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FACTORS INFLUENCING THE USE OF OUTCOME MEASURES BY COMMUNITY-BASED PHYSIOTHERAPISTS IN GAUTENG PROVINCE, SOUTH AFRICA

by

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Dedication

I dedicate this thesis to my husband, Herold, and children, Lesedi, Tlangelani, Ntsako and Amukelani, who always believed in me and supported me throughout the journey. They continued to motivate and provide me with the love that I needed to complete the work.

Declaration

I hereby declare that "**Factors influencing the use outcome measures by community-based physiotherapists in Gauteng Province, South Africa**" is my own work and that it has not been submitted, in part or in its entirety, for any degree or examination at any other university; and that all sources used or quoted have been indicated and acknowledged by means of complete references.

Signature…………………………….

Kwena Joyce Mabasa

Witness………………………………

Dr Karien Mostert

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I would like to thank God for giving me the strength and courage to complete my study.

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ABSTRACT

The use of outcome measures by rehabilitation professionals has been advocated for many years; however, routine use is still lacking. Literature on the factors influencing the use of outcome measures locally is limited; therefore, the purpose of this study was to determine the factors that influence the use of outcome measures by community-based physiotherapists in Gauteng Province. While 75 community-based physiotherapists from Gauteng Province invited to participate in the study, 48 community-based physiotherapists responded. A descriptive cross-sectional approach was used in this study. A validated questionnaire was piloted to test its applicability to the South African setting. Thirty-seven per cent of the participants used at least one outcome measure in practice. Support from colleagues and positive attitudes were identified as factors that facilitated the use while lack of knowledge, lack of skills and lack of time were identified as barriers towards the use of outcome measures. The only statistically significant relationship found was between the lack of knowledge and the lower level of use of outcome measures. In conclusion, it was evident that there was poor usage of outcome measures by community-based physiotherapists in Gauteng Province and the barriers identified ranged from individual level to organisational level. Recommendations are made regarding policy for the implementation of policies and guidelines on outcome measures and monitoring thereof in form of audits. Special interest groups could offer courses on outcome measures and physiotherapists be encouraged to undergo postgraduate education. Therefore, the researcher suggests that continuous training be provided within the workplace and outcome measures be adopted.

Keywords

Community-based rehabilitation

Physiotherapy

Community-based physiotherapy

Outcome measures

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LIST OF ABBREVIATIONS AND ACRONYMS

APTA	American Physical Therapist Association
BI	Barthel Index
CBR	Community-based Rehabilitation
CPD	Continuous Professional Development
CHART	Craig Handicap Assessment and Reporting Technique
CHC	Community Health Centre
CIQ	Community Integration Questionnaire
EBP	Evidence-based Practice
ICD	International Statistical Classification of Diseases and Related health problems
ICF	International Classification of Functioning, Disability and Health
MAS	Modified Ashworth Scale
MCS	Mental Component Summary Score
MSCRIM	Maleka Stroke Community Reintegration Measure
NGO	Non-governmental Organisation
OASIS	Outcome Measurement and Information Set
PCS	Physical Component Summary Score
PHC	Primary Health Care
RNLI	Reintegration to Normal Living Index
SASP	South African Society of Physiotherapy
SIS	Stroke Impact Scale
SOM	Standardised Outcome Measure
UK	United Kingdom
UN	United Nations
US	United States
VAS	Visual Analogue Scale
WCPT	World Confederation for Physical Therapy
WHO	World Health Organization
WOMAC	Western Ontario and McMaster Universities Osteoarthritis Index

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CHAPTER 1

INTRODUCTION

1.1   BACKGROUND

Community-based physiotherapy was implemented in South Africa as part of a multidisciplinary team approach within the community-based rehabilitation (CBR) context. CBR was implemented with a focus on shifting from institutional-based health services to community-based health services (Bury, 2005). Physiotherapists have a moral and professional obligation to diagnostic and treatment methods that are based on opinions or anecdotal evidence or are used simply because they are experienced-based habitual practice. Rather, physiotherapists need to demonstrate the effectiveness of their interventions and to utilise standardised measures to evaluate the outcomes of their interventions (Copeland, 2009).

Evidence for the clinical effectiveness of CBR is limited and the lack of research hinders an understanding of the effectiveness of the CBR programmes (Lukersmith, Hartley, Kuipers, Madden, Llewellyn & Dune, 2013). Systematic evaluation of outcomes is an integral part of evidence-based practice (EBP) (Debuse & Brace, 2011). Using outcome measures is an integral component of health care practice and is believed to improve clinical decision-making and patient outcomes.

Outcome measures are measurement tools that assess changes in patients' clinical status and can also be used to establish a patient's baseline health status, monitor changes and aid in clinical decision making. These measures must be valid, reliable and able to detect changes in a patient's clinical status after exposure to treatment. The integration of outcome measures into clinical practice promotes objective assessment and EBP (Akinpelu & Eluchie, 2006). Despite the advocated usage of outcome measures globally, however, the use of outcome measures has not become routine practice (El-Sobkey & Helmy, 2012; Mehta & Grafton, 2013). Surveys on the use of outcome measures by rehabilitation professionals consistently report low use rates (Jette, Halbert, Iverson, Miceli & Shah, 2009; Swinkels, Van Peppen, Wittink, Custers & Beurskens, 2011).

The literature suggests that lack of time and lack of knowledge are the most common barriers to the use of outcome measures globally. Studies conducted by Duncan and Murray (2012) and Zidarov and Poissant (2014), for example, found that lack of time and lack of knowledge were barriers to the use of outcome measures while positive attitudes were reported as a facilitating factor.

Little is known about factors that influence the use of outcome measures in practice locally and it is not known whether the factors discussed above exist within the South African context. In addition, limited evidence is available on the use of outcome measures by community-based physiotherapists in South Africa. There is currently no evidence to indicate that there are recommended outcome measures within CBR. Thus, the aim of this study is to determine the factors that influence the use of outcome measures by community-based physiotherapists in South Africa.

1.2   PROBLEM STATEMENT

The use of outcome measures, which attempt to quantify the results of therapy, is an increasingly important element