn injury, the process is slow due to lack of staff in all the clinical and rural settings. The dropout rate from rehabilitation has been reported as 90% after one year (Rode et al. 2011).

2.4 Returning to pre-injury occupations for patients with burn injury

Pallua et al. (2003) indicates that between a half to a third of all patients with burn injury present with significant restrictions to participation in occupations and roles post injury in all occupational performance areas (Pallua et al. 2003). The outcome for patients achieving a successful return to pre-morbid occupational performance therefore varies as shown in a retrospective study by Cheng and Rogers on occupational role performance after a severe burn in the United States in 1989. Three outcome patterns for occupational role performance in ten men recovering from severe burns were identified in this study. In the first pattern the patients returned to all their previous roles and occupational performance while in the second pattern they returned to independent self-care but were still unable to engage in home management, work and leisure roles. The last pattern was represented by role loss in all areas of occupational role performance (Cheng & Rogers, 1989). No similar occupational therapy studies could be found, but these findings are important for determining appropriate outcomes for adult patients with burn injuries.

Since engaging in occupations they were involved in before the burn injury is important for the patients' self-worth, self-esteem and overall independence, occupational therapists emphasise and facilitate the return of these patients to as many previous roles and occupations as possible as well as expediting their reintegration into society. This does depend on the patients' ability to regain pre-morbid function in occupational performance and may require adaptation and review of their context for those that are unable to manage previous occupations. Klein et al. (2007) felt however that although return to work or education activities should be one of the most important goals for these patients, that this was dependent on their recovery:

> "The ability to participate in work or school requires a certain level of functional and emotional well-being" Klein et al. p 93 (2007).

2.4.1 Returning to work

In a 2006 systematic review of functional outcomes post burn injury in adults, Van Baar et al. reported at the time there were only 28 publications that addressed this subject. The majority of the publications were from the US and 19 of the 28 studies were concerned with post burn injury and return to work. Thus, although work is not the only occupational performance area which needs to be considered in the rehabilitation of a patient with burn injury, it is the occupational performance area on which research has been concentrated, even though roles and participation in other occupational performance areas that determine if the patient is activities healthy and reintegrated back into society are important too.

Esselman et al. (2007) reported that the barriers to return to work post burn injury reported in earlier studies were based on the patients' perceptions of the barriers they faced and factors such as loss of physical function and wound issues; early discharge, working conditions and psychosocial factors were the long-term problems identified. Esselman et al. (2007) felt that these barriers were not assessed objectively and were therefore questionable. They used more objective assessments in their study which indicated that the factor most closely associated with the inability to return to work and poor quality of life post burn injury was the severity of the burn injury (Esselman et al. 2007). They reported that 79.7% patients in their study had returned to work about one year post discharge from the hospital. This finding also supported the research by Wrigley et al. (1995) which indicated that the strongest predictor for returning to work after burn injury was the participants' employment status. Those employed before they sustained burn injuries were found to be more successfully reintegrated into the workplace (Wrigley et al. 1995).

Mason et al. (2012) in their systematic review reported that psychosocial and physical factors in fact did play an important part in patients with burn injuries returning to work. Patients that did return to work, when assessed on a quality of life scale (the Burn Specific Health Scale-Brief (BSHS)–B) had higher scores in three quarters of the psychosocial domain questions and in two fifths of the physical domain questions than those who did not return to work. Patients who returned to work post burn injury were therefore found to be physically and psychologically more able to fulfill their roles succesfully than those who did not return to work or were unable to return to work. In this review, being able to return to work was shown not only to be a very important part of the process of adapting post burn injury, but also as essential to continuing to be part of a community (Mason et al. 2012).

Oster et al. (2010) investigated the facilitators or barriers in returning to work from the point of view of patients with burn injuries. They identified five categories that affected return to work post burn injury, namely individual factors, social life, health care and rehabilitation factors, workplace factors and social work agencies. Included in the barriers were lack of access to pain medication, limited knowledge of wound care in the primary health care facilities they accessed, lack of patient-specific rehabilitation plans and lack of psychological support during rehabilitation. The participants in this study emphasised the importance of providing resources to deal with psychosocial issues as one of the most imortant facilitators for returning to work (Oster et al. 2010).

Literature indicates that if the patient with burn injury was employed before the injury they are more likely to return within one year depending on the severity of the burn. Patients that did return to work were functioning better psychosocially and physically than those patients that did not return. Returning to work is therefor an important outcome for reintegrated into the community. It is important that the patient has resources to deal with psychological problems to facilitate return to work post the burn injury.

2.4.2 Returning to occupations in other areas

Druery et al. (2005) in their study in Australia found, in agreement with other studies, that one year post burn injury most patients were involved in occupations related to self-care, home management and leisure as well as some form of work (Esselman et al. 2007) (Wrigley et al. 1995). They reported that the difficulties that did persist included poor endurance, poor standing tolerance, poor mobility and a limited range of motion in the limbs affecting upper limb function in particular. However they did find that even patients with burn injuries of the hand up to even 84% achieved independence. The extent and depth of the burn were again found to affect return to previous occupations, with those with burn injury of TBSA greater than 50% as well as full thickness burn injuries being significantly less independent in self-care, home management, leisure and work. They found that perceived and actual good physical recovery impacted on the patients' reintegration into the family and the community post burn injury (Druery et al. 2005). Ryan et al. (2015) found that young adults with extensive burn injuries regained satisfaction with activities more slowly. They took longer to reintegrate into their previous roles as they often needed extensive medical care and surgeries post initial discharge. It is therefore clear that a number of factors affect the return to previous occupational performance. These factors will now be considered in more detail.

2.4.3 Factors affecting return to occupations post injury

2.4.3.1 Severity of the burn injury

The severity of the burn injury entails the surface area of the burn, the site as well as the depth of the burn injury (Esselman et al. 2007). Research found that patients with full thickness burn injuries have more barriers to return to work and that the depth of the burn also influenced their quality of life (Dyster-Aas et al. 2007). Esselman et al. (2007) supported this finding as they found that when burn injury of TBSA of less than 50% was reported the patients were not limited over a long-term period in relation to their return to work because their recovery was considered successful.

Pallua et al. (2003) found in their study that a cut off of 20% TBSA was statistical significant in predicting return to work (Pallua et al. 2003). This was confirmed by Pavoni et al. (2010) in a study where none of the 50 patients admitted to ICU with severe burns of TBSA of more than 50%, who were assessed one year after discharge, were found to have returned to work (Pavoni et al. 2010). Xie et al. in their 2012 study of 20 burn patients in Shanghai that survived extensive burn injury (>70%TBSA) found that the patients had limitations in fulfilling their roles due to the pain they experienced, their physical problems, their social functioning and emotional problems. This was confirmed by Ryan et al. (2015) who found that although young adults improved over a three year period the extent of their burn injury was associated with clinically relevant effect sizes in terms of psychosocial, family, and physical dysfunction. This applied particularly to physical dysfunction and itching (Ryan et al. 2015).

2.4.3.2 Physical dysfunction

Intervention for physical dysfunction has been indicated as most important in the rehabilitation of patients with burn injuries because it reduces their activity limitations. This kind of intervention can be related to improving hand function, reducing contractures and compensating for the loss of limbs (Pallua et al. 2003). Physical complications of severe burn injury also result in decreased activity participation because of the catabolic reaction which occurs due to the injury.

Patients with burn injuries present with fatigue and weakness which make it difficult for them to engage in their daily activities and also return to their work as their resting metabolic rate is twice the normal rate, if they have a TBSA of more than 40% affected. Twelve months post injury their resting energy expenditure can still be 110% higher with this increased catabolism resulting in loss of body protein (Hart et al. 2000).Their sweat glands could furthermore be affected which will make it difficult for them to regulate their body temperature. This affects their ability to live and work in hot environments as they become sensitive to the heat and can struggle to complete their physical activities One of the main problems individuals with burn injuries who returned to work experienced, even a year post burn injury, was related therefore to their inability to cope with environmental conditions, especially high temperatures and humidity at work (Esselman et al. 2007).

Pain and itching are also reported as affecting occupational performance and it is persistent in most patients with burn injuries, and is something which alters their quality of life. Attention should be given to the management of pain and itching during rehabilitation (Zhang et al. 2014). Falder et al. (2009) in their clinical review of core outcomes post burn injury found that up to half of the burn survivors suffered from pain on a daily basis which had an influence on their work, sleep and social life. Pain has been reported to make it difficult to fall asleep or to stay asleep while it also affects concentration when working. Pain has also been associated with depression and anxiety and has been found to retard improvement in healing and recovery because it affects the patient's ability to exercise. It has been shown to affect social participation in that patients may not want to spent time with family or engage in social activities that are meaningful (Wiechman & Mason, 2011).

Pain management therefore remains important not only in the early phases of treatment but it can contribute to reduced suffering and increase comfort throughout the recovery period and improve outcomes in the long term (Tirumala et al. 2013). Wiechman and Mason (2011) found that pain after a burn injury is an ongoing process, that it is not necessarily linked to the size or the seriousness of the injury and that it should ideally be managed by a multi-disciplinary team.

Neuropathy, which is also common post burn complication, but often undiagnosed, should also be addressed by the multi-disciplinary team. This condition can have an influence on patients' strength and function when they have to engage in previous roles or activities (Esselman et al. 2007). Pruritis is another physical complication post burn injury that has a significant effect on a patient's quality of life. It can be treated with medication and other modalities, but it is these types of physical complications that highlight the importance of comprehensive follow-up so that the necessary referrals can be made to assist the patient with burn injury in dealing with problems that occur post-discharge (Esselman et al. 2007).

Although returning to pre-injury occupations has been associated with physical problems, psychological distress is another ongoing condition which can occur long after discharge. This distress can have an influence on social and community activity participation (Wiechman & Mason 2011; Cheng & Rogers, 1989).

2.4.3.3 Psychosocial dysfunction

It is clearly important post burn injury to consider the psychosocial adjustment of the individual with burn injuries when evaluating their return to activities health and participation in all occupations. Sleep disturbances, depression, anxiety or even post-traumatic stress disorder need further investigation as post burn injury these conditions will affect energy and motivation to engage in daily tasks and affect activity participation (Wiechman & Mason, 2011). Esselman et al. (2007) found psychosocial problems namely nightmares, flashbacks and concerns regarding their appearance influenced return to work post burn injury. In cases where these problems persisted, long-term disability resulted, requiring long-term psychosocial intervention (Esselman, 2007).

Pallua et al. (2003) found that patients with little physical impairment showed the same levels of depression as those patients with severe physical impairment and this affected their ability equally to return to previous activities and roles. This was supported by Wildebrand et al. (2001) and Ryan (2015) who agreed that the severity of burn injury does not predict psychological dysfunction, and that the amount of threat, particularly threat to life as well as the patient's psychological status during their hospital stay are strong predictors of psychosocial function post burn injury. They found that patients with severe injury are often grateful to be alive and do not expect to return to their normal function and achieve the same community reintegration as those with less severe injuries, which actually means they have better psychological adjustment (Wildebrand et al. 2001; Ryan et al. 2015).

Scarring and disfigurement may also prevent patients with burn injuries from returning to their maximal potential, because of their altered physical appearance and the psychological effects related to this (Statewide Burn Injury Service, 2014).

2.4.3.4 Scarring and disfigurement

Pallua et al. (2003) found in their research that due to disfigurement 68.8% of patients with burn injuries had restrictions in relation to leisure activities outside the home and 82.3% had restrictions to participating in sports activities. Significantly more patients also participated in recreation activities within their homes, particularly those with visible scars on the hands and face, which resulted in more social isolation (Pallua et al. 2003).

In a review by Van Baar et al. (2006) of the functional outcomes of patients with burn injuries, 43% of patients had a problem with their appearance, even the patients with minor burn injuries. This had a direct effect on the patients' ability to return to previous roles because of poor body image and self-esteem. This issue can only be determined once the patient is discharged and has to face others in society. Van Baar et al. (2006) however criticised the research in this regard as none of the studies gave sufficient information to fully estimate the outcome of the patients' return to all occupational areas post burn injury. Ryan et al. (2015) report in a follow-up study of three years post burn injury patients that participants found that others in their communities took longer to adjust to them if they had more extensive burn injuries. This was reported as a problem six months post-discharge when they returned to community roles and had to cope with burn scars and disfigurement (Ryan et al. 2015).

An ethnographic study on the stigma of burn injuries considered the perceptions of 25 relatives of patients with burn injuries facing being discharged from hospital. Data was collected by means of semi-structured interviews and participant observations. Results indicated that the relatives had feelings of fear and shame in the face of both other people's reactions to the patient with the burn injury and also the patient's own reaction to reassuming their social roles. Relatives said they would change their daily routines, so that they could hide the patient from social contact, which would then further reduce the patient's ability to resume their previous roles (Rossi et al. 2005). These findings were supported by Malik et al. (2012) who found that participation in active recreation and social events was affected by the body image of patients with burn injuries.

It is clear that pain as well as physical and psychological dysfunction have a major impact on occupational performance after a burn injury which, when combined with a lack of social support and environmental barriers, mean that involvement in all occupational performance areas needs to be assessed (De Sousa et al. 2013).

2.4.4 Assessment of occupational performance areas

A number of tools are available to assess occupational performance and while the Functional Independence Measure (FIM), an outcome measure which assesses occupational performance, is commonly used in rehabilitation it does not consider community integration.

The AusTOMs and COPM have been developed particularly for the outcomes of occupational performance in occupational therapy. The AusTOMs has been compared to a quality of life assessment, the EuroQol-EQ-5D-3L, but these outcomes were thought to be similar by the therapists rather than the patients. It has been suggested that the measures are therefore more suited to assisting in setting goals for intervention (Unsworth et al. 2004). Oestergraad et al. (2012) reported in their study that the COPM assisted in the first three months post-discharge to identify patients' occupational performance problems, but was also found to be more effective in setting intervention goals and plans.

In 1990 Cynkin and Robertson introduced the concept of activities health and developed a framework which described the state of wellness in an individual's everyday activities. In order for the client's pattern of daily activities to be considered healthy, activities/occupations the person engages in need to be varied and of sufficient number to productively fill their time, provide comfort and satisfaction and be considered socially appropriate by the individual, those with whom he or she engages and within their social group.

They developed an activities health questionnaire, which allows for the construction of an activity profile. This outlines the different activities that an individual does during their waking hours. It also reflects the similarities and differences in the activities that they are engaged in during weekdays and over the weekend. Individuals score their perception of their comfort, satisfaction and the social appropriateness of their activities. In addition they also record the number of hours of sleep on weekdays and weekends (Cynkin & Robinson, 1990).

Interpretation is done by determining if the activity profile is balanced between time spent in all the occupational performance areas of personal management, survival skills, social participation, work and leisure and by the number and variety of activities done in each occupational performance area. The satisfaction and comfort within all occupational performance areas are assessed on a visual analogue scale from zero to ten and a score below five indicates dissatisfaction. The social appropriateness of activities in the different occupational performance areas is also determined on a visual analogue scale of ten (Cynkin & Robinson, 1990).

The total scores indicate whether the participant is activities healthy or not. The researcher will interpret the scores to determine if a participant is activities healthy (Cynkin & Robinson, 1990). There are no publications in which the activities health assessment has been reported for patients with burn injuries, with most studies considering the quality of life post burn injury in research to determine the effect these injuries have on the patients' lives.

From experience the activity profile with hours spent in different occupational performance areas is useful for determining change in an individual's occupation. This gives the patients a concrete tool to indicate aspects such as satisfaction and comfort and allows evaluation of values in their perception of social appropriateness of their activities. The tool allows for assessment of their view and participation in constructive and destructive activities and whether their perception of which activities are socially inappropriate complies with social norms.

Limitations of the activities health assessment include the time it takes to administer and score. There can be some confusion in defining occupational performance areas for example: in which area should travelling be scored? Patients may have difficulty understanding VAS scales. The activities health assessment has not previously been reported in published research or standardised in anyway.

2.5 Quality of life post burn injury

The assessment of quality of life allows for adjustment after a burn injury to be determined and is an important outcome to evaluate the success of the rehabilitation of these patients. The physical and psychosocial consequences of burn injuries may have a large impact on quality of life, because a patient post burn injury may need assistance with adjustment and coping skills to obtain an adequate quality of life (Wildebrand et al. 2001).

Wildebrand et al. (2001) found in their study on coping with burns that those patients who use avoidant strategies are at greater risk of having physical and psychological difficulties at follow-up. Avoidant strategies and emotional support are two of the six factors of the coping with burns questionnaire which Kildal et al. (2005) assessed in their study. They found that extensive use of avoidant coping strategies combined with minimal emotional support were related to worse outcomes for patients with burn injuries. This is because avoidant coping is a negative strategy that encompasses daydreaming, wishful thinking, use of drugs/alcohol and the avoidance of others and activity participation. Emotional support is provided by comfort from other people and social contact and this contributes to a better quality of life and better adjustment post burn injury (Kildal et al. 2005).

Druery et al. (2005) however demonstrated in their study that with the correct support and rehabilitation patients can be functionally independent and have a good quality of life post severe burn injury. Many factors affecting return to pre-injury activity participation also affect quality of life. This includes severity of the injury, as research which assessed patients' quality of life post burn injury found. Dyster-Aas et al. (2007) concluded that both the depth and extent of the burn injury play a role. Patients with extensive burn injuries of >70% of TBSA were found to have significantly poorer quality of life. Pope et al. (2007) found that the quality of life and body image in young adult burn survivors where the TBSA averaged 22.52%, compared well to their peers with more extensive burn injuries.

Better physical burn-specific quality of life was also associated with shorter stays in hospital, a younger age and being male (Wasiak et al. 2014).

Wasiak et al. (2014) reported that the same factors, except the length of stay in hospital, were also related to psychosocial quality of life, 12-month post-burn on the BSHS-B. Other studies assessing quality of life after burn injury including that by Ricci et al. (2014) confirmed that gender was a predictive factor for quality of life after burn injury. In all studies males have been shown to report a better quality of life post burn injury, especially for the body image domain on the Burns Specific Health Scale – Revised (BSHS-R) (Ricci et al. 2014; Wasiak et al. 20140.

Malik et al. (2012) in their study on burn survivors, found that quality of life in the social domain remained the most impaired, while all the other quality of life dimensions were within normal limits. They suggested that the quality of life after a burn injury should be re-assessed at every stage of recovery irrespective of the age at which the injury occurred. They felt this should assist rehabilitation professionals in determining what is needed to improve the patient's quality of life and assist them to achieve better adjustment after the burn injury (Malik et al. 2012).

2.5.1 Assessment of quality of life in patients with burn injury

Various quality of life measures have been used in research with burn injuries. Both the use of the measuring health-related quality of life across assessment the SF-36 and the shorten SF-12 have been used in burn injuries. These measures assess quality of life across the domains of physical functioning, psychological distress and general health (Gandek et al. 1998).

Both measures of quality of life and reintegration have been used to assess the reintegration of patients with burn injuries back into their homes and communities. Various quality of life scales are described by Burkhardt and Anderson (2003) which have been specifically designed for use with patients with chronic illness, all of which have been validated in first world countries. Although they recommend the quality of life scale as a measure that can be used with patients with burn injuries (Burkhardt & Anderson 2003), the EuroQol-5D-3L which has also been validated for patients with burn injuries (Oyster et al. 2009) is preferable for use in the South African context where it has been validated. The EuroQol-5D-3L is a standardised measure of health status developed by the EuroQol Group (Van Reenen & Oppe, 2015) which is available in three South African languages spoken in the North West Province, namely Afrikaans, English and Setswana.

The EuroQol-5D-3L assesses aspects of life related to mobility, self-care, usual activities, pain and anxiety. Pavoni et al. (2010) used the measure to evaluate the quality of life of severely burnt patients who had been admitted to ICU. Their results showed the need for outpatient rehabilitation, psychosocial support and reconstruction in patients with burn injuries. One year after the injury participants reported moderate problems regarding mobility, usual activities and pain.

Tirumala et al. (2013) used the EuroQol-5D-3L in India to investigate the quality of life in flame burn patients on discharge and concluded that severe limitations existed in quality of life for these patients, on discharge and even post-discharge.

As with other studies reviewed they found that the severity of the burns and pain affected the patients' quality of life with significant gender differences. Females had greater problems with self-care and usual activities (78%), anxiety (62%) and mobility (47%) compared to males' self-care and usual activities (57%), anxiety (43%) and mobility (25%). A higher percentage of males reported a problem with pain. While a significant difference was also found in quality of life for the %TBSA and depth of the burn injury, the differences regarding age, site of injury, and cause of injury were not significant. Participants with lower limb burns did report more mobility problems while self-care was more affected in those with trunk and face burn injuries.

Participants evaluated their quality of life with more than 40% having no problems with depression and anxiety and 62% having no problems with mobility. Less than 32% reported no problems with self-care and returned to usual activities while only 20% had no problems with pain. The remaining participants all reported severe to moderate problems in all domains on the EuroQol-5D-3L.

On this quality of life scale the assessment of the social domain of life, which is concerned with social contact in the home and community and community reintegration, all of which are affected in patients with burn injury, is not included. The reintegration of these patients into the community therefore needs be assessed separately if the effects of burn injury are to be comprehensively addressed.

2.6 Community reintegration post burn injury

Esselman et al. (2001) defined community integration as a person’s ability to be active in their roles regarding the community and being productive like engaging in activities like work, school or volunteering. Community integration has become an important concern for patients with burn injuries as according to Esselman et al. (2001) patients with even up to 80% TBSA burn injuries survive the burns because of improvement in medical care. These patients need good comprehensive rehabilitation follow-up to improve their reintegration back into society (Esselman, 2007).

Successful community integration depends on the transition from acute care of the patient with burn injury to them participating actively in their roles regarding work, family and leisure time. The transition according to Goggins et al. (1990) must happen gradually and start even before the patient is discharged as an outpatient by providing them with a good structured community reintegration programme.

Research shows that patients with burn injuries have significant problems in reintegrating back into their community due directly to the burn injury as well as non-burn related factors (Esselman et al. 2001). Pallua et al. (2003) supported this finding in their study when they found that patients with burn injuries with poor physical functioning had the greatest problem reintegrating successfully on a social level and often became isolated socially with feelings of marginalisation. They therefore suggested that these patients need an intervention to assist their social rehabilitation as this social isolation resulted in corresponding socioeconomic deficits; due to their unwillingness to interact with others these patients are often unable to work (Pallua et al. 2003).

Patients’ relatives also play an important role in supporting and assisting their reintegration back into the community. If the relatives’ attitudes are not positive, the patient is less likely to recover fully post-discharge.

2.6.1 Assessment of reintegration into the community

A reintegration scale indicated as suitable for use as a measure of community integration after burn injury is the Community Integration Questionnaire (CIQ). The scale consists of 15 items which are scored by participants as a self-report in the following areas: Home integration (score 0-10); Social integration (score 0-12) and Productivity (score 0-12). The CIQ has demonstrated validity and reliability but does however have limitations especially regarding sensitivity to change over time (Esselman et al. 2001).

Malik et al. (2012) recommend that all patients with burn injury are followed up and their reintegration into the community assessed over time, up to at least one year after discharge from hospital. The traditional approach of assessing the outcomes of patients with burn injuries should therefore be altered by including long-term outcomes such as reintegration back into the community with the help of multi-disciplinary assessments and interventions.

2.6.2 Intervention for community reintegration for patients with burn injury

One of the greatest concerns patients and their families express pre-discharge relates to the problems they might face regarding social reintegration and the roles they have to return to (Rossi et al. 2005).

A step by step reintegration of patients with burn injuries into the work and social dimensions of their life over a period of two years in three to six month intervals is suggested. Pallua et al. (2003) suggested early intervention during inpatient treatment in identifying patients who will possibly have problems in adapting socially. Esselman (2007) supported this and suggested that further research needs to be done on the effectiveness of rehabilitation treatment post burn injury to assist the patients with transition back into their community. Services rendered should be optimally effective so that patients with burn injuries can be fully integrated back into society in all areas of their life.

Malik et al. (2012) in fact emphasises the need for mental health at every stage of treatment for patients with burn injuries to facilitate better adjustment in terms of reintegration into society. They also state that:

> “The eventual outcome for burn patients is related to injury severity, individual physical characteristics of patients, motivation of patients, quality of treatment and after-care support. Burn patients often require years of supervised rehabilitation, reconstruction and psychosocial support. The quality of burn care is no longer measured only by survival but also by long term function and appearance” p 314 (Malik et al. 2012).

In 1994 the National Institute on Disability and Rehabilitation Research created a burn model system program to assess the long-term outcome of patients with burn injuries. The programme was reviewed in 1997 and 2002 and the outcomes data were used to determine what interventions were needed to improve quality of life and also reintegration back into the community - specifically a return to work and school. Klein et al. (2007) state that to return to school or work post burn injury is a powerful barometer to show if a patient has reintegrated back into society. The study also identifies barriers to reintegration in society for burn survivors and suggests possible strategies to overcome these (Klein et al. 2007).

According to Blakeney et al. (2008) the reintegration issue patients find the most difficult at discharge involves the reactions of other people. The way a patient with burn injury is perceived by the community can affect their reintegration back into that community. The community therefore also needs education on how to handle a patient that has sustained a burn injury and who is returning back to that community.

2.7 Characteristics of successful intervention for community integration.

Spires et al. (2007) emphasise the importance of ongoing treatment after discharge for complete recovery, determining successful reintegration into community, psychosocial adjustment and return to work. The results of a study by LoBello et al. (2003) show that post-injury survivors, not particularly only burn survivors, can restore their psychosocial functioning if health professionals increase patients’ skills needed to reintegrate back into the community. The patients can be facilitated so that they have better adjustment post injury, and because of this their individual social integration level may be increased (LoBello et al. 2003).

Blakeney et al. (2008) suggest a programme that could be used to support patients with burn injuries. One of the guidelines states that a patient with a burn injury should be expected to recover to their maximum potential but that this involves an ongoing difficult process for up to two years. In their recommendation for the rehabilitation phase and reintegration into the community they suggest the following treatment: A re-entry program, therapy and medication targeting post-traumatic stress disorder, psychotherapy including cognitive-behavioural and family therapy, and social skills training as well as anxiolytics and anti-depressant medication tapered off over time (Blakeney et al. 2008). The use of such a programme may improve the patient's physical and emotional wellbeing that impact their quality of life and result in a better economic outcome, for example them returning to work. Therefore occupational therapy post-discharge is important as occupational therapists assist with rehabilitation of social skills, prevocational and vocational skills so that the patient can reintegrate successfully back into the community.

Scarring of the post burn injury patient can have an impact on multiple levels if not correctly followed up on as an outpatient. Effective measures should therefore be taken to minimise the scarring. Hypertrophic scarring can lead to social avoidance (Falder et al. 2009).

Badger et al. (2011) reported that a number of participants in their study were concerned about their healing, scarring and regaining function because of their physical changes. They found that once the participants had started to adjust and let other people see their scars, it has also had an influence on them being more aware of their physical changes. The role of occupational therapy in following up a patient with burn injury after discharge therefore also involves the provision of pressure garments and scar treatment to minimize hypertrophic scarring which will help reduce deformities and may assist with reintegration into the community in terms of patients' appearance and acceptance of themselves (Pendleton & Schultz-Krohn, 2013).

Badger et al. (2011) described another form of intervention to assist patients with burn injuries to reintegrate into the community. They used text analysis by reviewing web-posted narratives to see what can be learned from burn survivors. They suggested that story-telling can be a possible intervention to use with patients with burn injuries as part of their recovery. They analysed word categories from 72 postings on the website of the Phoenix Society for Burn Survivors, where they considered community integration in conjunction with leisure, work, home and achievement.

They found that when they compared patients with burn injuries to others without burn injuries, that the burn survivors were just as achievement-oriented, interested in leisure and concerned about their work as the group to which they were compared. The patients that survived a burn injury used fewer words in the category of social processes and friends compared to the comparison group. It might be possible that the burn injury and hospitalisation affected their social reintegration and specifically their social activities outside of their immediate families. The researchers felt that it was not therapeutic that most of the burn survivors used the past tense in their narratives. They indicated that when narratives included the present and future tense their reintegration could be considered more successful because of the change happening in affective processes and the more positive emotions. In the same study 50% of those with burn injury indicated that their family was a supportive resource (Badger et al. 2011). This supported the findings of Kildal et al. (2005) that showed that emotional support was the most beneficial strategy in assisting patients to achieve acceptable and positive long-term outcomes following a burn injury.

Wiechman et al. (2015) found that additional services added to an outpatient programme in the form of an expanded care coordinator were not effective. These coordinators supported the experimental group in their study with extra phone calls during the weeks and months post-discharge, and dealt with motivation, crises and problem solving. They also coordinated outpatient and clinic appointments. There was however no difference in any outcomes including quality of life for those patients with burns who did and those who did not receive this service. The researchers concluded that this approach might only work for high-risk patients (Wiechman et al. 2015). It would appear that perhaps peer support in the community may be more effective for patients with burn injuries.

2.7.1 Peer support groups

Wildebrand et al. (2001) found that patients with burn injuries who do not seek emotional support have a poorer outcome post-discharge. They also suggested group interventions or counselling to prevent the patients from using avoidance strategy and as a result becoming isolated. These researchers suggested that patients should meet with other burn injury patients to help them to be more optimistic about the future and also to give them a sense of hope (Wildebrand et al. 2001).

This suggestion was supported by Blakeney et al. (2008) who stated that after discharge patients should still receive therapy and support as once they leave the protected environment of the hospital they need to adjust to their previous environment. To achieve this they need good family and social support as well as outpatient treatment and possibly peer support groups which can facilitate and assist them with their adjustment and reintegration back into their home and community (Blakeney et al. 2008).

Badger and Royse (2010) also emphasise the importance of peer support in the rehabilitation process of patients with burn injuries as they feel that psychological healing should be part of the recovery process. Peer support could also be helpful in getting patients with burn injuries to accept their altered physical appearance. They point out that the rehabilitation team should also have policies in place regarding the management of these support groups and caution that if volunteers are recruited for this process that they be screened and properly trained if they are to facilitate these groups (Badger & Royse, 2010).

2.7.2 Family support

Wisely and Tarrier (2001) also recommend the need for individual, group and family intervention sessions. They state that training and support between health care professionals are important to be able to run an effective follow-up service. Their study indicated however that participants with burn injuries felt that there was a lack of support both in the hospital and after discharge from the hospital.

> “The findings strongly support the urgent need for the development of a comprehensive follow-up service post burn injury that would make both

> specialist physical and psychological support more accessible to patients” p 807 (Wisely & Tarrier 2001).

The need for support for the family of the patient with burn injury, post-discharge is also important. In a qualitative study on the family perspective about psychosocial support Phillips et al. (2007) used questionnaires with the partners, siblings and children of the patients with burn injury, to assess what was needed in a support programme for the families. A large number of the partners reported that the distance they needed to travel to the burns unit made it difficult for them and they suggested that if families and patients with burn injuries were in need of support that the appropriate services should be accessable in the area in which they live. Appropriate support for the family may also lead to better adherence to treatment and rehabilitation (Phillips et al. 2007). Blakeney et al. (2008) in their seven guidelines for the treatment of patients with burn injuries support the idea that the family being part of the treatment is very important from admission onwards and that they need assistance with adjustment and adaptation post burn injury.

Succesful community reintegration is therefor supported by follow up post discharge with multi diciplinary team and also depends also on family support and peer support.

2.8 Summary

Burn injury, even if not severe, can result in physical and psychosocial dysfunction and there is a need for regular intervention from a multi-disciplinary team to ensure successful outcomes and reintegration back into the community. Burn injuries have a direct and indirect effect on all the occupational performance areas of a patient’s life and can result in marked activity limitations if they do not receive the support they need during the ongoing long-term rehabilitation.

While there are a number of studies focusing on the return to work post burn injury there is not a lot of research about engagement in other previous occupational performances and roles after discharge. Quality of life has been shown to decrease post burn injury especially due to factors like the size and depth of the burn injury, as well as age and gender, as females have been shown to report worse QoL after burn injuries. It has become furthermore clear that both physical and psychological problems hinder a patient’s successful reintegration into the community post burn injury. It is therefore important to measure not only the physical and psychosocial outcomes for patients with burns but also to consider the outcomes and interventions related to reintegration into the community This could include peer support groups and family support for both the patients and their families.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter will describe the research design, research site, sample selection and data collection tools as well as the process of the study and how the data was collected, scored and interpreted in this chapter of the methodology.

3.2 Research design

The study design was a non-experimental, descriptive, longitudinal, quantitative study with a qualitative element. The data were collected in the form of a descriptive study as there was no manipulation of the usual treatment and the environment (San Diego State University, 2010). Descriptive studies are used to measure participants in relation to the relevant variables in a study and no variables were manipulated. A longitudinal design was selected as the treatment of burn injuries is a long term process and the change between variables over time need to be investigated.

Because this quantitative research design was used, the data that were collected were numerical data (Maree, 2010) although there was a small qualitative element in the quality of life assessment in that participants were asked how they felt about reintegration. Data have been collected using ordinal scales.

As this was a longitudinal study the same sample has been assessed over a period of time, for example at one month and then again at six months. Various tools were used during admission to establish the patients' pre-morbid functioning and then with each contact the variables were compared over a period of time (Watson, 1998). This enabled associations between variables to be explored.

3.3 Participants

All the patients were over the age of 18 years and had already been admitted or were admitted during the period of data collection to the Burns Unit in Tshepong Hospital in Klerksdorp. Data were collected from August 2013 to October 2014.

Total population purposive sampling technique has been used and the entire population of patients discharged from the Burns Unit during the data collection period were recruited for the study. On average 10 to15 patients over the age of 18 years were discharged from the Tshepong Hospital Burns Unit over a three month period which resulted in a cohort of 55 patients being recruited for the study over 14 months

The inclusion criteria were the following:

- Patients with burn injuries aged 18 years and older.
- Patients who gave written informed consent (Appendix B).
- Males and females.
- Residents of the North West Province in South Africa and therefore eligible to receive outpatient occupational therapy at Tshepong Hospital or community clinics in the North West Province.

The pool of participants was limited and this led to an extension of the time that the data were collected from 10 months to 14 months. As this was a longitudinal study loss to follow-up was an issue. In an attempt to minimise dropout from the study participants were contacted regularly by cell phone and those that did not return to the Hospital and could be contacted were followed up at local clinics.

3.4 Variables

In this study the dependent variables were change the participants' activities health, quality of life, access to occupational therapy services and level of integration into the community that were measured, over a specific time frame of six months and considered "what was" while providing systematic information about the phenomenon (New York University, 2008; Watson, 1998).

The independent variables were the participants' age, marital status, employment, education level, degree of burns, area of burns and urban or rural setting in which they live.

3.5 Materials and procedures

3.5.1 Data collection tools

3.5.1.1 Demographic Questionnaire

A demographic questionnaire *(Appendix C)* was used to record demographic information that was designed to specifically collect participant characteristics like age, gender, marital status, level of education and employment. Medical history was recorded on the same form and information included %TBSA, site of injury, degree of burn injury, cause of burn injury, length of stay in hospital, family support systems, address, and phone number. Identifying data were kept separate. This questionnaire was used to look at the profile of a patient that sustained a burn injury in the South African context.

3.5.1.2 Activities Health Assessment

The Activities Health Assessment (Appendix D) is a non-standardised tool to measure activities health, a framework described by Cynkin and Robinson (1990). Activities health describes the state of wellness in an individual’s everyday activities. In order for the client’s pattern of daily activities to be considered healthy, activities/occupations the person engages in need to be varied and of sufficient number to productively fill their time, provide comfort and satisfaction and be considered socially appropriate by the person, those with whom they engage and their social group. The Activities Health Assessment has been formalised and is used as a questionnaire at the University of Witwatersrand Occupational Therapy Department.

The questionnaire allows for the construction of an activity profile, in which the participants indicate the activities they do for 24 hours on a typical weekday and weekend day. They indicate their activities during their waking hours as well as how long they sleep. The percentage of time spent on activities in each occupational performance areas namely work/education, leisure, personal management, survival skills, social participation and including sleep is calculated separately for the weekday and weekend day.

Interpretation was done by determining if the percentage of time spent on different activities in different occupational performance areas on the activity profile between areas like personal management, work, survival skills, social participation and leisure. The number of activities the person takes part in each occupational performance area are also calculated. This number is recorded as the variety of activities done by the person on a weekday and on a weekend day. There is no research which indicates what balance or variety of activities is appropriate so only a change in the individuals time spent and the number of activities engaged in can be reported.

People are also asked to score their perceptions of their comfort, satisfaction and social appropriateness of their activities. This is scored for all occupational performance areas on a visual analogue scale from zero to ten. The line has no scores on it and a person is asked to place a mark on the line to indicate their level of satisfaction and comfort with their activities in different occupational performance areas as well as how social appropriate they feel their activities are. Ten indicates complete satisfaction, comfort and social appropriateness while zero indicates very dissatisfied, very uncomfortable and activities which are highly socially inappropriate.

The person makes a mark on a 14,5 centimetre line between zero and 10 to indicate their perception of their satisfaction, comfort and social appropriateness and the distance of the mark from zero is measured with a ruler in centimetres to obtain their score. A score below 7.25 centimetres indicates dissatisfaction, discomfort with activities and participation in socially inappropriate activities. The scores for balance and variety as well as satisfaction, comfort and social appropriateness are all considered in determining if a person is activities healthy.

3.5.1.3 EuroQol EQ-5D-3L

This EuroQol EQ-5D-3L (Appendix E) quality of life assessment used in this study consists of two parts and was self-administered. The first part of the EQ-5D-3L consists of a descriptive system while the second part is the EQ visual analogue scale (EQ VAS) (Van Reenen & Oppe, 2015).

The descriptive part consists of five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each one is rated in three levels: no problems, some problems and extreme problems and patient needs to tick the one that best reflects their health state. In the second part the patient rates their own health state currently on the vertical analogue scale (EQ VAS) that is 20 centimetres long, between 0-100, with the zero on the scale indicating the worst imaginable health state and 100 best imaginable health state. This information can be used as a quantitative assessment of health outcomes as perceived by the participant. Both parts need to be administered to make the test valid (EuroQol Group, 1990).

The EQ-5D-3L has been translated in 130 languages so it can be used internationally including in Setswana, the language spoken by the majority of participants in this study (The EuroQol Group, 1990). The validity and reliability of the EQ-5D-3L have been evident for many chronic conditions and different populations (Oster et al. 2010) It has however been criticised for its ability to discriminate regarding health status because of the three-point scoring scale (Sullivan et al. 2005). Oyster et al. (2009) researched the validity of the EQ-5D-3L for patients with burn injuries and found that the questionnaire was accepted by the patients in their study and easy for them to understand. The scoring showed differences from baseline where patients had low scores and could distinguish quality of life for patients with different levels of burn severity. Concurrent validity with the generic SF-36 was high but was only moderate to the BSHS-B (Oyster et al. 2009).

3.5.1.4 Community Integration Questionnaire (CIQ)

The CIQ (Appendix F) consisted of 15 items and were divided in three main areas: Home Integration (score 0-10), Social Integration (score 0-12) and Productivity (score 0-12). One calculates a total score for each area and the higher the score the better the participant’s reintegration (Willer et al. 1993). The CIQ was developed for patients with a traumatic brain injury. There is no formal training or credentials needed to administer the CIQ.

The psychometric properties of the CIQ were established by the developers of the test. The test retest reliability coefficient for the overall CIQ was 0.91 for individuals and 0.97 for when family members assessed individuals. Cronbach alpha coefficients for individuals were 0.93 and 0.96 for family members for the home section and ranged from 0.83 – 0.86 for individuals for the social and productivity sections. A coefficient higher than 0.90 is interpreted as having excellent reliability and between 0.80- 0.89 is good reliability.

Gender norms were published for integration scores for typical males and females for the home, social and productivity as well as a total integration into the community score in Canada, a developed country (Willer et al. 1993).

3.5.1.5 Role Checklist

The Role Checklist (Appendix G) consists of two parts where the first part assesses ten roles that the individual believes they engage in every day. The test requires that the participant ticks next to the roles they participated in the past, present or will possibly in the future. Bonsaken et al. (2015) found that an indication of participation in roles is related to performance level of doing and therefore indication by the participants of participation in roles was accepted and engagement in those roles (Bonsaksen, et al., 2015).

The second part of the checklist requires individuals to state how much they value each of their roles by ticking against “not at all valuable,” “somewhat valuable” or “very valuable” for each role. The assessment allows for role engagement, valuation of roles, role balance, and role continuity to be evaluated. There is no published research on the number or variety of roles an individual should engage in so only a change in the roles participated in was considered in this study.

Oakley et al. (1986) developed the Role Checklist and determined the validity and reliability of the assessment. Content was developed by postgraduate students, staff at the university, and therapists and the test/retest reliability of 0.73 to 0.90 was completed with a group of typical adults (Oakley et al. 1986)

3.5.1.6 Questionnaire on access to occupational therapy services

The researcher designed this questionnaire *(Appendix H)* with tick boxes and open questions to fill in the participants comments. Question 1, 5, 7 and 8 were open questions, question 6 was a yes or no question and question 2, 3 and 4 were tick boxes. The main purpose of the questionnaire was to record information about the reasons why patients default from occupational therapy treatment. The researcher developed the questions based on my experience of factors that prevented patients from returning for therapy. The researcher also used information from the patients in the Burns Unit about distances from the hospital and costs in getting to the hospital. The questionnaire included the distance they stayed from their nearest clinic and Tshepong Hospital. Participants indicated the type of transport they used to get to the hospital or clinic as well as the cost. They also had to indicate which factor most affected their ability to attend their occupational therapy sessions at Tshepong Hospital.

The questionnaire was validated in conjunction with the supervisor and a subject matter expert who was experienced in community reintegration in South Africa. The questionnaire was checked for the suitability and content of the questions.

3.5.2 Research procedures

3.5.2.1 Training the research assistant

A research assistant, an OTA that had worked in the Burns Unit for the past eight years, was recruited to assist with the assessment of the participants. She had 20 years' experience as an OTA and the researcher trained her to assist with the administration of the tests and specifically the CIQ whenever translation was needed. She practiced the interview for the CIQ under the researcher's guidance and before interviewing the participants she knew what was expected of her regarding the structured interviews for the CIQ. She sat in on ten sessions where the researcher conducted the interviews and facilitated the filling in of the questionnaires in English. The research assistant observed and practiced the administration of the questionnaires and interviews so she could translate questions into Setswana when necessary without guiding or influencing the participants' answers. The researcher was present during all assessments to answer any questions and to assist with the administration of the measurement instruments if necessary.

3.5.2.2 Data collection

During the data collection phase patients in the Burns Unit were approached on discharge they were asked to participate in the study. They received an information letter which described to them the purpose of the study and what exactly was expected of them (Appendix B). Patients had to sign a written informed consent form before they could participate in the study. Patients continued with normal rehabilitation treatment on outpatient basis. If they had signed the informed consent form the researcher completed the demographic form, an Activities Health assessment and Role Checklist with each participant to determine their pre-morbid activity participation before they sustained their burn injury. Medical information about their burn injury was also noted on the demographics form, the trained OTA assisted with translation if the patient was Setswana speaking and patients either filled in their own Activities Health Assessment and Role Checklist or this was filled in for them with the assistance of the research assistant and the researcher.

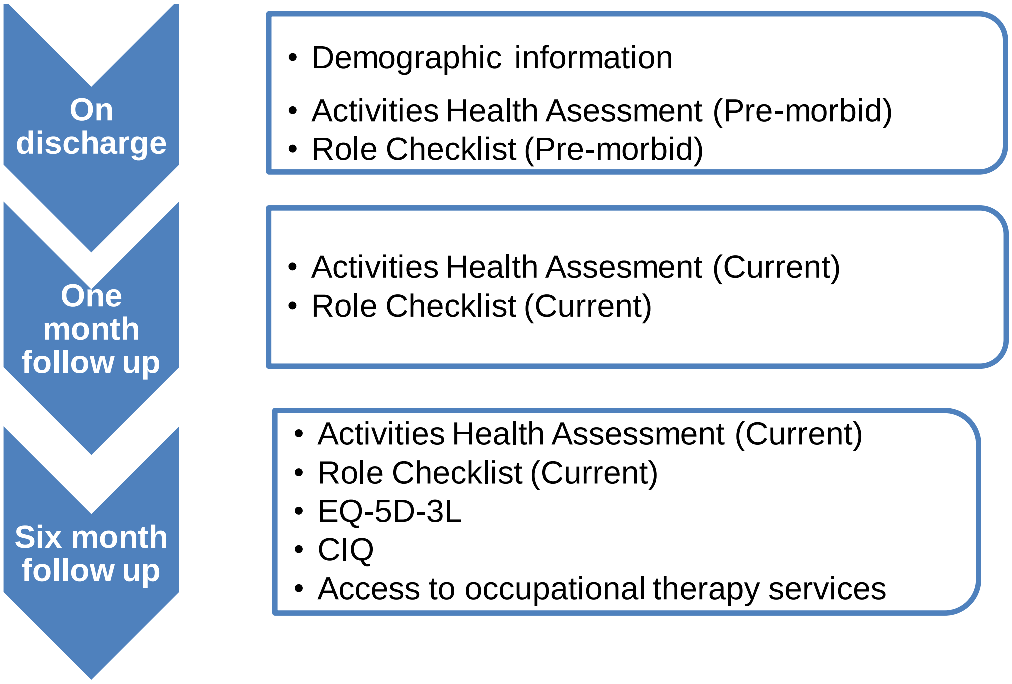

Figure 3.1 Data Collection Process

On discharge the first follow-up appointment was given for one month post-discharge for the participants in the research. The participants had to continue with their normal occupational therapy appointments in the meantime. At the first follow-up session after one month each participant again completed an Activities Health Assessment and Role Checklist. This time they were asked to provide current information about these components since their return home.

This procedure was repeated at six months where they once again completed the Activities Health Assessment and Role Checklist on their current status. It was done as a self-report or in an interview format. At the six month time frame participants also completed the EQ-5D-3L (EuroQoL Group, 1990), the (CIQ) (Willer et al. 1993) and the access to occupational therapy questionnaire.

All the data collection tools were administered by the researcher and were scored by another occupational therapist that was blinded to the different time periods at which the test was administered for the Activities Health Assessment. She also didn't know patients' demographic and medical details.

The researcher kept in contact with the participants by phone throughout the study, reminded them about their appointments and assisted with transport costs to the hospital for their follow-up appointments. At times it was necessary to travel to clinics near the patients' homes to meet with them to complete the assessments, if they could not come to the Hospital to keep their appointments. The researcher struggled to keep contact with all the participants as their phone numbers changed and even in cases where she had two contact numbers for a participant, she still experienced problems keeping in touch with them.

The research assistant and the researcher also tried to follow up participants at the addresses they provided.

3.6.3 Ethical considerations

Ethical clearance was provided by the Human Research Ethics Committee (HREC) at the University of the Witwatersrand (M130648) (Appendix I). Permission to complete the research at Tshepong Hospital was obtained from the chairperson of the PSG committee and clinical manager of Tshepong/Klerksdorp Complex. (Appendix A).

All the participants received an information letter explaining the research and were asked to sign an informed consent form to make sure that they have given informed, written consent to participate in the study (Appendix B). Where necessary the OTA translated the information sheet to ensure the patient understood what the research entailed. Citing the ethical principle of autonomy the researcher also made it clear to them that they had the right to refuse to take part in the study without any consequence to their treatment and therapy. The researcher also made it clear that the patient could withdraw at any given time during the data collection period, again without consequence, and that this would not affect their normal treatment and therapy plan in any way (World Health Organisation, 2001).

The researcher also applied the ethical principle of beneficence or does no harm to the patients and although they did not benefit directly from the outcome of the research, any patients who needed treatment were accommodated and referred to alternative services if possible. Whenever the researcher saw that participants might have had symptoms that needed attention from another profession, she made the necessary referrals to the relevant clinicians.

She also applied the declaration of Helsinki's principles on anonymity regarding ethical consideration by making sure all the participants' information were confidential and safeguarded. She informed the patients that no names would appear on data collection sheets and that she would keep all identifying information in a secure locked place that only she would have access to. All data will be stored for six years in a locked cupboard as per HPCSA regulations. The researcher also made sure that the patients understood that if they refused to take part there would be no change in the patient-therapist relationship and that they would simply continue with their occupational therapy (World Health Organisation, 2001).

Participants were informed that feedback from the study was available on request.

3.6.4 Data analysis

All data were captured on an Excel spread sheet and analysed using Statistica v12. Descriptive statistics were used for the demographic data which were presented in frequencies (StatSoft, 2014).

The datasets were collected from the same participants over a period of time as repeated measures allowed me to determine what changed over time. Since participants were to be followed up on monthly appointments post- discharge all the data from all the participants who were included in the study initially were included to obtain an unbiased view of the patients admitted and discharged from the Burns Unit.

Interpretation of the data for the activities health assessment were also descriptive using the median and quartile ranges as the data were not normally distributed. A similar analysis was used for the scores of satisfaction comfort and social appropriateness by measuring the mark on the 14,5 centimetre line with a ruler and recording the distance from zero in centimetres as the Likert score for each section. The data were compared at baseline, one month and six months for significant differences using the non-parametric Wilcoxon sign ranked test and effect sizes due to the small sample that was not normally distributed. Small effect sizes were 0.2, moderate effect sizes were 0.5 and large effect sizes were 0.8. Effect sizes were calculated using an online calculator.

The Role Checklists were analysed using frequencies and the significant difference from baseline, to one month and six months was established using the Fisher's exact test as the sample size was small for some scoring categories, particularly the category value not at all.

Only the data of the participants who were followed up over six months were analysed. Their quality of life scores which were determined on the five aspects and VAS scales of the EuroQol EQ-5D were presented as frequencies at six months. The data were correlated with the participants' demographic data to determine how the independent variable was associated with the dependent variables using Spearman's correlation coefficient.

Table 3.1 Interpretation of Correlations scores

Correlations between 0.00 and 0.20	Little / no relationship
Correlations between 0.20 and 0.40	weak relationship
Correlations between 0.40 and 0.60	moderate relationship
Correlations between 0.60 and 0.80	strong relationship
Correlations between 0.80 and 1.00	excellent relationship

Community integration scores assessed at six months for participants retained in the study were compared by gender to the norms of males and females established by the developer of the (CIQ). The data were correlated with the participants' demographic data to determine if it was associated with their personal demographics and medical history using Spearman's correlation coefficient as ordinal data was collected.

Table 3.2 Gender Norms for the CIQ

	Males (n = 105)	**Females (n = 132)**
Home	4.53	5.76
Productivity	8.97	9.39
Social	6.29	5.83
Total	19.79	20.98

The factors affecting the participants' access to occupational therapy services were presented using frequencies.

The process of collecting data and interpreting it was done by being aware of all the ethical considerations regarding the data and methods used in this study. Due to the small sample size, data that were not normally distributes and ordinal scales used throughout nonparametric analysis was used.

CHAPTER 4: RESULTS

4.1 Introduction

In order to establish the effects of burn injury on activities health, quality of life and community reintegration, patients who were discharged from the Burns Unit at Tshepong Hospital in the North West were followed up for six months. Fifty five patients were included in the study and 28 participants completed the outcome measures pre discharge at one month and 27 participants at six months post discharge. One participant was left out at six months with the CIQ, EQ-5D-3L and access to occupational therapy as he did not complete them as he withdraw from the study. The dropout rate at one month was 49.1% (n=27) and at six months 50.9% (n= 28) with 27 participants completing the final outcome measures including activities health, EuroQol 5D-3L and a community reintegration questionnaire.

4.2 Demographics and medical history

The first objective of the study was to determine the demographic profile of adult patients with burn injuries who have been discharged from the Burns Unit in the North West Province.

4.2.1 Demographic characteristics

4.2.1.1 Personal demographics

The majority of the participants that were included in the study were males in the age group 18 to 30 years or younger adults (Table 4.1). The smallest number of participants were in the age group 51 to 60 years. The mean age was 33.3 years.

In view of the intention to treat analysis the group of those retained in the study for six months was compared to those who defaulted to determine any factors that may differ between the groups. There was no significant difference in the characteristics between the groups for demographics except for gender as significantly more females remained in the project at six months.

Most of the participants were single with one third of the population currently in a relationship. There were only a small number of participants who were married or who had been married and were now divorced. There were no significant differences in marital status of the participants retained in the study and those that defaulted.

Table 4.1 Demographic characteristics of the total group of participants (n=55),

		Percentage (n)				**p value**
Gender		**Males**		**Females**		
	Total group	61.8% (34)		38.2% (21)		
	Retained (n=28)	46.5% (13)		53.5%(15)		0.03*
	Defaulted (n=27)	76.9%.(21)		23.1%(6)		
Age		**18-30 years**	**31-40 years**	**41-50 years**	**51- 60 years**	
	Total group	50.9% (28)	16.4% (9)	20.0% (11)	12.73% (7)	
	Retained (n=28)	57.1% (16)	21.4% (6)	21.4% (6)	10.7% (3)	0.06
	Defaulted (n=27)	30.7% (12)	11.1% (3)	25.9% (7)	14.8% (4)	
Marital Status		**Single**	**Relationship**	**Married**	**Divorced**	
	Total Group	47.2 % (26)	34.6 %(19)	12.7 %(7)	5.5 %(3)	
	Retained (n=28)	53.7% (15)	35.7% (10)	10.7% (3)	3.57% (1)	0.34
	Defaulted (n=27)	40.7% (11)	33.3% (9)	14.8% (4)	7.4% (2)	

Significance *p≤ 0.05
Significance **p≤ 0.01

4.2.1.2 Education level and occupational status

The majority of the participants had attended secondary school, but only ten had completed grade 12. Three of the participants had obtained or were busy with tertiary qualifications (Table 4.2). The percentage of participants that that were employed and unemployed were almost equal. Only one participant was still attending school.

In terms of education level and occupational status there was no significant difference between the participants retained in the study and those that defaulted.

Table 4.2 Education level and occupational status of the total group of participants (n=55),

		Percentage (n)				**p value**
Education level		**No education**	**Primary school**	**Secondary school**	**Tertiary education**	
	Total group	5.5 % (3)	23.6 %(13)	65.4 % (36)	5.5 % (3)	
	Retained (n=28)	(1)	(7)	(20)	(2)	0.15
	Defaulted (n=27)	(2)	(6)	(16)	(1)	
Occupational status		**Employed**	**Unemployed**	**School**		
	Total group	50.9% (28)	47.3% (26)	1.8 % (1)		
	Retained (n=28)	60.7% (17)	42.8% (12)	0		0.30
	Defaulted (n=27)	40.7%(11)	51.8% (14)	3.7% (1)		

4.2.2 Medical history

4.2.2.1 Degree of burn injury, total body surface area and cause of the burn injuries

The majority of the participants had superficial partial thickness burn injuries (Table 4.3) with approximately 18% having full thickness and deep burn injuries. The extent of the burn injuries differed with just over two thirds of participants having less than 10% TBSA burnt and just over two thirds having between 10% and 11% TBSA burnt.

Hot liquids and flames were by far the most common cause of the burn injuries and 32,7% were burnt as the result of assault with hot water or hot oil.

Table 4.3 The degree of burn injury, the total body surface area and cause of the burn injuries for total group of participants (n=55),

		Percentage (n)				
Degree of burn injury		**Superficial partial thickness**	**Partial thickness**	**Full thickness**	**Deep**	
	Total group	60.0% (33)	21.8 % (12)	10.9% (6)	7.3% (4)	
	Retained (n=28)	64.28% (18)	17.8% (5)	14.2% (4)	7.1% (2)	0.78
	Defaulted (n=27)	55.5% (15)	25.9% (7)	7.4% (2)	7.4% (2)	
Total body surface area (TBSA)		**<10%**	**11-20%**	**21-30%**	**31-40%**	
	Total group	38.2% (21)	38.2% (21)	18.2% (10)	5.4% (3)	
	Retained (n=28)	53.5% (15)	33.3% (9)	10.7% (3)	3.7% (1)	0.09
	Defaulted (n=27)	25.8% (7)	42.8% (12)	25.8% (7)	7.4% (2)	
Cause of burn injury		**Hot liquids**	**Flames**	**Electric**	**Chemical**	
	Total group	32.7% (20)	47.3% (26)	7.3% (5)	7.3% (4)	
	Retained (n=28)	42.9% (12)	46.4% (13)	7.1% (2)	3.6% (1)	0.09
	Defaulted (n=27)	29.6% (8)	48.2% (13)	11.1% (3)	11.1% (3)	

4.2.2.2 Length of hospital stay

The majority of the participants spent at least one month in hospital, followed by a third of the participants who spent two months in hospital (Table 4.4). Only one participant spent more than eight months in hospital. The mean length of stay in hospital was 46.7 days. In terms of length of hospital stay there was no significant difference between the participants who were retained in the study and those who defaulted.

Table 4.4 Number of days that participants stayed in hospital for total group of participants (n=55),

		30 days	31-60 days	61-90 days	165 days	247 days	p value
Length of stay in hospital	**Total group**	49.1% (27)	32.7% (18)	14.6% (8)	1.8% (1)	1.8% (1)	
	Retained (n=28)	67.5% (19)	32.1% (9)	21.4% (6)	0	3.7% (1)	0.73
	Defaulted (n=27)	29.6% (8)	32.1% (9)	7.4% (2)	3.7% (1)	0	

4.2.2.3 Location of burn injuries

The majority of the participants' injuries were on their head, upper limbs and trunk or head and upper limbs. The rest of the injuries on the head, upper limbs or lower limbs alone or in combination occurred in between 1.2% and 9.1% of the participants (Table 4.5).

Table 4.5 Location of burn injuries for total group of participants (n=55), those retained in the study (n=28) and those who defaulted (n=27)

Location of injury	**Total group**	**Retained**	**Defaulted**	
	Percentage (n)			**p value**
Head	1.8%(2)	7.1 % (2)	0% (0)	0.00
Trunk	7.3%(4)	10.7% (3)	3.7% (1)	
Upper limbs	5.5%(3)	3.6% (1)	7.4% (2)	
Lower limbs	9.1%(5)	10.7% (3)	7.4% (2)	
Head & trunk	1.8%(1)	0% (0)	3.7% (1)	
Head & upper limbs	12.7%(7)	14.3% (4)	11.1% (3)	
Head, trunk, upper limbs & lower limbs	9.1%(5)	10.7% (3)	7.4% (2)	
Upper limbs, lower limbs & trunk	9.1%(5)	10.7% (3)	7.4% (2)	
Upper limbs & lower limbs	7.3%(4)	3.6% (1)	11.1% (3)	
Head, upper limbs & trunk	29.1%(16)	21.4% (6)	37.1% (10)	
Upper limbs & trunk	5.5%(3)	7.1% (2)	3.7% (1)	

These results do not reflect how many limbs were burnt, only the location of the burns. Significantly more patients with burns on the lower and upper limbs and head, upper limbs and trunk defaulted from therapy.

4.3 Activities health

The second objective was to determine the change in patients' activities health and roles at one month and six months post-discharge for patients discharged from the Burns Unit in the North West Province

4.3.1 Time spent on activities

The time spent in different areas of occupational performance was analysed according to the percentage of time participants reported they spent on different activities on both a weekday and a weekend day. They were asked to reflect their activity before they sustained a burn injury on the baseline pre-discharge assessment. The assessments were repeated at one month and six months post-discharge. Since no data exists on acceptable balance of activities some areas a negative change might have been beneficial and for others a negative change might be detrimental.

4.3.1.1 Weekday: Baseline to one month

Statistically significant changes were established for the time spent at work which decreased with a negative change and the time spent on leisure and sleep which increased and had a positive change from baseline before the burn injury to one month after discharge (Table 4.6). The increase in hours spent in leisure is detrimental, because most of the leisure was passive and no variety like just watching television with no physical activity involved. Although the 10 hours a day now spent sleeping was more than recommended for adults at this stage participants may have needed more sleep to accommodate for disrupted sleep patterns due to pain.

Table 4.6 Change in time spent in weekday activities health from baseline to one month

Percentage of time spent on a weekday on:	Baseline (n = 55)	One month (n= 31)	Change	p-value	Effect size
	Median (Lower and upper quartile)				
Personal management	8.33 (8.33- 12.50)	8.33 (6.25-12.50)	0	0.50	0.00
Work	29.17 (0.0-33.33)	0.00 (0.00-37.50)	-29.17	0.02*	-0.57
Leisure	10.42 (6.25-20.38)	16.67 (8.33-33.33)	6.25	0.01**	0.62
Sleep	35.42 (29.19- 39.60)	41.67 (33.33-50.00)	6.25	0.01**	0.52
Survival skills	12.50 (8.33- 20.83)	12.50 (8.33- 16.67)	0	0.12	0.00
Social participation	0.00 (0.00-8.33)	0.00 (0.00-4.17)	0	0.83	0.00

Significance $*p \leq 0.05$
Significance $**p \leq 0.01$

These changes were also clinically relevant as they had moderate effect sizes and work had a negative effect size. There was little change in the time spent on personal management, survival skills and social participation which presented with small effect sizes. Participants did not socialise a lot during the weekdays therefore the score were zero in social participation.

4.3.1.2 Weekday: One month to six months

The assessments showed the time spent in work increased significantly between one month and six months post-discharge while the time spent in leisure had decreased significantly. Although not significant, the time spent asleep had also decreased but along with all the other occupational performance areas and again the moderate effect size for the change in leisure and work indicated the clinical relevance of these changes (Table 4.7). Effect sizes provide an indication of the effect between an outcome at different times and are not reliant on sample size. It provides clinically meaningful comparisons of change when sample is too small to provide statistically significant difference.

Table 4.7 Change in time spent in weekday activities health from one month to six months

Percentage time spent on a weekday on:	One month (n= 31)	Six months (n=28)	Change	p-value	Effect size
	Median (lower and upper quartile)				
Personal management	8.33 (6.25-12.50)	8.33 (7.29 – 11.46)	0	0.50	0.00
Work	0.00 (0.00-37.50)	31.25 (0.00 - 35.42)	31.25	0.05*	0.55
Leisure	16.67 (8.33-33.33)	12.50 (7.29-16.67)	-4.17	0.02*	-0.57
Sleep	41.67 (33.33-50.00)	36.46 (33.33-41.67	-5.21	0.07	-0.20
Survival skills	12.50 (8.33- 16.67)	16.67 (9.38-20.50	4.17	0.14	0.17
Social participation	0.00 (0.00-4.17)	2.09 (0.00-11.46)	2.09	0.89	0.17

Significance $^*p \leq 0.05$
Significance $^{**}p \leq 0.01$

One can see that the balance in activities after six months had for all categories returned to that similar to the baseline.

4.3.1.3 Weekend: Baseline to one month

There was a slight increase in time spent on leisure and survival skills when one compares one month to baseline on weekends. There was a decrease in time spent on social participation at one month post burn injury. All the occupational performances effect sizes were small, except for social participation indicating a decrease in the hours spent on this activity although it was not statistically significant it was clinically relevant and should be addressed (Table 4.8).

Table 4.8 Change in time spent in weekend activities health from baseline to one month

Percentage time spent on a weekend on:	Baseline (n = 55)	One month (n= 31)	Change	p-value	Effect size
	Median (Lower and upper quartile)				
Personal management	8.33 (8.33- 12.50)	8.33 (6.25-12.50)	0	0.41	0.00
Work	0.00 (0.00-0.00)	0.00 (0.00-0.00)	0	0.74	0.00
Leisure	12.50 (4.17-25.00)	16.67 (12.50-33.33)	4.17	0.15	0.38
Sleep	41.67 (33.33- 45.83)	41.67 (33.33-50.00)	0	0.15	0.00
Survival skills	11.46 (4.17- 20.83)	12.50 (8.33- 16.67)	1.04	0.75	0.17
Social participation	12.50 (4.17-25.00)	0.00 (0.00-16.67)	-12.50	0.07	-0.42

Significance *p≤ 0.05
Significance **p≤ 0.01

4.3.1.4 Weekend: One month to six months

Table 4.9 Change in time spent in weekend activities health from one month to six months

Percentage time spent on a weekend on:	One month (n =31)	Six months (n=28)	Change	p-value	Effect size
	Median (Lower and upper quartile)				
Personal management	8.33 (6.25-12.50)	8.33 (8.33-11.46)	0	0.69	0.00
Work	0.00 (0.00-0.00)	0.00 (0.00-2.09)	0	0.58	0.00
Leisure	16.67 (12.50-33.33)	16.67 (12.50-20.84)	0	0.29	0.00
Sleep	41.67 (33.33-50.00)	39.74 (33.33-50.00)	-1.93	0.02*	-0.19
Survival skills	12.50 (8.33- 16.67)	12.50 (8.33- 25.00)	0	0.45	0.00
Social participation	0.00 (0.00-16.67)	8.33 (0.00-16.67)	8.33	0.05*	0.18

Significance *p≤ 0.05
Significance **p≤ 0.01

What was statistically significant for the weekend results was that less time was need for sleep and the time slept returned to approximately eight hours a day indicating the participants may have had adequate quality of sleep at this stage.. Social participation had increased hours which could be a positive change as participants were integrating socially more with others. In this case however the hours spent were the socialisation was mainly alcohol related. All the occupational performance areas effect sizes were small (Table 4.9).

With regards to time spent over weekdays less time was spent on work from baseline to one month as patients had not returned to work yet and the time was then spent on leisure and sleep. One month to six month there was increased hours spent at work with a resultant decreased time spent in in leisure and sleep which was more in line with adult occupational development for adults (Kielhofner, 2002). At baseline to one month there was a decrease in social participation over the weekend which and this may have reflected a negative outcome as participants were not engaging at pre-morbid levels of social participation. At one month to six months there was an increase in social participation but this may not have been beneficial because it revolved mainly around activities that are alcohol related.

4.3.2 Variety of activities

The participants reported a variety of activities pre-morbidly for all areas of occupational performance except sleep. The greatest variety occurred in leisure activities and included watching TV, computer games, reading, jogging, and going to movies, listening to music and playing soccer, netball and card games. Many of the activities were related to the use of alcohol.

Social participation had a smaller variety and involved visiting friends and the socialisation that occurred when attending religious organisations, and during leisure, work and in the home. The variety in personal management and survival skills was related to the types of tasks involved in caring for themselves, caring for their belongings, the home and children and shopping as well as financial management.

The variety dropped at one month post-discharge particularly for work and for social activities but then returned to pre-morbid levels at six months for most aspects except leisure activities and social participation where at least two participants reported that they limited these activities due to the presence of scarring and not wanting to visit friends anymore.

4.3.3 Satisfaction

No-parametric statistics were used as the results were not normally distributed and the VAS is an ordinal scale. Patients were asked to reflect their satisfaction before they sustained the burn injury on the baseline pre-discharge assessment. The assessments were repeated at one month and six months post-discharge.

4.3.3.1 Baseline to one month

Change was established for the satisfaction scores with the data showed a negative change in satisfaction with personal management which decreased between baseline and one month post-discharge (Table 4.10).

Table 4.10 Change in satisfaction in activities health from baseline to one month

Satisfaction	**Baseline (n= 55)**	**One month (n=31)**	**Change**	**p-value**	**Effect size**
Satisfaction of activities	**Median (Lower and upper quartile)**				
Personal management	9.00 (7.93-9.60)	8.47 (5.47 – 9.67)	-0.53	0.06	-0.21
Work	8.26 (2.60-9.06)	5.10 (0.40- 8.90)	-3.16	0.08	-0.21
Leisure	8.73 (6.46-9.67)	8.63 (5.27-9.60)	-0.10	0.44	-0.05
Sleep	8.87 (6.60-9.60)	9.13 (6.57-9.73)	0.26	0.95	-0.03
Survival skills	8.86 (6.93- 9.66)	8.03 (4.27-9.67)	-0.83	0.14	-0.22
Social participation	8.60 (6.20-9.26)	9.23 (8.44-9.77)	0.63	0.19	0.16

Significance *p≤ 0.05
Significance **p≤ 0.01

Small effect sizes 0.2 were seen however for the decreased satisfaction with those for personal management and work being greater than for all the other occupational performance areas, but not statistically significant changes.

4.3.3.2 One month to six months

The participants' satisfaction was assessed at six months and compared to one month post-discharge (Table 4.11).

Table 4.11 Change in satisfaction in activities health from one month to six months

Satisfaction	One m(n= 31)	Six months (n=28)	Change	p-value	Effect size
	Median (Lower and upper quartile)				
Personal Management	8.47 (5.47 – 9.67)	9.00 (8.53 – 9.46)	0.53	0.47	0.12
Work	5.10 (0.40- 8.90)	7.37 (0.53- 9.46)	2.27	0.56	0.07
Leisure	8.63 (5.27-9.60)	8.80 (5.13-9.26)	0.15	0.56	0.00
Sleep	9.13 (6.57-9.73)	9.03 (6.13-9.60)	-0.10	0.89	-0.03
Survival skills	8.03 (4.27-9.67)	8.93 (8.06-9.60)	0.90	0.32	0.31
Social participation	9.23 (8.44-9.77)	8.23 (6.00-9.60)	-1.00	0.05*	-0.20

Significance *p≤ 0.05
Significance **p≤ 0.01

The participants reported an increase in satisfaction except for a slight decrease in satisfaction in the occupational performance areas of sleep and social participation. Social participation showed a statistically significant decrease although all the effect sizes were small except for survival skills.

4.3.4 Comfort

Comfort was analysed in the same way as satisfaction. Participants were asked to also reflect their level of comfort before they sustained a burn injury on the baseline pre-discharge assessment. The assessments were repeated at one month and six months post-discharge.

4.3.4.1 Baseline to one month

Statistically significant changes were reported regarding comfort with work, which decreased. In the other occupational performance areas there was a slight decrease in the level of comfort with all occupational performance areas but the effect sizes were overall small and negative in all these areas (Table 4.12).

Table 4.12 Change in comfort in activities health from baseline to one month

Comfort	**Baseline** **(n= 55)**	**One month** **(n=31)**	**Change**	**p-value**	**Effect size**
	Median **(Lower and upper quartile)**				
Personal management	8.80 (8.00-9.33)	8.24 (4.13 – 9.46)	-0.56	0.16	-0.23
Work	8.60 (4.73-9.33)	3.74 (0.63- 8.30)	-4.86	0.04*	-0.34
Leisure	8.80 (7.66-9.33)	8.30 (5.36-9.40)	-0.50	0.33	-0.13
Sleep	9.06 (7.60-9.60)	8.40 (5.13-9.70)	-0.66	0.18	-0.15
Survival skills	9.06 (7.86- 9.60)	8.47 (5.10-9.73)	-0.59	0.41	-0.21
Social participation	9.00 (7.33-9.53)	8.60 (5.20-9.77)	-0.40	0.70	-0.12

Significance *p≤ 0.05
Significance **p≤ 0.01

4.3.4.2 One month to six months

In the assessment of six months compared to one month there was no statistically significant differences. All the comfort scores that participants reported did increase except for leisure and sleep that showed a further decrease (Table 4.13). The effect sizes of comfort were again small showing little change in comfort over the five-month period.

Table 4.13 Change in comfort in activities health from one month to six months

Comfort	One month (n= 31)	Six months (n=28)	Change	p-value	Effect size
	Median (Lower and upper quartile)				
Personal management	8.24 (4.13 – 9.46)	8.67 (6.80 – 9.20)	0.43	0.81	0.06
Work	3.74 (0.63- 8.30)	7.10 (1.06- 8.73)	3.36	0.26	0.14
Leisure	8.30 (5.36-9.40)	8.20 (7.00-9.00)	-0.10	0.87	-0.06
Sleep	8.40 (5.13-9.70)	8.27 (4.73-9.26)	-0.13	0.76	-0.07
Survival skills	8.47 (5.10-9.73)	9.17 (7.13-9.66)	0.70	0.08	0.11
Social participation	8.60 (5.20-9.77)	8.60 (5.00-9.53)	0	0.67	0.00

Significance *p≤ 0.05
Significance **p≤ 0.01

4.3.5 Social appropriateness

Social appropriateness was assessed in the same way as comfort and satisfaction where patients reported the percentage of social appropriateness for each of the occupational performance areas.

4.3.5.1 Baseline to one month

Social appropriateness was one aspect that decreased from baseline to one month for all areas of occupational performance with a statistically significant decrease in terms of work. There was an overall decrease in the other occupational performance areas, which while not statistically significant showed clinically relevant change with moderate effect sizes for personal management and work (Table 4.14).

Table 4.14 Change in social appropriateness in activities health from baseline to one month

Social appropriateness	Baseline (n= 55)	One month (n=31)	Change	p-value	Effect size
	Median (Lower and upper quartile)				
Personal management	8.80 (8.06-9.27)	8.43 (3.73 – 9.30)	-0.37	0.20	-0.43
Work	8.67 (4.66-9.33)	5.13 (0.67- 8.57)	-3.54	0.02*	-0.50
Leisure	8.53 (5.33-9.20)	8.10 (5.00-9.30)	-0.43	0.99	-0.09
Sleep	8.73 (3.73-9.40)	8.34 (5.23-9.63)	-0.39	0.52	0.04
Survival skills	8.93 (7.33-9.53)	8.70 (5.93-9.62)	-0.23	0.75	-0.09
Social participation	8.80 (5.33-9.33)	8.66 (7.07-9.63)	-0.14	0.33	-0.17

Significance *p≤ 0.05
Significance **p≤ 0.01

4.3.5.2 One month to six months

There was no statistically significant change when social appropriateness was compared from one month to six months (Table 4.15).

Table 4.15 Change in social appropriateness in weekday activities health from one month to six months

Social appropriateness	One month (n= 31)	Six months (n=28)	Change	p-value	Effect size
	Median (Lower and upper Quartile)				
Personal management	8.43 (3.73 – 9.30)	8.70 (7.60 – 9.13)	0.27	0.07	0.15
Work	5.13 (0.67- 8.57)	7.57 (2.73- 8.80)	2.44	0.33	0.16
Leisure	8.10 (5.00-9.30)	7.85 (5.06-9.06)	-0.25	0.33	-0.04
Sleep	8.34 (5.23-9.63)	8.47 (4.40-9.46)	0.13	0.11	0.02
Survival skills	8.70 (5.93-9.62)	8.40 (7.33-9.60)	-0.30	0.13	-0.05
Social participation	8.66 (7.07-9.63)	8.13 (7.33-9.47)	-0.53	0.36	-0.10

Significance *p≤ 0.05 Significance **p≤ 0.01

There was a further slight decrease of social appropriateness in leisure, survival skills and social participation. The overall effect sizes were small. The biggest improvement in social appropriateness for the participants occurred in work.

The results indicated that participants viewed being able to work as socially appropriate and the greatest decrease in comfort and satisfaction occurred for this occupational performance area at one month. These factors increased again at six months when participants returned to work. Satisfaction with personal management also decreased significantly from baseline to one month probably due to some lack of independence in the area related to unhealed wounds and pain.

4.4 Roles participants engaged in and valued

The percentage of participants who took part in various roles and the percentage of participants who found the roles somewhat or very valuable were assessed at baseline, one month and six months post-discharge. The participation in the roles was assessed as well as the value of roles. When the roles were scored as very valuable and somewhat valuable this may indicate these roles were currently enacted all or some of the time by the participants and represent their role incumbency. A comparison was made for these time periods using Fischer's exact test due to the small number of participants in some categories (Table 4.18).

4.4.1 Vocational roles

Vocational roles included student, worker and volunteer. The only role which showed significant change was the worker role in which there was a decrease in participation at one month which increased again at six months. The six-month scores did not achieve the same level reported at baseline as the percentage of participants not participating in the worker role was higher at six months than at baseline. When the somewhat valuable and very valuable were combined to determine if the role was valued the worker role was valued less at six months post-discharge (48%) than at baseline (64%). The value of the role dropped to 23% at one month post-discharge.

The percentage of participants not participating in the student role and the percentage of those who valued the role remained similar over the three time periods, but this only applied to three participants and the differences were not significant.

Similar results were found for volunteering which remained fairly consistent over the time period with a similar percentage finding the role valuable at the three time periods with a slight decrease at one month post-discharge (16.6%) and an increase from 19% at baseline to 21% at six months post-discharge (Table 4.16).

Table 4.16 Percentage of participants who participate in vocational roles and their perceptions of the value of the roles they occupy

Category	Baseline (n=55)	One month (n=31)	p-value	Six months (n=28)	p-value
STUDENT	**Percentage (n)**	**Percentage (n)**		**Percentage (n)**	
Not participating in role	90.6% (50)	83.8% (26)	0.30	85.7% (24)	0.40
Value: Not at all	0.0%(0)	0.0%(0)		0.0%(0)	
Somewhat valuable	0.0%(0)	0.0%(0)		0.0%(0)	
Very valuable	9.4%(5)	16.1%(5)		14.3%(4)	
WORKER					
Not participating in role	35.9% (19)	76.7% (23)	0.01**	52.2%(12)	0.02*
Value: Not at all	0.0%(0)	0.0%(0)		0.0%(0)	
Somewhat valuable	6.66%(10)	0.0%(0)		17.85%(5)	
Very valuable	49.0%(26)	23.3%(7)		39.1%(9)	
VOLUNTEER					
Not participating in role	81.1%(43)	83.3% (25)	0.82	78.3%(18)	0.87
Value: Not at all	0.0%(0)	0.0%(0)		0.0%(0)	
Somewhat valuable	7.5%(4)	3.3%(1)		8.7%(2)	
Very valuable	11.3% (6)	13.3%(4)		13.0%(3)	

Significance *p≤ 0.05
Significance **p≤ 0.01

4.4.2 Family roles

Family roles included caregiver, home maintainer and family member. The only role which showed significant change was the home maintainer in which there was a decrease in those not participating at one month with a higher percentage not participating at six months than at baseline. By six months participants had achieved nearly the same level of valuing the role reported at baseline. The pattern for the caregiver role differed in that those not participating in the role at one month post-discharge increased significantly and then decreased again at six months post-discharge. The role was valued more at one month post-discharge when more participants were valued the role (80%) than at baseline (67%) and this decreased slightly from discharge to 52%.

Table 4.17 Percentage of participants who participate in family roles and their perceptions of the value of the roles they occupy

Category	Baseline (n=55)	One month (n=31)	p-value	Six months (n=28)	p-value
CAREGIVER	**Percentage (n)**	**Percentage (n)**		**Percentage (n)**	
Not participating in role	31.5% (17)	16.7% (5)	0.32	47.8% (11)	0.40
Value:-Not at all	1.9%(1)	3.3%(1)		0.0%(0)	
Somewhat valuable	9.3%(5)	13.3%(4)		8.7%(2)	
Very valuable	57.4%(31)	66.7%(20)		43.5%(10)	
HOME MAINTAINER					
Not participating in role	3.7% (2)	76.7% (23)	0.05*	8.7%(2)	0.05*
Value: Not at all	5.6%(3)	0.0%(0)		0.0%(0)	
Somewhat valuable	16.7%(9)	0.0%(0)		39.1%(9)	
Very valuable	74.1%(40)	23.3%(7)		52.1%(12)	
FAMILY MEMBER					
Not participating in role	7.4%(4)	13.3% (4)	0.10	13.0%(3)	0.07
Value: Not at all	3.7%(2)	3.3%(1)		4.7%(1)	
Somewhat valuable	18.5%(10)	6.7%(2)		8.7%(2)	
Very valuable	70.4% (38)	76.7%(23)		73.9%(17)	

Significance *p≤ 0.05

Significance **p≤ 0.01

Few participants were enacting the role of family member both at one month post-discharge and six months post-discharge and this was reflected in how they valued the role. These changes were small however when the values for very valuable and somewhat valuable were combined as the role was valued by over 80% of the participants with the percentage dropping from 89% at baseline to approximately 82% post-discharge which is a small decrease (Table 4.17).

4.4.3 Social roles

Social roles included friend, religious participant and participants in organisations.

Table 4.18 Percentage of participants who participate in social roles and their perceptions of the value of the roles they occupy

Category	Baseline (n=55)	One month (n=31)	p-value	Six months (n=28)	p-value
FRIEND	**Percentage (n)**	**Percentage (n)**		**Percentage (n)**	
Not participating in role	27.8% (15)	40.0% (12)	0.07	30.4% (7)	0.39
Value: Not at all	5.6%(3)	0.0%(0)		0.0%(0)	
Somewhat valuable	29.6%(16)	23.3%(7)		34.8%(8)	
Very valuable	37.0%(20)	36.7%(11)		34.8%(8)	
RELIGIOUS PARTICIPANT					
Not participating in role	16.7% (9)	33.3% (10)	0.12	30.4%(7)	0.74
Value: Not at all	0.0%(0)	0.0%(0)		0.0%(0)	
Somewhat valuable	18.5%(10)	13.3%(4)		13.0%(3)	
Very valuable	64.8%(35)	53.3%(16)		56.5%(13)	
PARTICIPANTS IN ORGANISATIONS					
Not participating in role	96.2%(51)	96.6% (28)	0.30	100.0%(23)	0.60
Value: Not at all	0.0%(0)	0.0%(0)		0.0%(0)	
Somewhat valuable	1.9%(1)	0.0%(0)		0.0%(0)	
Very valuable	1.9% (1)	3.5%(1)		0.0%(0)	

Significance *$p \leq 0.05$
Significance **$p \leq 0.01$

None of the roles showed significant change in those not participating or the value of the roles from one month to six months. The value of the friend role, religious participant and participation in organisations had decreased however at one month and had decreased even more at six months (Table 4.18).

4.4.4 Leisure roles

Leisure roles included hobbyist and other roles. The hobbyist role showed a increase in the percentage of participants who did not take part in this role at one month and again at six months post-discharge (Table 4.19).

Table 4.19 Percentage of participants who participate in leisure roles and their perceptions of the value of the roles they occupy

Category	Baseline (n=55)	One month (n=31)	p-value	Six months (n=28)	p-value
HOBBYIST	**Percentage (n)**	**Percentage (n)**		**Percentage (n)**	
Not participating in role	37.0% (20)	66.7% (20)	0.01**	69.6% (16)	0.10
Value: Not at all	1.9%(1)	0.0%(0)		0.0%(0)	
Somewhat valuable	24.1%(13)	6.7%(2)		4.6%(1)	
Very valuable	37.0%(20)	26.7%(8)		26.1%(6)	
OTHER					
Not participating in role	98.1% (52)	93.7% (27)	0.20	95.7%(22)	0.40
Value: Not at all	0.0%(0)	0.0%(0)		0.0%(0)	
Somewhat valuable	0.0%(0)	0.0%(0)		0.0%(0)	
Very valuable	1.9%(1)	6.9%(2)		4.3%(1)	

Significance *p≤ 0.05
Significance **p≤ 0.01

The value of the hobbyist role decreased from baseline (61%) to one month (33%) and slightly again by six months (31%). When the somewhat valuable and very valuable were combined to determine if the leisure role was valued, it showed that it was valued less at six months post-discharge (48%) than at baseline (64%). The value of the role dropped to 23% at one month post- discharge.

4.5 EuroQol-5D-3L Quality of life and Community integration

The third and forth objectives were to determine the patients' perceived quality of life and their community integration six months post-discharge from the Burns Unit in the North West Province and to determine the association between perceived quality of life and their community integration as well as demographic factors

4.5.1 EuroQol-5D-3L Quality of life

The participants' quality of life was assessed at six months. The EuroQol uses a score of one if participants do not experience any problems regarding mobility, self-care, usual activities, pain/discomfort and anxiety/depression. A score of two is obtained when they experience some or moderate problems in the five different categories. The participants obtain a score of three when they have severe problems regarding each of the five categories.

4.5.1.1 EuroQol-5D-3L scores of the participants

The majority of the participants had no problems with mobility, self-care, usual activities, pain/discomfort and anxiety/depression. In the category of experiencing some problems one third of the participants had some problems with pain/discomfort and pain/anxiety (Figure 4.1).

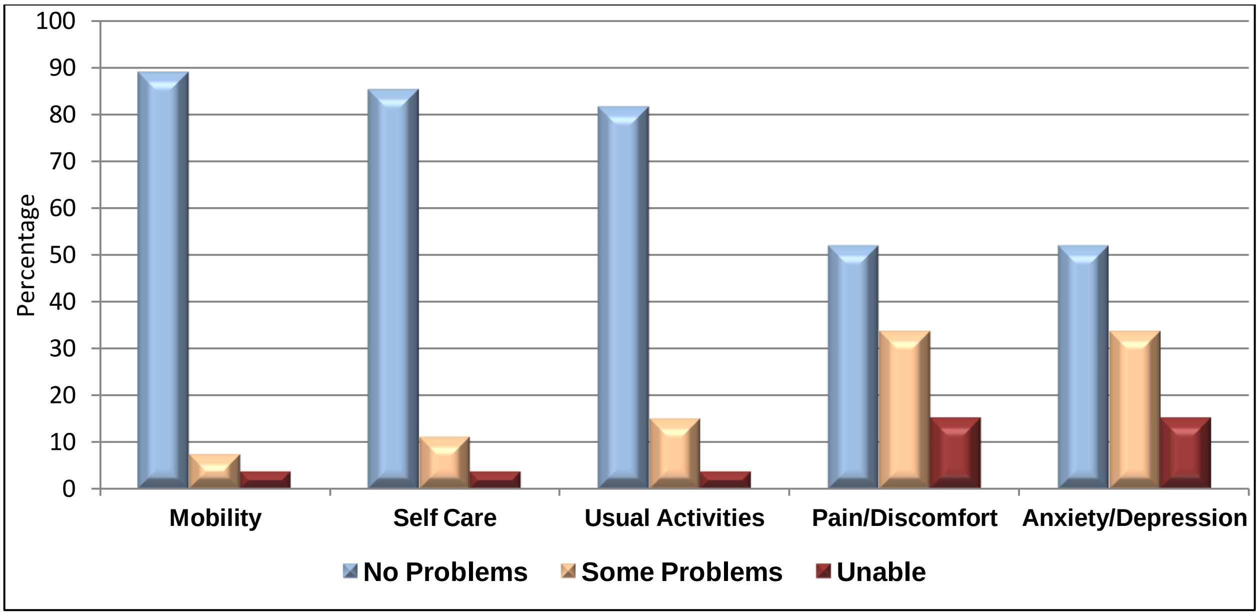

Figure 4.1 Scores on the EuroQol–-3L at six months post-discharge (n=27)

In Figure 4.1 it is also clear that a majority of the patients experienced some problems with pain/discomfort and anxiety/depression.

Participants had to complete a vertical analogue scale on their own health state at that specific time. Participants' scores on their own state of health resulted in less than 10% with a score below 20 with over two thirds of the participants' scores being equally distributed between 50-80. Just over 25% of the sample scored at the highest percentage; between 90-100 own health status (Figure 4.2).

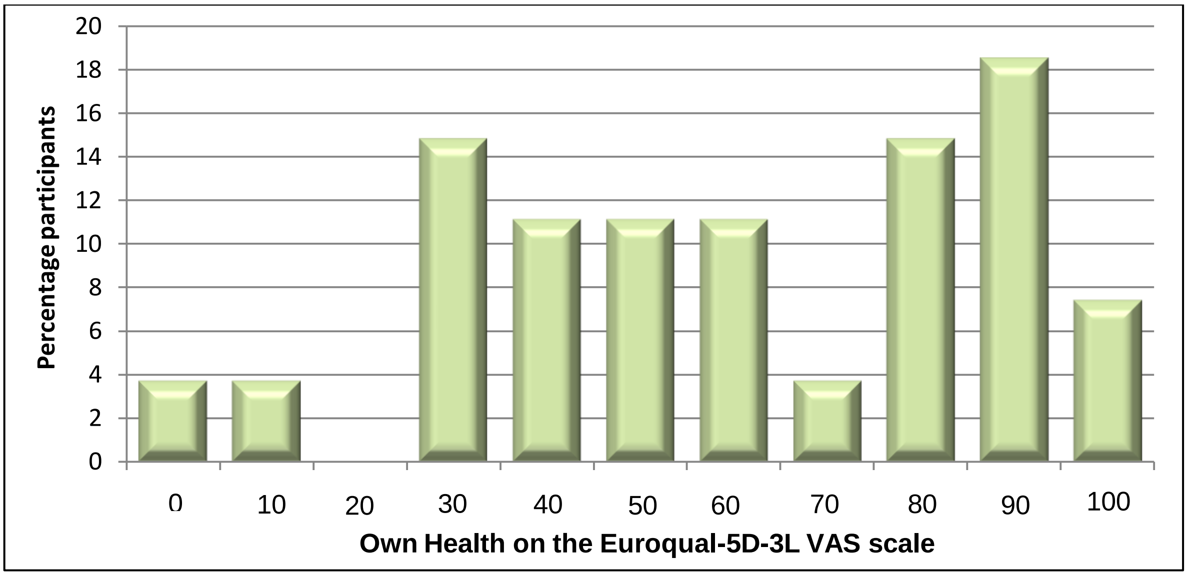

Figure 4.2 Own health state scores for participants at six months (n=27)

4.5.1.2 Correlations between EuroQol-5D-3L scores and the demographic information of the participants

The EuroQol-5D-3L dimension was correlated with the demographic information of the participants using the Spearman rank order test. There was no correlation between the age of participants and the EuroQol5D. Moderate correlations between the degree of burn injury and usual activities of the EuroQol were seen as well as between degree of burn injury and the pain/discomfort items of the EQ-5D-3L. There were weak to no correlations between the rest of the data of the EQ-5D-3L and the demographic information (Table 4.20).

Table 4.20 Correlations between EQ-5D-3L dimension and demographic information of participants (n=27)

Demographic characteristics	EQ-5D-3L dimension					
	Euro Mobility	Euro Self-care	Euro Usual activities	Euro Pain/ discomfort	Euro Anxiety/ depression	Euro Own state of health score
	rho	rho	rho	rho	rho	rho
Age	-0.04	0.30	0.28	0.17	-0.23	0.14
Education level grade	-0.14	-0.19	-0.27	-0.10	0.09	-0.04
Percentage of burns	-0.37	-0.10	0.01	0.03	-0.23	-0.12
Degree of burn injury	0.30	0.40	0.51	0.52	0.24	-0.30
Days in hospital	-0.12	0.21	0.40	0.32	0.05	-0.12

4.5.2 Community integration

The CIQ mean scores were considered for all the retained participants (n=27) and were divided by gender to compare the scores to the normative data provided by Willer et al. (1993) of the CIQ as community integration is not the same for males and females.

4.5.2.1 Community integration scores

Percentages for the totals scores for the Home, Social and Productivity of the CIQ scores were established (Table 4.21).

Table 4.21 Community integration total scores (n=27)

	Percentage (n)
Low (0-10)	14.8% (4)
Moderate (11-20)	40.7% (11)
High (21-34)	44.4% (12)

When the total integration for each section was determined the majority of the population 44.4% (12) scored above 21-34 for their total community integration with only 14.8% indicating a low score and little community reintegration. When determining the correlation between the total score for community integration and the demographic data only a moderate negative correlation (rho =- 0.42) was found between the degree of burn injury and the community integration total score (Table 4.22).

Table 4.22 Correlations between community integration total scores and demographic information (n=27)

	Community integration
Demographic characteristics	**Total score rho**
Age	-0.22
Education level grade	0.13
Percentage of burns	0.16
Degree	-0.42
Days in hospital	-0.15

In the home integration section of the CIQ the males and females scored higher than the norms set for integration into the community of typical males and females (Figure 4.3) (Willer et al. 1993).

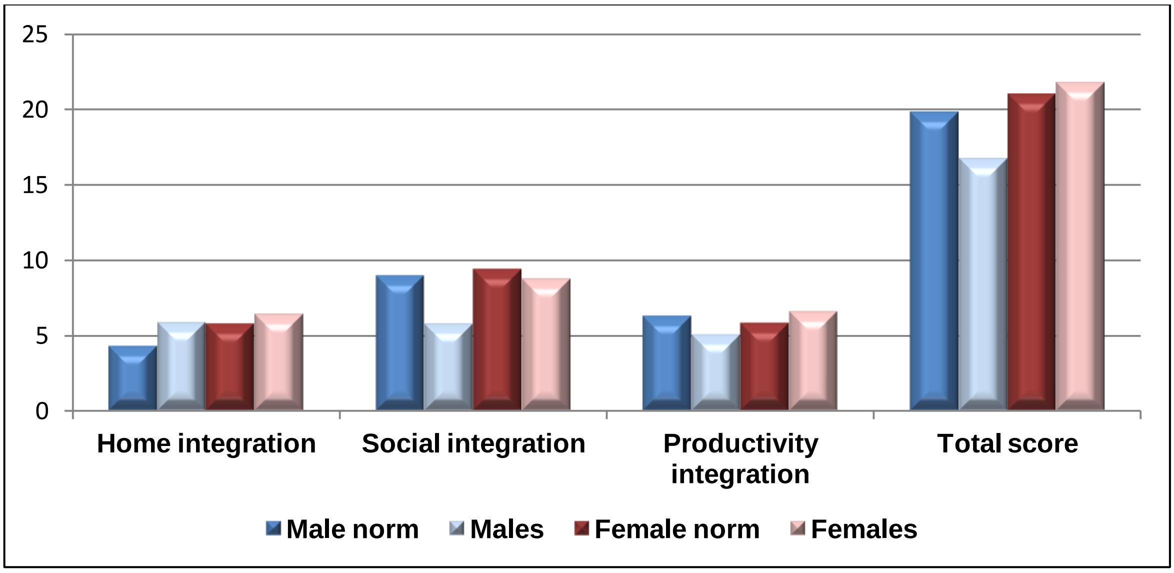

Figure 4.3 Community integration of participants by gender compared to the norms for the community integration questionnaire (males n=12 females n= 15)

Both the males and females in this study achieved higher integration into the home than would be expected according to the norms set for typical individuals according to Willer et al. (1993).

In social integration both the males and females scored at a lower level than is considered typical while the female participants scored higher on both productivity and total community integration than the male participants (Willer et al, 1993).

Home integration

The majority of the population did their grocery shopping, took care of the children and planned social get-togethers with someone else. The majority of the participants did housework and prepared meals on their own.

Most of the population scored above 50% regarding their reintegration into their homes, preparing meals and housework alone which may account for their high scores on home integration compared to the typical sample. Only about a third were shopping, caring for children and planning social events without someone else. Shopping and planning social events at home were the most common activities done with someone else (Table 4.23).

Table 4.23 Home integration scores (n=28)

	Percentage (n)				
	Home 1 Grocery shopping	**Home 2 Prepare meals**	**Home 3 Housework**	**Home 4 Child care**	**Home 5 Plan social**
Someone else (0)	22.2% (6)	25.9% (7)	18.5% (5)	22.2% (6)	18.5% (5)
You and someone(1)	44.4% (12)	22.2% (6)	29.6% (8)	40.7% (11)	48.1% (13)
Yourself alone (2)	33.3% (9)	51.9%(14)	51.9% (14)	37.0% (10)	33.3% (9)

Social integration

The majority of the participants looked after their finances themselves and also participated on their own in leisure activities. To go shopping, leisure activities outside the house and to visit friends or relatives, the majority of the population did it together with someone else. Just slightly over halve of the population said they had a friend they could confide in (Table 4.24).

Table 4.24 Social integration scores (n=27)

	Percentage (n)					
	Social 6 Personal finances	**Social 7 Shopping outside home**	**Social 8 Leisure (eg movies)**	**Social 9 Visit friends or relatives**	**Social 10 Participate in leisure**	**Social 11 Best friend Yes(2) No(0)**
Someone else (0)	18.5% (5)	11.1% (3)	22.2% (6)	11.1% (3)	25.9% (7)	44.4% (12)
You and someone (1)	22.2% (6)	74.1%(20)	59.3%(16)	48.1% (13)	25.9% (7)	NA
Yourself alone (2)	59.3 (16)	14.8%(4)	18.5% (5)	40.7% (11)	48.1% (13)	55.6%(15)

While more than 50% of participants were managing their finances and associating with a best friend less than 50% were going out to shop and visit and participating in leisure activities alone but were doing this with others

Productive integration

The majority of the participants did travel outside their home on a daily basis.

Table 4.25 Productive integration scores (n=27)

	Percentage (n)			
	Productive 12 Travel outside home	**Productive 13 Work situation**	**Productive 14 School or training situation**	**Productive 15 Engage in volunteer activities**
0	14.8% (4) seldom/never (less than once per week)	14.8% (4) Not working/ not looking	25.9% (7) Not going to school	81.5 % (22) No volunteer activities
1	22.2% (6) almost every week	11.1%(3) Not working/looking	48.1% (13) Not going to school	0% (0) Volunteers 1-4 times a week
2	63.0% (17) almost every day	40.7%(11) Actively looking for work	11.1% (3) Actively looking for training	18.5% (5) Volunteers more than 5 times a month
3	NA	7.4% (2) Working part-time	0% (0) Attends school part-time	NA
4	NA	25.9% (7) Work full-time	14.8% (4) School full-time	NA
5	NA	0 Work full-time and attend school parttime	0 Attend school full-time or part-time school	NA

Approximately half of those (25.9%) that were working before they suffered a burn injury were working full-time and 7.4% were working part-time. Of those not working 40.7% were actively looking for work while 11.3% were looking for training opportunities. Two of the participants had started training programmes and so were scored under productivity 14 (School or training situation), with the participants attending school. The majority of the sample 81.5% had not returned to previous volunteer activities (Table 4.25).

4.5.2.2 Correlations between Community Integration scores and the demographic information of the participants

Spearman rank order correlations were established for home social and productivity integration and demographic data.

Home integration

A moderate correlation (rho = 0.40) was evident between age of participants and home integration sub item 4 which is mainly to take care of children (Table 4.25).

Table 4.25 Correlations between demographic data and home integration (n=28)

Demographic characteristics	Home integration					
	Home 1 Grocery shopping	Home 2 Prepare meals	Home 3 Housework	Home 4 Child care	Home 5 Plan social	Total Home
	rho	rho	rho	rho	rho	rho
Age	-0.17	-0.24	-0.22	-0.40	-0.07	
Education level grade	-0.03	-0.07	-0.04	0.13	-0.01	0.00
Percentage of burns	0.15	0.16	0.28	0.23	0.31	0.32
Degree of burn injury	-0.18	-0.22	-0.18	-0.10	-0.20	-0.25
Days in hospital	-0.20	-0.26	-0.03	-0.23	-0.14	-0.22

Social integration

Social integration was correlated with demographic data and moderate negative correlations were seen between %TBSA rho = 0.40 and to participate in leisure with those with a big %TBSA burns, having lower reintegration scores for leisure participation. Days the participants spent in hospital also had a moderately negative association with leisure activities done outside the home (Table 4.26).

Table 4.26 Social integration correlated with demographic data (n=28)

Demographic characteristics	Social integration						
	Social 6 Personal finances	Social 7 Shopping outside home	Social 8 Leisure eg. movies	Social 9 Visit friends or relatives	Social 10 Participate in leisure	Social 11 Best friend	Total Social
	rho	rho	rho	rho	rho	rho	rho
Age					-0.03	0.00	-0.29
Percentage of TBSA	0.26	0.04	0.19	0.16	-0.40	0.29	0.04
Degree of burn injury	-0.11	-0.29	-0.21	-0.16	-0.18	-0.24	-0.33
Education level grade	0.05	0.05	0.16	0.09	-0.13	0.01	-0.01
Days in hospital	-0.10	-0.14	-0.53	-0.31	-0.02	0.20	-0.27

Productive integration

Productive integration had generally weak or no correlations with demographic data except for the degree of burn injury that had a moderate negative correlation (rho = - 0.52) with the total of productive activities indicating that those with a more severe degree of burn injury were less likely to have achieved community integration in terms of productivity (Table 4.28).

Table 4.28 Productive Integration correlated with demographic data (n=27)

Demographic characteristics	Productive integration				
	Productive 12 Travel outside home	Productive 13 Work situation	Productive 14 School or training situation	Productive 15 Engage in volunteer activities	Total productive activities
	rho	rho	rho	rho	rho
Age	-0.15	-0.13	0.03	-0.14	-0.23
Education level grade	0.11	0.08	-0.06	0.30	0.30
Percentage of burns	0.06	0.01	0.32	-0.29	0.09
Degree of burn injury	-0.16	-0.37	-0.33	-0.36	-0.52
Days in hospital	0.12	-0.36	0.03	-0.26	-0.08

4.5.3 Correlations between EuroQol-5D-3L scores and Community Integration scores of the participants

The participants' scores for community reintegration were also correlated with their EuroQol-5D-3L scores. Moderate negative correlations were found between quality of life related to mobility and self-care and social (rho = -0.42) and productivity (rho = -0.51) integration (Table 4.29).

The correlations were negative as the scales in the two measures differ in that one has a low value for problems and the other a high value for problems. Both self-care (rho = -0.45) and usual activities quality (rho = -0.40) of life also had a moderate negative correlation with the community integration total score. Social integration was also moderately correlated with own state of health as was the total community integration score. For both these scales a higher score indicates better function. Participants reported that scarring and appearance were the main reasons they no longer wanted to go out in public and see their friends. A number of these participants also reported ongoing pain (Table 4.29).

Table 4.29 Quality of life scores correlated with community integration (n=28)

Community integration questionnaire	**Total home**	**Total social**	**Total productive activities**	**Total score**
EuroQoL-5D-3L	rho	rho	rho	rho
Mobility	0.14	0.07	-0.32	-0.00
Self-care	-0.27	-0.42	-0.51	-0.45
Usual activities	-0.36	-0.34	-0.34	-0.40
Pain/discomfort	-0.11	-0.25	-0.29	-0.24
Anxiety/depression	-0.06	-0.15	-0.21	-0.11
Own state of health score	0.30	0.40	0.24	0.46

4.6 Access to occupational therapy

The last two objectives were to determine the geographical areas to which patients with burn injuries were discharged and the effect of this and other factors on the patients' access to occupational therapy post-discharge as well as the correlation of factors affecting access to services with the patients' community reintegration and quality of life.

4.6.1 Area of residence to which participants were discharged

Approximately half (56%) of the participants were discharged from the Burns Unit to the Klerksdorp, Orkney, Stilfontein and Hartbeesfontein (KOSH) area, within reasonable travelling distance of the Hospital (Table 4.30).

Those who returned to Rustenburg and Brits amounted to 20% of the patients while the other 30% were distributed equally to the other areas in the North West Province. Just less than half of the participants therefore came from areas that were more than 40 km away from Tshepong Hospital. Significantly more participants from the KOSH area close to the hospital were retained in the study. Approximately 45% of the participants were admitted from areas further away.

Table 4.30 Area of residence of the total group of participants (n=55), those retained in the study (n=28) and those who defaulted (n=27)

		Percentage (n)					**p value**
Area of residence		**KOSH**	**Mahikeng**	**Potchefstroom**	**Rustenburg**	**Wolmaranstad**	
	Total group	56.36 % (31)	5.5 % (3)	5.5 % (3)	12.7 %(7)	1.8% (1)	
	Retained	67.9% (19)	7.1% (2)	0% (0)	7.1% (2)	0% (0)	0.00
	Defaulted	44.4% (12)	3.7% (1)	11.1% (3)	18.55 (5)	3.7% (1)	
		Brits and Koster	**Vryburg**	**Zeerust**	**Delareyville**		
	Total group	7.3% (4)	5.5% (3)	3.6% (2)	1.8% (1)		
	Retained	7.1% (2)	3.6% (1)	3.6% (1)	3.6% (1)		
	Defaulted	7.4% (2)	7.4% (2)	3.7% (1)	0% (0)		

4.6.2 Factors affecting access to occupational therapy

In the access to occupational therapy questionnaire the data were collected at six months post-discharge from the 27 participants not lost to follow-up. Of the participants 17 needed to use a taxi to attend occupational therapy at Tshepong Hospital for follow-up visits. Not all participants answered the questions about cost or the reasons for lack of compliance. Only 2 of the 27 participants were compliant with all their occupational therapy follow-up appointments over the six-month period. Not all participants answered all the questions on the questionnaire about access to occupational therapy but the percentages of those that did are reflected in Table 4.31.

The majority of the population had a clinic near to their homes, but there was no occupational therapist at the clinic that could assist with follow-up regarding their burn injury. The reason given by 44% of participants for not attending their follow-up visits was lack of finances (Table 4.31).

Table 4.31 Access to occupational therapy services (n=27)

<table>
<tr><th></th><th colspan="12">Percentage (n)</th></tr>
<tr><td rowspan="2">Transport</td><td colspan="4">Public</td><td colspan="4">Own</td><td colspan="4">Walk</td></tr>
<tr><td colspan="4">63.0% (17)</td><td colspan="4">7.4%(2)</td><td colspan="4">29.6%(8)</td></tr>
<tr><td rowspan="2">Closest hospital/clinic</td><td colspan="3">0-5 km</td><td colspan="3">5-10 km</td><td colspan="3">10-20 km</td><td colspan="3">20-40 km</td></tr>
<tr><td colspan="3">55.6% (15)</td><td colspan="3">14.8% (4)</td><td colspan="3">25.9% (7)</td><td colspan="3">3.7% (1)</td></tr>
<tr><td rowspan="2">Transport cost to attend follow-up visit</td><td colspan="4">R0-R20</td><td colspan="4">R20-R50</td><td colspan="4">R50-R100</td></tr>
<tr><td colspan="4">22.2% (6)</td><td colspan="4">22.2% (6)</td><td colspan="4">18.5% (5)</td></tr>
<tr><td rowspan="2">Reason for defaulting on follow-up</td><td colspan="4">Distance from hospital</td><td colspan="4">Finances</td><td colspan="4">No adherence to appointments</td></tr>
<tr><td colspan="4">11.1% (3)</td><td colspan="4">44.4% (12)</td><td colspan="4">11.1% (3)</td></tr>
</table>

The correlation between factors of distance and finances affecting access to occupational therapy which contributed to 55.5% of participants defaulting on therapy and their community integration and quality of life was considered.

Table 4.32 Correlation between factors affecting access to occupational therapy services and community integration questionnaire and EuroQol-5D-3L (n=27)

	Distance of hospital from house	**Type of transport**	**Cost**
	rho	rho	rho
Community integration questionnaire			
Total Home	0.03	-0.20	0.05
Total Social	-0.15	-0.37	0.22
Total Productivity	0.04	-0.12	-0.15
Total Score	-0.04	-0.21	0.05
EuroQol-5D-3L			
Mobility	0.42	0.17	0.43
Self-care	0.23	0.01	0.34
Usual activities	0.49	0.20	0.30
Pain/discomfort	0.42	0.04	0.60
Anxiety/depression	0.67	0.20	0.73
Own state of health score	-0.28	0.05	-0.22

Although no association was found between community integration and quality of life, factors including mobility, usual activities pain/discomfort and anxiety/depression were moderately correlated with distance from the Hospital and mobility, while pain/discomfort and anxiety/depression were moderately to strongly correlated with the cost of getting to the hospital (Table 4.32).

4.7 Summary of results

The dropout rate at one month was 49,1% (n=27) and at six months 50, 9% (n=28). There were no significant differences between the group that were retained and those that defaulted on therapy for demographic and medical reasons, except for gender. More male participants defaulted.

When activities health was reviewed at one month and six months in comparison to pre-morbid function, time spent in areas of occupational performance profiles indicated that there was significant loss of work hours and an increase in leisure and sleep one month post-discharge from baseline which was reversed at six months post-discharge. Thus the participants moved from a distribution of time spent on activities usually related to adulthood to one were little or no time was spent working (Kielhofner, 2002). This was reversed at six months for about half the participants.

Regarding comfort in the activities health assessment it was only work that decreased significantly at one month. While comfort for all other occupational performance areas decreased slightly at one month but with work increased again at six months except for leisure and sleep where comfort decreased further.

Satisfaction with activities decreased in work and personal management at one month but increased again at six months except for sleep and social participation that decreased slightly. Social appropriateness decreased for all the occupational performance areas at one month and at six months, it increased again except for survival skills, leisure and social participation that decreased slightly.

Significant change was found for the worker and home maintainer roles at one month post-discharge. Participants no longer valued or enacted these roles. This was reversed for both roles at six months although the worker role was not valued as much post-discharge and did not achieve previous levels of participation in the roles.

As far as EQ-5D-3L is concerned, most of the participants stated their own health state as healthy and only one third of the participants had some problems with pain/discomfort and anxiety/depression.

Community integration scores were compared to gender norms and it was found that males and females scored higher for the home integration part of the questionnaire than the norm. Social integration was lower than the norm for males and females. With productive integration the males scored lower than the norm and the females higher.

Access to occupational therapy was limited due to lack of finances. Participants reported that lack of finances was one of the biggest factors preventing them from returning for occupational therapy. The factors of distance from the hospital and cost affecting access to occupational therapy were associated with aspects of quality of life, particularly pain/discomfort and depression/anxiety.

To conclude there was a change in occupational performance areas from baseline to one month and almost back to pre morbid by six months. The worker role was not as valued as much as it had been pre morbidly with more participants not participating in this role. One third of the participants had some problems with pain/discomfort and anxiety/depression at six months post burn injury. Overall the only social integration was less than expected. Participants finding it difficult to access occupational therapy services due to finances and lack of transport.

CHAPTER 5: DISCUSSION

5.1 Introduction

In this chapter the results according to the objectives will be discussed and the change in activities health and roles that occurred over six months post-discharge will be considered, as well as the home, social and work quality of life and community integration of the participants at six months post-discharge. There will also be a focus on the demographics of the participants in relation to other studies as well as the effect of access to the hospital and occupational therapy post-discharge.

5.2 Demographics and medical history of patients with burn injuries

The first objective of the study was to determine the demographics of the patients with burn injuries discharged from the Burns Unit at Tshepong Hospital as well as the geographical areas that they returned to after discharge. These factors were compared to other South African studies as well as studies from other countries with emerging economies in Brazil, Russia, India, China and South Africa (BRICS) countries with similar socioeconomic and development issues.

Nearly two thirds of the sample of participants with burn injuries in this study were male with an average age of 33.3 years. Although the trend is for older males to predominate when the prevalence of burn injuries is considered in developing countries, in this study the patients were slightly younger and there were fewer males than in data reported in Brazilian, Chinese and other South African studies (Ricci et al. 2014; Zhang et al. 2014, Eyal et al. 2007; Allorto et al. 2009).

The level of education, on average just over eight years for the participants, was similar to that reported in the Brazilian study (Ricci et al. 2014). Although a low level of education has been shown to play a role in risk for burn injuries (Klein, et al., 2007), there was no correlation between the level of education and quality of life after discharge in this study. In both this study and the study in Brazil (Ricci et al. 2014) the employment rate was approximately 50%. This employment rate is lower than the 60% reported for South Africa in 2015 indicating that these participants may be from a lower socioeconomic group (South African Info, 2015). Literature indicates that this group is more exposed to accidental burn injury from cooking heat sources like primus stoves and other factors pertaining to temporary housing in informal settlements (Ricci et al. 2014; Eyal et al. 2007).

In this study 76.4% of participants had burns that were 20% TBSA or less with a mean TBSA of 17%, with 23.4% of the participants having full thickness burn injuries which was similar to that reported in Brazil (Ricci et al. 2014) but lower for both degree and TBSA than another South African study (Allorto et al. 2009). In this study data were collected just before discharge, only from patients who agreed to participate in the study over a 14-month period. This gives no indication of the mortality rate in the unit.

The mean length of hospital stay, 46.7 days, was shorter than the 68 days reported in another South African study probably due to the specialised nature of the Burns Unit in this study. Allorta et al. (2009) attributed the patients' long hospitalisation to conservative approaches used to treat burns in South Africa even when they have relatively small % TBSA injury. This study reflects the same where the majority of patients had less than 20% TBSA. The length of stay was therefore longer than that in the Brazilian study (Ricci et al. 2014) but much shorter than the 131 days in China (Zhang et al. 2014). The site of injuries was similar for all the studies, with this study confirming that in South Africa the most common site for burns was to the face, trunk and upper limbs (Allorto et al. 2009).

The results from the Indian study cannot be considered comparable due to the large number of self-inflicted injuries in that study. As for other South African studies the cause of burn injury in this study was mostly accidental with 23.6% of the injuries caused by assault which was lower than that reported by Rode et al. (2011) but higher than for other developing countries such as Brazil, China and India (Rode et al 2011).

This study two thirds were males with an average of 33.3 years of age. The site of injuries were mainly face, trunk and upper limbs and a mean of 17% TBSA 50% of the participants initially in the study were not employed which can be linked to lower socio economic status. The mean length of stay in hospital was 44,7 days and mainly caused by open flames (Table 4.3).

The loss to follow-up in this study were nearly 50% of the participants even though the researcher made every effort to follow up on these participants as explained in the methodology. Loss to follow-up has been reported in other South African studies (Eyal, et al. 2007; Rode, et al. 2011) and is above the accepted 20%, and therefore a problem with longitudinal studies. When the group of participants that defaulted were compared to those who were retained in the study at six months there were only differences in the demographics and medical history of the two groups namely for gender and location of the burn injury. Significantly more female participants adhered to follow-up visits. This was similar to what I experienced when treating patients in the Burns Unit: men were generally not willing to participate in occupational therapy intervention particularly due to pain. The females would more often comply with therapy even if their pain was severe. Participants with lower limb and trunk burns also adhered less to therapy post-discharge which may have been related to their mobility deficits.

It was sometimes difficult to find houses in squatter camps while some participants had moved and no one seemed to know where to get hold of them. Nurses at the clinics in areas which were unfamiliar to me helped me to find the houses of participants as they knew the layout of the area. Some participants who agreed to meet me at the clinic or even at their home either did not arrive or were not at home when we made a visit.

The research assistant and the researcher made numerous trips to Jouberton, the residential area near the hospital and Klerksdorp, as well as single visits to Tigane, Khuma, Kanana, Brits, Rustenburg and Koster. Some days it was very difficult even to get hold of one participant. Even with all these attempts at follow-up participants could not be traced and it was felt that patients were avoidant, perhaps because of their lack of compliance in attending follow-up appointments.

5.3 Activities health and roles

The next objective of the study was to determine the change from the pre-morbid roles and activities health of participants with burn injuries discharged from the Burns Unit in the North West Province, at one month and six months post-discharge, as well as their quality of life and community integration at six months post-discharge.

The pre-morbid activities health of the participants appeared to be satisfactory to them with approximately 30% of time spent at work and 30% sleeping during the week which is congruent with occupational development of adults described by Kielhofner (Kielhofner, 2002) . Social participation and leisure survival skills replaced work hours on the weekend. Even though 50% were unemployed they used their time during the week on volunteering and 35.9% (19) of the participants reported no hours in a week spent on work. Of these, 12 reported high hours of survival skills related to care of the home and children with the other 7 (12.7%) participants being activities unhealthy and using their hours during weekdays on more sleep and leisure involving substance abuse.

The variety in activities was considered adequate at between four or five in each occupational performance area except sleep. Although a variety of leisure activities were reported, these were mostly passive activities. Drinking alcohol predominated most of the reported leisure time.

The median for all satisfaction, comfort and social appropriateness scores was higher than 8.50 for both weekdays and weekends showing no deficits for these aspects of activities health. However the researcher felt that these concepts were difficult for participants to understand. So this result must be interpreted with caution. However the median scores were well above the cut off so on the whole, with the exception in terms of time spent, for a small percentage of those who were unemployed, the participants in this study, based on time spent, variety, comfort, satisfaction and social appropriateness, could be considered as activities healthy (Cynkin & Robinson, 1990).

The participants' role enactment reflected their activities health as the same percentage not participating in a formal worker role but most of them volunteering in some capacity within the community. Only approximately 10% of the participants did not value and enact family member and home maintainer roles while approximately 60% valued the caretaker roles they had and enacted. Surprisingly although nearly 30% of the participants did not value a friendship role, over 83% valued the role of being a religious participant and only 3% valued participating in organisations. This is because participants viewed organizations as being active in political organizations and not religious groups. More than 60% of the participants reported valuing roles related to hobbies and participated in these but did not list other leisure activity roles although many listed other leisure activities on their activity profiles.

For patients to return to pre-morbid roles and activities health level would be desirable post rehabilitation. According to Cheng and Rogers (1989) the patient's own context must be considered, specifically regarding everyday activities and a return to an acceptable level of activities health and previous roles for the majority of the participants in their context would be considered a good outcome.

5.3.1 Activities health and roles at one month post-discharge

When the participants' activities health was assessed at one month compared to baseline there was a significant increase of time spent by them on leisure and sleep and a significant decrease of time spent on work during their weekdays. None of the participants had returned to work at this stage, the possible reason being that most of them still had open wounds which needed to be dressed. The time they usually worked was divided between sleeping and leisure time as they stayed at home. For the weekend activity profile there was no change except for social participation which dropped to zero hours and although not significant had a moderate effect size which made it clinically relevant. It could be that they did not participate socially as they did not want to leave their house and be seen in public and by their friends who were not working over weekend and probably socialising together elsewhere. The change in these hours did not reflect if activities were done independently by participants but only the hours spent doing them. Variety, comfort, satisfaction and social appropriateness all showed a decrease at this stage.

The change in satisfaction in all areas of occupational performance was not significant at one month post-discharge and the effect sizes for all areas were small. The participants reported being more satisfied with their sleep. This could have been related to their overall endurance, which could be limited post burn injury because of the catabolic reaction which would have had an influence on their recovery and return to pre-morbid functioning (Hart et al, 2000). Social participation was also recorded as more satisfactory as the hours had increased slightly during the week but not on the weekend. It is possible that the social participation increase took place within the home where they felt supported and that they preferred not to continue with social participation outside the home on weekends at church or visiting others.

Although not significant there was a marked drop in the satisfaction with work activities which showed significantly lower scores for comfort and social appropriateness. This reflected the participants' inability to return to work at this stage of their recovery. The moderate effect size indicates that the change in social appropriateness was of clinical relevance and was probably related to the participants' concerns about not being able to work which is a role society expects them to fulfil.

All the other scores for comfort and social appropriateness were lower at one month post-discharge but was still above 8 on the scale of zero to 10 with small effect sizes except for social appropriateness for personal management. Due to the need for dressings at this stage the participants probably needed assistance from family members with the dressings as well as possibly washing and dressing which would be considered socially inappropriate as they were all adults. The majority of participants could be considered activities unhealthy in relation to the time spent and lower variety of activities at this stage as well as in terms of satisfaction, comfort and social appropriateness for work and social appropriateness for personal management.

5.3.2 Activities health, roles, quality of life and community integration at six months post-discharge

At six months post-discharge the participants' activities health had for the most part returned to pre-morbid levels in terms the number of hours spent on activities. Statistically there was no significance in any aspects of being activities healthy except for time spent in work and leisure during the week and sleep over the weekends. Work hours during the week had returned to above pre-morbid levels at the expense of hours spent in leisure. Participants reported spending significantly less time sleeping over the weekend. A lot of the participants reported socialising and using alcohol over the weekends with a decrease in their time spent on sleep, personal management, survival skills as well as a decrease in the variety in each of these activities.

There was little change in comfort, satisfaction and social appropriateness from one to six months with all occupational performance areas showing low effect sizes for these components of activities health except for the social appropriateness of work and personal management. The scores for both these components increased at six months when approximately 67% of participants reported participating in work, volunteering or being in training of some sort. The value of return to vocational activities was seen by the significant positive change in the value of roles for work and home maintainer.

While the hours spent on personal management remained the same, the scores for satisfaction, comfort and social appropriateness for this occupational performance area all increased at six months, probably because the participants once again became independent in these activities and required no assistance from others. Although the moderate correlation of depth of the burn injury with self-care and usual activities on the EQ-5D-3L confirms that for the participants with deeper burns quality of life was more affected (Pavoni et al. 2010), all the participants in this study appear to have achieved at comfort and satisfaction with their personal management by six months. This is supported by the lack of problems reported on self care on the EQ-5D-3L as well as a study by Druery et al. (2005) who reported that even patients with severe burns achieve independence in personal management one year post-discharge. The findings for sleep differed in that the hours spent on sleep for both weekdays and weekends were reduced at six months and while this was seen as socially more appropriate, there was a slight decrease in both comfort and satisfaction with sleep. This could be related to ongoing pain and itchiness interfering with sleep (Falder et al. 2009) or post-traumatic stress affecting sleep patterns (Ricci et al. 2014; Zhang et al. 2014).

The majority of participants had regained their activities health six months post-discharge as the hours spent on weekdays and weekends was congruent with adult development (Kielhofner, 2002) except for those who were not involved in productivity activities, similar to pre-morbid levels. Comfort, satisfaction and social appropriateness all returned to levels above eight except for social appropriateness and comfort with work and satisfaction with leisure.

A similar percentage of participants participated in and valued the roles they reported to had been involved in pre-morbidly, except for the caregiver role that fewer participants continued in. At six months participants regained the worker and home maintainer roles that had been affected. This was supported by the community integration scores found on the CIQ and the quality of life scores found on the participants' EQ-5D-3L at six months, where the majority of participants did not have any problems with mobility, self-care and usual activities. Community integration into the home and productivity were adequate compared to the norms on the CIQ scale with only 14% (4) of the participants reporting poor integration into the community, although reintegration for social participation did not reach adequate levels for the entire sample.

According to the CIQ, levels of community integration should be considered separately for males and females, with females achieving higher community integration levels than males, except for productivity. This finding proved true in this study even though literature has reported worse outcomes for females after burn injury (Kildal et al. 2005). The reason for this may be that in this study significantly more females adhered to continuing treatment and therapy, which provided them with the assistance to achieve the adjustment and coping skills they needed to improve community integration and quality of life (Wildebrand et al. 2001). For home integration it could also be assumed that it is culturally appropriate for the females to go back to taking care of the household and being a home maintainer. The females did also achieve higher productivity integration with more of them returning to work. This again could be related to their better adherence to therapy where they gained the support needed to re-engage in work activities.

As reported in other studies poor community integration correlated moderately with the % TBSA injuries (Cheng & Rogers, 1989; Druery, et al. 2005; Oster, et al. 2010; Wasiak, et al. 2014) while decreased quality of life because of pain and discomfort were also moderately associated with the depth of the burn injury. Approximately 40% of the participants indicated some problems with pain/discomfort on the EQ-5D-3L (Wiechman & Mason, 2011; Ryan et al. 2015; Tirumala et al. 2013; Pavoni et al. 2010). This pain and discomfort can be related to the ongoing itchiness and tightness of scars affecting participants' range of motion. In this study participants still experienced itchiness and pain six months post-discharge (Procter, 2010). This could have influenced their comfort in carrying out their activities particularly at work. Poor temperature control could also have contributed to this enduring pain, itchiness and stiffness as the North West Province in summer can get very hot. When patients adhere to therapy post-discharge it allows their itchiness and pain to receive attention during rehabilitation (Zhang et al. 2014).) Tirumala et al. (2013) state that if pain is monitored through rehabilitation, it could increase comfort and will have a positive influence on the long-term outcomes.

While the negative effect of the severity of the burn injury on long-term outcome for community integration and quality of life (Pavoni et al. 2010) was confirmed in this study in terms of physical consequences, a similar number of participants also reported ongoing problems with anxiety and depression affecting their quality of life. Loncar et al. (2006) stated that higher pain scores were associated with higher levels of anxiety and depression in patients with burn injury but this association was not confirmed in this study.

Anxiety and depression have also been associated with a number of factors other than ongoing pain including the altered appearance of the skin due to scarring and the change in burn survivors' perception of themselves in relation to their body image. Ryan et al. (2015) reported that what patients perceive in terms of their appearance regardless of the burn size has a direct influence on their social functioning and levels of anxiety and depression. The trauma of sustaining the injury could also have led to depression and anxiety (Wildebrand et al. 2001; Pallua et al. 2003). All the assault cases in this study were related to domestic violence, and therefore anxiety and depression may have resulted from the added issue of broken relationships, blame and mistrust.

Although 43% of participants who reported their health status as below 60/100 on the EQ-5D-3L it was felt that participants mostly scored their own health status only in relation to their medical problems while they didn't consider and took into account their psychological problems. The researcher felt that they appeared to understand the question as to how they were feeling that day with regard to their health. This could have been in relation to for example high blood pressure diabetes or cancer, but the researcher felt this was not in relation to how they really felt on an emotional level about their burn injury.

Overall the males scored lower in the total integration while the females had scores that were higher than the norm. This may reflect the higher scores for the females in returning to productivity (discussed in 5.3.2.2) as well as their ability to reintegrate into home life as females need to take care of the family and need to continue with their previous domestic roles as others depend on them. These findings contradict those in the literature which indicate poorer outcomes for females with burn injuries, although these outcomes were not reported in relation to community integration as such but quality of life (Ricci et al. 2014; Wasiak et al. 2014).

In this study total community integration only had a moderate correlation with self - care, usual activities and the state of one's own health on the EuroQol5D-3L quality of life scale. This indicates that the relationship between the constructs was not strong but those that existed showed that community integration was associated with the performance of functional everyday activities and not pain, depression and mobility as suggested by Pavioni et al. (2010). These findings probably reflect the less severe nature of the burn injuries in this study. Occupational therapists need to be aware of this association and the importance of consolidating self-care and performance in other usual activities and the effect this may have on the reintegration of patients with burn injuries into their communities.

The results for community integration, activities health, roles and quality of life at six months were considered further under the occupational performance areas as the outcomes differed depending on the contexts in which the participants functioned.

5.3.2.1 Home context

Survival skills which consider the care of others, caring for the place in which domestic activities are done and activities such as shopping are considered under the home context as this is where most of them take place or provide a point from which they occur.

The hours spent on survival skills during the week at six months increased to levels above those reported pre-morbidly, while comfort and satisfaction with survival skills returned to pre-morbid levels, and social appropriateness was lower. This may indicate that participants were taking longer to carry out their survival skills due to physical limitations from the burn injuries while the lower score for social appropriateness may be related to the continued assistance some participants still required with these activities.

In terms of participation within the family, the home maintainer role, while significantly decreased at one month, increased significantly again at six months although not quite to pre-morbid levels. This could be due mainly to the participants' families providing assistance with home maintenance activities which they could not manage initially at one month. By six months only 5% of participants were no longer participating in this role and 22% valued it less than pre-morbidly. Over 50% of participants indicated on the CIQ that they prepared meals independently and did their housework, which may reflect the higher number of female participants in the study who for the most part may be responsible for these activities.

More participants valued the caregiver role at one month probably because they were at home and could be involved in the care of their children at home. The percentage of participants who valued caregiving decreased as they returned to work. On the CIQ only 37% of participants reported being independent in child care at six months which may reflect the assistance they needed with this task after they had returned to work. It is not clear however if the 22% of participants who needed someone else to care for their children, the 44% of those who had assistance with shopping and the 22% who had someone else shop for them needed this because of the burn injury. One could assume this to be the case as the caregiving role was affected with fewer participants participating in this role at six months.

The role as a family member was valued by more participants at one and six months post-discharge, which probably reflects the family assistance and psychological support most participants received from their families. Having to deal with the consequences of a burn injury may have brought the participants closer to their family. Six percent of participants no longer enacted the role of family member which may be related to the loss of relationships in the domestic assault cases where the burn injuries were sustained. This is mainly due to participants staying at home post injury and being more focused on social activities at home than on out and socialising in public. Din et al. (2015) found that there was a significant relation between the social adjustment of a patient with burn injury social adjustment and contacting people in society and feelings of shame towards society.

None of the home integration scores on the CIQ correlated with demographic and medical factors indicating the size and depth of the burn injury, thus it did not appear to be associated with home integration. This lack of correlation was also true for quality of life.

Both males and females in this study did achieve home integration scores higher than the normative level on the CIQ for typical individuals. It can be concluded that for activities health, roles and integration into the home a positive outcome was achieved and these aspects did not present major dysfunction six months post-discharge for the majority of the participants in this study irrespective of other factors.

5.3.2.2 Work context

When considering the vocational role, the value of the worker role and the number of those participating in this role was significantly lower at one month post-discharge. This was reversed at six months with a significant increase in the time spent working and a significant decrease in leisure with a return to eight hours a day for sleep for the majority of participants. However, fewer than 13% of the participants were participating in the worker role at six months, indicating that the burn injuries may have had an influence on the participants’ return to work. Only 33% of the participants were working either full-time or part-time six months post-discharge compared to nearly 50% pre-morbidly. Nearly 20% were volunteering like doing home base caregiving for nearby clinics however, while 14% had returned to or started education and training courses.

It is not clear how the burn injuries resulted in loss of employment and whether this was related to the injury preventing the participants from being able to continue with the work they did previously which was often manual labour or if they maybe had lost their jobs because they were away from work for an extended period of time. Productivity integration did correlate moderately with the depth of the burn injury so it is possible that those with deeper burns might still have had problems with unhealed wounds which prevented them from returning to work six months post-discharge. This is supported by Cheng and Rogers (1989) in their study where the patients who had severe burns often did not return to their worker role because of physical and psychological problems. Esselman et al. (2007) reported in their study that after a year 79, 7% patients did return to their work and that the strongest factor regarding inability to return to work was the severity of the burn. In this study however the majority of the participants did not sustain severe burn injuries so return to work needs to be considered in light of the participants' context and also the type of work they do. Klein et al. (2007) found that patients should if possible return to work, because that shows a certain amount of functional ability and also reflects emotional wellbeing.

There was a slight decrease in scores for comfort and social appropriateness regarding work at six months post-discharge compared to those recorded pre-morbidly. This could be attributed to the loss of jobs for some participants or problems with active movements, scarring, itching and pain for those that had returned to work. This applied particularly to the participants wearing pressure garments which made it difficult to work especially outside. Sweating was reported as a problem, especially when wearing pressure garments, as the temperatures could have been very hot, especially during summer.

The male participants did not achieve levels of productive integration equal to the norm for typical populations while the female participants' integration back into work activities was higher than that expected for a typical population (Brinkley et al, 2015). This was because in this study all except three males worked outside or on the mines where temperatures in the working environments were very high and they could therefore not return to heavy manual labour jobs. The females all had jobs that involve manual dexterity and lighter manual labour and they worked indoors in houses as domestic workers, in taverns and shops. It is assumed that most volunteer work which is for non profit organisations (NPOs) is also carried out indoors in these communities. It would appear that an important factor affecting return to work and productivity integration after burn injury is not only the depth of the burn but the patient’s type of work and the environment in which that work is performed.

Only self-care on the quality of life scale correlated with productivity integration indicating that functional occupational performance in personal management is associated with integration in terms of productivity and work. The importance of addressing this aspect should therefore be made clear to occupational therapists working in this field.

5.3.2.3 Leisure and social participation context

Although the change in time spent on leisure during the weekday increased significantly at one month when most participants were not working, this did decrease significantly after they had returned to work. The increase in hours spent in leisure had a moderate effect size for the weekend at one month and this increase was still present at six months. In terms of activities health for balance of activities the participants had therefore achieved a similar pattern for leisure to the one they reported pre-morbidly, but were spending more time on leisure on the weekends.

The results for social participation were different in that participants reported no social participation on weekdays pre-morbidly, so their understanding of the concept seemed to have been related to socialising during leisure time rather than social contact in other activities such as work. There was therefore little social participation on weekdays reported throughout the study. For weekends however, while social participation reported by participants did decrease with a moderate effect size at one month it had increased again at six months. Although social participation hours increased at six months the time spent on this OPA was less than that reported pre-morbidly. This is supported by Xie et al. (2012) who also found that six months post-discharge patients with burn injuries did not return to all their previous occupations and roles and did not completely reintegrate back into the community socially.

While satisfaction with leisure and social participation increased at one month, comfort and social appropriateness decreased. All three components of activities health as well as variety had lower scores at six months indicating that for leisure and social participation participants were no longer achieving the same activities health that they experienced pre-morbidly. Participants reported that their social participation before the injury was more active and included visiting people away from their own homes. After the injury they remained at home most of the time and people came to visit them at home. They were less active in leisure and social participation because of their skin itchiness, altered appearance and pressure garments, which they were not keen to wear in social settings. The participants appeared more willing to allow visitors at home after six months for social get togethers, but this was mainly with family members. This behaviour was borne out by Wildebrand et al. (2001) who reported that after burn injury patients became isolated. They prefer being at home, even if they did return to their previous job, and they prefer visits from friends and family in their own homes.

Lack of social participation could also been due to poor body image post burn injury even though the %TBSA injury in this study was low. However %TBSA injury and length of hospital stay were moderately associated with social integration in this study indicating that the extent and length of healing time of the burn did play a role in how much participants were prepared to engage with social activities, particularly those outside the home. As for other OPAs there was a correlation between self-care and social integration which may reflect concerns with appearance. Participants reported that they preferred to be at home and not engage socially outside of their homes because of their changed perceptions about their body image and/or altered appearance. This avoidant strategy was also described by Wildebrand et al. (2001); in their study they found avoiding strategy was related to a greater risk of having physical and psychological difficulties. Van Baar et al. (2006) also found that even patients with minor burn injuries had problems with their appearance. The length of hospitalisation may have an effect on social integration due to possible institutionalisation. Patients feel safe in hospital and become afraid to face others on discharge because of visible changes in skin colour or scars.

It must be remembered that even for participants who do not have extensive burn injuries, psychosocial dysfunction in the form of depression and anxiety affect social integration and this can be related to a number of factors (Pallua et al. 2003). A moderate correlation between quality of life, perception of own health and social integration was found which can indicate that the participants' attitude to their recovery and health will affect their social integration.

Although there was no significant change in the participants' social roles the percentage of participants not participating in religious roles and hobbyist roles decreased at one month and remained much the same at six months. The participants who highly valued their religious role continued to enact this role but those who had only valued it somewhat no longer enacted the role. This led to a decrease in variety of leisure and social participation activities and also resulted in a social integration score below that expected on the CIQ. On the CIQ both the males and females scored lower than the norm for typical individuals.

In this study the OPA related to leisure and social participation presented the greatest challenge to the participants post burn injury in terms of integration back into the community on all levels. Participants reported that besides personal finance and a best friend they required assistance from others, especially when doing activities in public such as attending movies or being involved in leisure activities which had a social component. This is the one area where activities health also declined. Occupational therapists should be aware of the association between the patient's perception of their own health and the effect it has on social integration, and also of the association between social integration and self-care.

The role of occupational therapy within the multi-disciplinary team is therefore important in addressing a number of the participants' needs in relation to integration back into their communities. The access to frequent occupational therapy services is thus important for all patients post burn injury so that all OPAs, particularly self-care, work, leisure, sleep and social participation can be addressed. Both Pavioni et al. (2010) and Malik et al. (2012) emphasise the importance of following up patients with burn injuries as outpatients to minimise their physical and psychosocial problems and improve their everyday functioning.

To conclude patients with burn injuries did show changes in occupational performance, roles, community integration and Qol. Although they did achieve levels close to their pre-morbid occupational performance in other areas social participation was still not at the same level. Physical and psychological problems also had an effect on participants' Qol and community integration.

5.4 Area discharged to and access to occupational therapy services post-discharge

Participants' places of residence were recorded as was all other demographic data just before they were discharged. These included data about where the patients were going to live after discharge as this affected their access to the hospital and occupational therapy, depending on the distance of their residence from these services. The residential area recorded was not necessarily where they lived before they were injured which may have differed due to work commitments. This could have affected the results which determined the areas from which the patients came, as they may have moved back to areas near their work during the course of the study.

Just less than half of the participants came from areas that were more than 40 km away from Tshepong Hospital. The distance the participants lived from the Hospital had a significant effect on the percentage that returned for follow-up appointments. These long distances from the Hospital appeared to have had a direct influence on access to outpatient occupational therapy as the distances made it difficult for the participants to return to the Hospital. It also made it difficult to offer support and inform the family about the patients' needs and condition. This is an important part of the service which should be offered to burn patients in occupational therapy. Philips et al. (2007) have shown that if the support is appropriate for the family, it helps with better overall adherence in rehabilitation.

The distance the participants and their families live from the Hospital also impacted on the ability of the family to support the participants when they were in Hospital. It also limited the family members' ability to meet with rehabilitation and medical professionals and their lack of involvement in the participants' rehabilitation again may have affected outpatient adherence. The issue of distance makes it difficult to incorporate the suggestion of Blakeney et al. (2008) that family should be part of the rehabilitation from admission to discharge.

Patients needed to return to Tshepong Hospital for follow-up since there were no or limited occupational therapy services at community-based clinics near the participants' homes. When services are rendered, these clinics do not assist with pressure garments or splinting because of lack of resources at the clinics. This makes follow-up costly coming to hospital.

Rode et al. (2011) state that one of the biggest problems in burn rehabilitation in South Africa is the fact that there is not adequate access to rehabilitation that can offer support to patients with burn injuries in the physical and psychological field. There is also a shortage of therapists in communities and rural settings in South Africa who can assist with the outpatient treatment (Rode et al. 2011), something which is also a problem in other developing countries like China (Chen et al. 2013). To return to the Hospital was costly for the majority of the participants who used public transport as they did not have their own cars. Just over half of the participants who were retained in the study at six months stayed within five kilometres from the Hospital while the others stayed more than five kilometres away. The costs to come for therapy were equally distributed between R0- R20, R20-R50 and R50-R100. Most of the participants reported that they could not afford the transport costs to attend therapy as most hadn't worked for a number of months after discharge. For the participants that were working, occupational therapy services were only available during working hours, which meant having to miss work to attend appointments. A number of participants admitted to being avoidant and not wanting to return to the Hospital for therapy because of the trauma they experienced during their initial treatment there. This could be due to lack of resources at the hospital which may result in poor services.

Adherence to follow-up was therefore poor and resulted in loss to follow-up. Although I contacted participants regularly and offered to pay for their transport for follow-up only 2 of the 55 patients that were discharged from the Unit adhered to all their monthly occupational therapy appointments. This represents a similar loss to follow-up for burns patients of the 90% reported by Rode et al. (2011).

Since the majority of the participants only had superficial partial thickness burns there might have been little need for them to return to the Hospital for medical care in terms of their wounds which might well have been completely healed. With no further scarring or disfigurement they might not have seen the need to return for their follow-up appointments as the occupational therapy services at the Hospital were based on the care of the burn injuries and their consequences rather that support and groups for psychosocial consequences of burns, as suggested by Wisely and Tarrier (2001). Wisely and Tarrier (2001) state that training and support between health care professionals are important to be able to run an effective follow-up service. If this is true, it may mean that the Burns Unit at the Hospital, focused on the physical side only, was not meeting the participants' psychosocial needs. Where they had few physical consequences from the burn injuries, they simply didn't return for follow-up; the results also show that those who defaulted did not have burns that were even more superficial.

There was a moderate correlation between quality of life and the distance participants stayed from the Hospital and strong correlations between quality of life and the cost of getting to the Hospital. Participants reported that the distance they had to travel and the cost involved were associated with their mobility, anxiety and depression as well as pain and discomfort. These factors therefore probably further discouraged the participants from returning for follow-up appointments.

It is clear that for these participants the occupational therapy services they needed were either not accessible and close enough to their homes, and/or were not adequate to address all the dimensions of their dysfunction after burn injury.

Half of the participants were therefore more than 40km away from the hospital and struggled with both lack of finances and the distance they lived from the hospital in adhering to their occupational therapy appointments. The distances also influenced their amount of support from their family as family members during rehabilitation as these factors also meant they family and friends could not visit them often when they were inpatients and could not accompany them to the hospital and be part of their outpatient rehabilitation process.

5.5 Limitations of the study

Sample size was one of the problems encountered. Although the sample size was adequate for the first assessment a high percentage of participants were lost to follow-up, which was at the lowest end of what is acceptable based on the 20-50% cited in the literature (Fewtrell et al. 2008). Although the researcher made every effort to trace the participants, this was made difficult by the transient nature of the participants' living conditions, the change in cell phone numbers and the lack of formal numbering on the houses in squatter communities.

This loss to follow-up may have biased the results of the study and the researcher therefore made an effort to compare those that defaulted from those that were retained. The difference between the groups was significant for gender, sight of burn injury and the distance they lived from the Hospital. These factors were however not considered in the analysis and results of the data so these biases were not accommodated for.

In terms of the assessments used in the study the activities health questionnaire proved difficult and lengthy to administer. Participants did not always give adequate information or sufficient detail or variety of activities. There was some misunderstanding about the difference between leisure and social participation and interacting with others was often not reported in relation to work, survival skills and personal management. Participants were not familiar with concepts like satisfaction, comfort and social appropriateness.

Participants had problems with the VAS scales for comfort, satisfaction and social appropriateness in the activities health questionnaire and on the EuroQol-3D-5L vertical analogue scale for your own state of health. The researcher felt sometimes even though participants had problems with the concepts they were asked to report on and that the answers given were not always congruent with what she observed. It was not appropriate to query the answers provided in this study but future research in this field should consider the participants lack of familiarity with VAS scales in particular.

The study only considered those discharged from the Burns Unit and so there is no indication of what percentage of patients admitted to the Burns Unit this reflects or of the mortality rate in the Burns Unit. The mortality rate did not affect this study as only patients that were returning to their communities were recruited into the study on discharge from hospital.

Participants experienced changed in their overall occupational performance, roles, CIQ and Qol over the period of six months. It was evident that physical and psychological problems regarding the burn injury can limit participants' to fully reintegrate and have a good Qol in the society.

CHAPTER 6: CONCLUSION

6.1 Introduction

This chapter summarises the study in terms of its aims, objectives and results and provide recommendations for the clinical application of the results and further research.

6.2 Overview of the research process

The main purpose of this study was to determine the integration of patients with burn injuries into their community in terms of their pre-morbid roles and occupational performance areas as well as their quality of life post burn injury. The study was based in a resource-constrained community in South Africa and patients were followed up for six months post discharge from a burns unit in the North West Province of South Africa. The study also investigated access to occupational therapy services rendered.

There is limited research into community integration after burn injuries especially in the field of occupational therapy. Literature was reviewed on burn injuries in a few other developing countries as well as South Africa: rehabilitation issues for patients with burn injuries, patients' return to pre-injury occupations, specifically returning to work post burn injury. Factors that affect physical function and psychological function as well as the assessment of occupational performance areas, the quality of life post burn injury and the assessments of quality of life in patients with burn injuries were all considered as well as community reintegration and the assessment thereof.

An a non-experimental, descriptive, longitudinal, quantitative study design was used to assess the activities health and roles of 55 female and male adults admitted to the Burns Unit at Tshepong Hospital in the North West Province pre-discharge, these assessments were repeated at one month and six months post-discharge. The community integration questionnaire (CIQ), EuroQol-3D-5L and access to occupational therapy questionnaire were used with the participants six months post-discharge.

6.2 Overview of the results

Results indicate that the participants that were retained in the study had returned to previous activities health by six months post-discharge although work and leisure balances were significantly different at one month post-discharge. Participants returned to home-based occupations and roles with little difference from their pre-morbid activity profile regarding comfort, variety, social appropriateness and satisfaction. Both females and males showed integration higher than that expected from typical individuals and only required some assistance with shopping and child care.

Integration was higher for females in productivity although most of the participants who had worked before had resumed a worker role by six months post-discharge. Some participants did not return to work because of the nature of their jobs which took place outside or on the mines. Leisure and social integration were low for both males and females and did not achieve typical levels of previous satisfaction, comfort and social appropriateness. Participants were reluctant to socialise and carry out leisure activities outside their homes. Quality of life scales showed similar results with half of the participants reporting some pain/discomfort and anxiety/depression.

All aspects of integration except home integration as well as quality of life scores were moderately correlated with depth or TBSA% of the burn injuries, with social integration also being associated with length of stay in hospital, a finding supported by other studies. The self-care component related to the quality of life also correlated moderately with all components of integration indicating that this is a factor affecting all integration which should be noted in occupational therapy intervention. Participants' perception of their own health correlated moderately with social participation as those who considered themselves as having health problems did not participate socially.

Access to occupational therapy services for those who lived far from the Hospital were poor as the services they needed were not offered at clinics nearer to their homes. Cost was a major factor for participants who lived far from the Hospital and only 10% of participants were compliant with all follow-up appointments. Female participants were more compliant. Poor mobility, depression and anxiety, and pain and discomfort, clearly indicated that participants were not getting the intervention and support they needed. This was closely linked to the distance from the Hospital and the cost of going to therapy. This confirms the importance of providing outpatient occupational therapy services to patients post burn injury when they return to their communities.

6.3 Recommendations

Service delivery for patients with burn injuries needs to be extended into the community so that occupational therapists based at the clinics can follow up and provide rehabilitation for patients closer to their homes. The follow-up services offered at clinics should be expanded to include maintenance of pressure garments and splints as well as providing individual and group psychosocial support and intervention to ensure independence and activities health in self-care.

Support for returning to work and adaptations for work that is based outside need to be considered.

The development of peer support groups within each community should be facilitated. The role of home-based care workers should be looked at as part of the team in terms of understanding and providing support for the patients.

Further studies on implementing peer support groups and how that will affect patients' integration into the community and their quality of life are a need in the South African context. It is recommended that the same study on a bigger population is done, and/or to only use participants with a 20% and higher TBSA to determine the effect of more severe burn injuries on integration into the community. Qualitative studies to determine the patients' experience will also be very valuable.

To reduce loss to follow up on future studies get more occupational therapists to assist with follow up with patients treatment in the area they stay at the closes clinic or hospital.

In conclusion this was the researcher came to understand the limitations and difficulties in retaining burn injury participants in a rehabilitative programme this study in a developing country especially in lower socio economic areas. Burn injury patients and their reintegration will need further investigation and possible programmes that will assist them in reintegrating back to their society although their financial circumstances are not good.

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Appendix A

Occupational Therapy
School of Therapeutic Sciences • Faculty of Health Sciences • 7 York Road, Parktown 2192, South Africa
Tel: +27 11 717-3701 • Fax: +27 11 717-3709 • E-mail: denise.franzsen@wits.ac.za

PERMISSION LETTER

Research Coordinator/The CEO/ Head of ……..
Dept of Health/Tshepong Hospital
North West Province

Study title: The community reintegration of patients with burn injuries post-discharge in the North West Province of South Africa

Dear Sir/Madam,

I am Anneri Myburgh, an occupational therapist and I am completing my master's degree in occupational therapy at the University of the Witwatersrand. I am doing research on the reintegration of patients with burn injuries after they have been discharged from hospital. I am trying to establish how successfully do patients with burn injuries that have been treated at the Burns Unit in North West Province reintegrate into their communities as well as how access to occupational therapy services facilitated or hindered the reintegration.

I am requesting permission to complete this research in the Burns Unit at Tshepong Hospital.
Patients will be approached to complete a form on general demographic information and to complete an activities health assessment about what they did pre-morbidly at home every day for a weekday and a weekend day and how they felt about the activities they did as well as a role checklist. This assessment will take about 30 minutes to complete.

They will be reassessed with the same instruments at their one month and then at six month follow-up visit to the hospital. At six months after discharge they will also complete two short questionnaires about their quality of life and community integration. This will take about an extra 20 minutes. They will also be asked about access to occupational therapy services during the last six months. Patients will continue with occupational therapy appointments on a monthly basis in between these assessments.

Confidentiality will be ensured and any identifying information will be kept separate and in a secure place by the researcher. No names will be on any of the data sheets. Refusal to take part or withdrawal from the study at any time will not have an influence on the patient’s rehabilitation which will continue as normal.

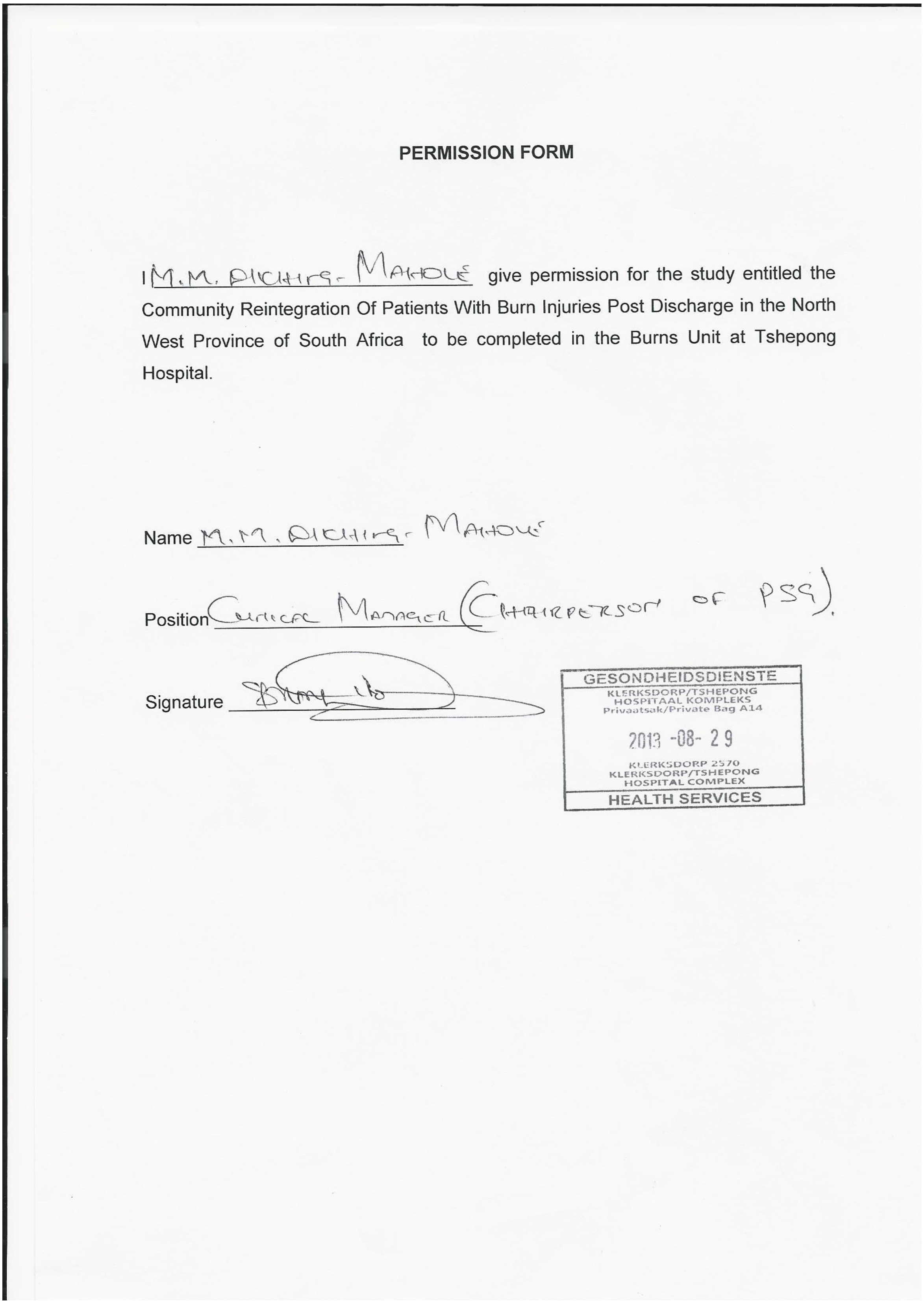
There are no risks in taking part in this study and no direct benefits for the participants.

Transport reimbursement will be provided for follow-up visits for the research to the hospital.

Contact details of researcher/s – for further information
If you have any queries, more information may be obtained from Anneri Myburgh on cell 082-560 3659.

Contact details of HREC administrator and chair at the University of the Witwatersrand – for reporting of complaints/problems.
Should there be any ethical queries about the research please feel free to contact the Human Research Ethics Committee (HREC) Chairman Prof P Cleaton-Jones at 011 7171234 or anisa.keshav@wits.ac.za.

Regards
Anneri Myburgh



PERMISSION FORM

I M.M. DICHING-MAHOLE give permission for the study entitled the Community Reintegration Of Patients With Burn Injuries Post Discharge in the North West Province of South Africa to be completed in the Burns Unit at Tshepong Hospital.

Name M.M. DICHING-MAHOLE

Position CLINICAL MANAGER (CHAIRPERSON OF PSG).

Signature

GESONDHEIDSDIENSTE
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HOSPITAAL KOMPLEKS
Privaatsak/Private Bag A14
2013 -08- 29
KLERKSDORP 2570
KLERKSDORP/TSHEPONG
HOSPITAL COMPLEX
HEALTH SERVICES

Appendix B

INFORMATION SHEET

Study title: The community reintegration of patients with burn injuries post-discharge in the North West Province of South Africa

Hello,

I am Anneri Myburgh, an occupational therapist and I am completing my master’s degree in occupational therapy at the University of the Witwatersrand.

I am doing research on the reintegration of patients with burn injuries after they have been discharged from hospital. I would like to find out how you manage with your everyday activities after you are discharged from hospital and in your home and community. This will help us as occupational therapists plan outpatient rehabilitation for patients with burn injuries in the future.

I am inviting you to take part in a research study because you have a burn injury. If you agree to participate you will need to complete a form which will give me general information regarding you. Then I am going to ask you to give me feedback on what you did at home every day for a weekday and a weekend day and how you felt about the activities you did. This is an activities health assessment which will take about 30 minutes to complete.

Once you are discharged I will ask you complete the same assessment at your one month and then at your six month follow-up visit to the hospital. At six months after discharge I will also interview you using two short questionnaires about the quality of your life and how well you have fitted back into your family and community. This will take about an extra 20 minutes. I will also ask you about how you managed to get to occupational therapy services during the last six months. Your normal occupational therapy appointments on a monthly basis will continue in between.

I assure you that confidentiality will be ensured and any identifying information like your name and phone number will be kept separate and in a secure place by the researcher. Your name will not be on any of the activities health or questionnaire sheets. You will continue with your normal occupational therapy in the ward and after you have been discharged from the hospital.

If you refuse to take part or withdraw from the study at any time it will not have an influence on your rehabilitation which will continue as normal.

There are no risks in taking part in this study and no direct benefits for you. I will be able to give you information regarding the study and results if you wish to.

If you have to pay money for e.g. transport to come for your follow-up for the study we will give you the money back for the transport.

I will try to keep all your personal information safe and private, but absolute privacy of your information cannot be guaranteed if the law requires the need to disclose personal information although your name and details will not be linked directly to results. Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the Research Ethics Committee.

Should I notice that you have other concerns or conditions that require the attention of another health professional during the course of this research I will provide you with the details of such professionals so that you can consult them if you wish.

Contact details of researcher/s – for further information

If you have any queries, more information may be obtained from Anneri Myburgh on cell 082-560 3659. Contact details of HREC administrator and chair at the University of the Witwatersrand – for reporting of complaints/problems.

Should there be any ethical queries about the research please feel free to contact the Human Research Ethics Committee (HREC) Chairman Prof P Cleaton-Jones at 011 7171234 or anisa.keshav@wits.ac.za for reporting of complaintsproblems

Regards

Anneri Myburgh

INFORMED CONSENT SHEET

I ______________________________ understand what is required of me if I participate in the research entitled the Community Reintegration Of Patients With Burn Injuries Post-Discharge in the North West Province of South Africa and agree to participate.

Name ____________________

Signature ______________________

Appendix C

DEMOGRAPHIC QUESTIONNAIRE

Demographic Form (To be Kept Separate)

Name:

Code:

%TBSA:

Age:

Degree:	
Superficial Partial	
Partial	
Deep Partial	
Full Thickness	

Gender	
Male	
Female	

Location:

Cause:

Marital status	
single	
married	
divorced	

Occupation:

Employed		Detail:
unemployed		

Education Level:

Date of admission:

Date of discharge:

Address:

Phone no:

Appendix D

ACTIVITIES HEALTH ASSESSMENT

ACTIVITY PROFILE -

6.00	**WEEKDAY**	**WEEKEND**
6.30		
7.00		
7.30		
8.00		
8.30		
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3.30		
4.00		
4.30		
5.00		
5.30		

ACTIVITIES HEALTH ASSESSMENT

Code __________________

Date: _________________________

1. NUMBER AND VARIETY OF ACTIVITIES

2. BALANCE OF ACTIVITIES

Week

Weekend

CURRENT

Week	**%**	**Weekend**	**%**
Personal management			
Leisure/Play			
Work/Education			
Sleep			
Survival skills			
Social participation			
	100%		100%

3. SENSE OF SATISFACTION IN ACTIVITIES

- In each occupational performance area:

Personal Management

0 / ____ /10

Work

0 / ____ / 10

Leisure

0 / ____ / 10

Sleep

0 / ____ /10

Survival skills

0 / ____ / 10

Social participation

0 / ____ / 10

4. SENSE OF COMFORT IN ACTIVITIES

- In each occupational performance area.

Personal Management

0 / ____ / 10

Work

0 / ____ / 10

Leisure

0 / ________________________________ / 10

Sleep

0 / ________________________________ /10

Survival Skills

0 / ________________________________ / 10

Social participation

0 / ________________________________ / 10

5. SOCIAL APPROPRIATENESS OF ACTIVITIES:

Approval by significant others

0 ________________________________ 10

- In each occupational performance area.

Personal Management

0 / ________________________________ / 10

Work

0 / ________________________________ / 10

Leisure

0 / ________________________________ / 10

Sleep

0 / ________________________________ /10

Survival skills

0 / ____ / 10

Social participation

0 / ____ / 10

CONCLUSIONS ABOUT ACTIVITIES HEALTH

PROBLEMS THAT NEED TO BE ADDRESSED

Nov

Appendix E

EQ-5D-3L

Health Questionnaire

English version for South Africa

By placing a tick in one box in each group below, please indicate which statements best describe your own state of health TODAY.

Mobility

I have no problems in walking about ☐

I have some problems in walking about ☐

I am confined to bed ☐

Self-Care

I have no problems with self-care ☐

I have some problems washing or dressing myself ☐

I am unable to wash or dress myself ☐

Usual Activities (*e.g. work, study, housework, family or Leisure activities)*

I have no problems with performing my usual activities ☐

I have some problems with performing my usual activities ☐

I am unable to perform my usual activities ☐

Pain/Discomfort

I have no pain or discomfort ☐

I have moderate pain or discomfort ☐

I have extreme pain or discomfort ☐

Anxiety/Depression

I am not anxious or depressed ☐

I am moderately anxious or depressed ☐

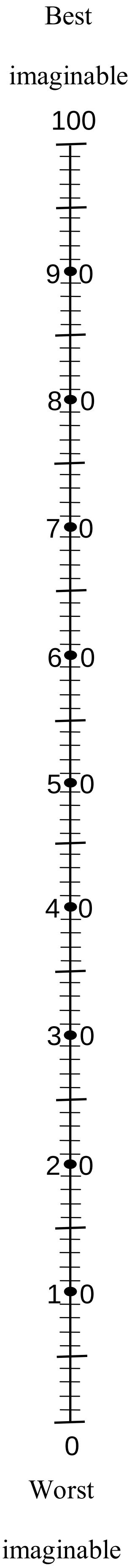
I am extremely anxious or depressed ☐

To help people say how good or bad their state of health is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale, in your opinion, how good or bad your own health is today. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your state of health is today.

Your own

state of health



Appendix F

COMMUNITY INTEGRATION QUESTIONNAIRE

Code ____________________

Home Integration	**Answer (circle one)**	**Score**
1. Who usually does shopping for groceries or other necessities in your household?	Yourself alone (2) Yourself and someone else (1) Someone else (0)	
2. Who usually prepares meals in your household?	Yourself alone (2) Yourself and someone else (1) Someone else (0)	
3. In your home who usually does normal everyday housework?	Yourself alone (2) Yourself and someone else (1) Someone else (0)	
4. Who usually cares for the children in your home?	Yourself alone (2) Yourself and someone else (1) Someone else (0) Not applicable (score is the average of 1,2,3 and 5)	
5. Who usually plans social arrangements such as get-togethers with family and friends?	Yourself alone (2) Yourself and someone else (1) Someone else (0)	
Home Integration Total Score	Add the above scores together	
Social Integration		
6. Who usually looks after your personal finances such as banking or paying bills?	Yourself alone (2) Yourself and someone else (1) Someone else (0)	
Can you tell me approximately how many times a month you now usually participate in the following activities outside your home?		
7. Shopping	5 or more (2) 1 – 4 times (1) Never (0)	
8. Leisure activities such as movies, sports, restaurants	5 or more (2) 1 – 4 times (1) Never (0)	
9. Visiting friends or relatives	5 or more (2) 1 – 4 times (1) Never (0)	

Downloaded from www.rehabmeasures.org Test instructions provided courtesy of Dr. Barry Willer, PhD. Please contact Dr. Willer at bswiller@buffalo.edu with any question about the CIQ Page 1

10 When you participate in leisure activities do you usually do this alone or with other?	mostly alone (0) mostly with friends who have head injuries (1) mostly with family members (1) mostly with friends who do not have head injuries (2) with a combination of family and friends (2)	
11. Do you have a best friend with whom you confide?	Yes (2) No (0)	
Social Integration Total Score	Add the above scores together	
Integration into Productive Activities		
12. How often do you travel outside the home?	almost every day (2) almost every week (1) seldom/never (less than once per week) (0)	
13. Please choose the answer below that best corresponds to your current (during the past month) work situation: *Please see scoring for this item on next page*	Full-time employment (>20 hours/week) Part Time Employment (< 20 hours/week) Not working, but actively looking for work Not working, not looking for work Not applicable, retired due to age Volunteer job in the community	
14. Please choose the answer below that best corresponds to your current (during the past month) school or training program situation *Please see scoring for this item on next page*	Full-time Part-time Not attending school or training program	
15. In the past month, how often did you engage in volunteer activities? *Please see scoring for this item on next page*	5 or more 1 – 4 times Never	
Total Score		

Scoring for items 13 to 15 – Job/School

The patient receives a 0, if answers for the following questions are:
Item 13) not working, not looking for work
Item 14) not going to school
Item 15) no volunteer activities
The patient receives a 1, if answers for the following questions are:
Item 13) not working, not looking for work
Item 14) not going to school
Item 15) volunteers 1 to 4 times
The patient receives a 2, if answers for the following questions are:
Item 13) actively looking for work
AND/OR
Item 15) volunteers 5 or more times per month
The patient receives a 3, if answers for the following questions are:
Item 13) working part-time
OR
Item 14) attends school part-time
The patient receives a 4, if answers for the following questions are:
Item 13) working full-time
OR
Item 14) attends school full-time
The patient receives a 5, if answers for the following questions are:
Item 13) working full-time AND Item 14) attends school part-time
OR
Item 13) works part-time AND Item 14) attends school full-time

If the patient is retired due to age, use item 15 to score the JOB/SCHOOL variable
5 or more receives 4 points
1 – 4 times receives 2 points
Never receives 0 points

Summing Scores:

The productivity score = item 12 score + Jobschool variable
The total CIQ score = Home integration score + social integration score + productivity score

References:

Willer, B, Rosenthal, M et al 1993. Assessment of community integration following rehabilitation for traumatic brain injury, in The Journal of Head Trauma Rehabilitation 8(2).

Appendix G

The Role Checklist

Frances Oakley, *MS, OTR, FAOTA*

Background

Within the occupational behaviour tradition, roles are characterized as critical determinants of productivity. Occupational roles organize behaviour by contributing to one's personal identity, conveying social expectations for performance, organizing use of time, and including the individual within the social structure. The occupational therapist's unique view of disability involves understanding how illness or injury affects occupational role performance. Successful adaptation after illness or injury may depend on a person's ability to competently resume or to establish new occupational roles.

The Role Checklist was designed to elicit information about a person's occupational roles. Occupational roles consist of both playful and productive behaviours. Playful behaviours are characterized as "non work" such as hobbies, sports, or social recreation. Productive behaviours contribute some service or commodity that others need or desire.

The Role Checklist has been translated into 12 languages (Arabic, Dutch, French, German, Japanese, Portuguese, Brazilian Portuguese, Slovene, Spanish, Swedish, Chinese, & Hebrew) for international use. It is a reliable and valid assessment tool that provides:

1. Data on individuals' perception of their participation in roles throughout their lifespan. 2. Data regarding the degree to which each role is valued.

3. Supplemental information regarding an individual's capacity to maintain a balance among roles.

Role Checklist

Code ________________

The purpose of this checklist is to identify the major roles in your life. The checklist, which is divided into two parts, presents 10 roles and defines each one**.**

Beside each role, indicate, by checking the appropriate column, if you performed the role in the past,

PART I PREMORBID ASSESSMENT

. ROLE	**PAST ENACTED ROLE**	**VALUE OF ROLE**
STUDENT: Attending school on a part-time or full-time basis.		
WORKER: Part-time or full-time paid employment.		
VOLUNTEER: Donating services, **at least once a week,** to a hospital, school, community, political campaign, and so forth.		
CARE GIVER: Responsibility, **at least once a week,** for the care of someone such as a child, spouse, relative, or friend.		
HOME MAINTAINER: Responsibility, **at least once a week,** for the upkeep of the home such as housecleaning or yard work.		
FRIEND: Spending time or doing something, **at least once a week,** with a friend.		
FAMILY MEMBER: Spending time or doing something, **at least once a week,** with a family member such as a child, spouse, or other relative.		
RELIGIOUS PARTICIPANT: Involvement, **at least once a week,** in groups or activities affiliated with one’s religion (excluding worship).		
HOBBYIST/AMATEUR: Involvement, **at least once a week,** in a hobby or amateur activity such as sewing, playing a musical instrument, woodworking, sports, the theater, or participation in a club or team.		
PARTICIPANT IN ORGANIZATIONS: Involvement, **at least once a week,** in organizations such as civic organizations, political organizations, and so forth.		
OTHER: A role not listed which you have performed, are presently performing, and/or plan to perform. Write the role on the line above and check the appropriate column(s).		

Code ___________________

PART I ONE AND SIX MONTH ASSESSMENT

. ROLE	**PRESENT – ENACT ROLE**	**VALUE OF ROLE**
STUDENT: Attending school on a part-time or full- time basis.		
WORKER: Part-time or full-time paid employment.		
VOLUNTEER: Donating services, **at least once a week,** to a hospital, school, community, political campaign, and so forth.		
CARE GIVER: Responsibility, **at least once a week,** for the care of someone such as a child, spouse, relative, or friend.		
HOME MAINTAINER: Responsibility, **at least once a week,** for the upkeep of the home such as housecleaning or yard work.		
FRIEND: Spending time or doing something, **at least once a week,** with a friend.		
FAMILY MEMBER: Spending time or doing something, **at least once a week,** with a family member such as a child, spouse, or other relative.		
RELIGIOUS PARTICIPANT: Involvement, **at least once a week,** in groups or activities affiliated with one's religion (excluding worship).		
HOBBYIST/AMATEUR: Involvement, **at least once a week,** in a hobby or amateur activity such as sewing, playing a musical instrument, woodworking, sports, the theater, or participation in a club or team.		
PARTICIPANT IN ORGANIZATIONS: Involvement, **at least once a week,** in organizations such as civic organizations, political organizations, and so forth.		
OTHER: A role not listed which you have performed, are presently performing, and/or plan to perform. Write the role on the line above and check the appropriate column(s).		

Appendix H

Questionnaire on access to occupational therapy services

1. What is your closest clinic or hospital's name?

____

____

____

____

____

2. How far is it from your house?

0-5 Km	
5-10 Km	
10-20 Km	
20-40 Km	
Other......................	

3. What types of transport do you use and how much does it cost?

Walk		R0 – R20	
Taxi		R20 – R50	
Hospital transport		R50-R100	
Other		R100-R200	
If other describe...............		Other and describe	

4. Why did you not come back for your occupational therapy appointment at Tshepong?

Transport	
Finances	
Other	
Describe if other:...	

5. Why did you not attend your therapy at clinic?

____

____

____

____

____

6. Is it difficult to do all the things you did before your burn?

____

____

____

____

____

7. Why?

____

____

____

____

____

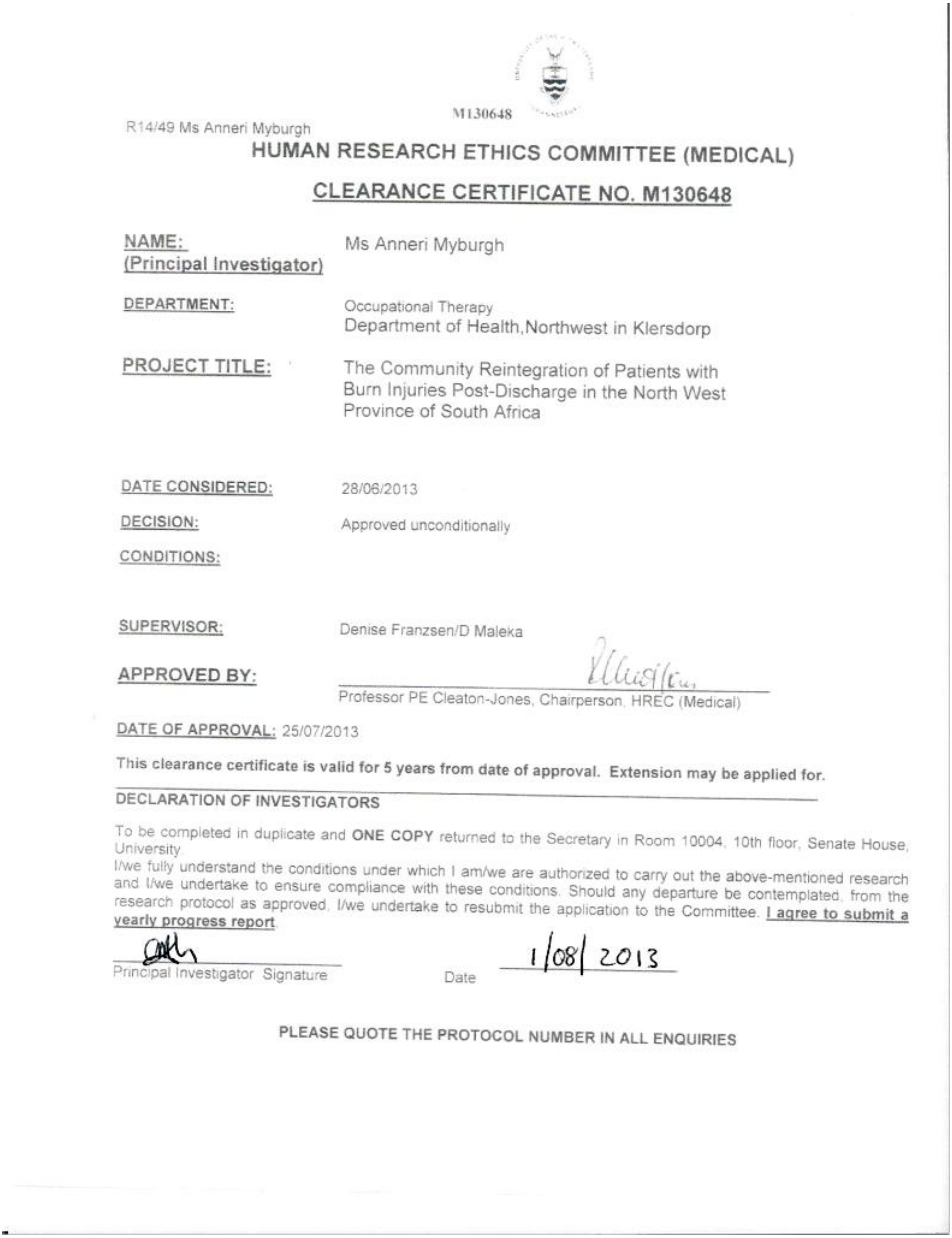
8. What is your biggest challenge after discharge from the Burns Unit?

____

____

____

Appendix I



M130648

R14/49 Ms Anneri Myburgh

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M130648

NAME:
(Principal Investigator) Ms Anneri Myburgh

DEPARTMENT: Occupational Therapy
Department of Health,Northwest in Klersdorp

PROJECT TITLE: The Community Reintegration of Patients with Burn Injuries Post-Discharge in the North West Province of South Africa

DATE CONSIDERED: 28/06/2013

DECISION: Approved unconditionally

CONDITIONS:

SUPERVISOR: Denise Franzsen/D Maleka

APPROVED BY:
Professor PE Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 25/07/2013

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 Secretary in Room 10004, 10th floor, Senate House, University.
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**.

Principal Investigator Signature

Date 1/08/2013

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES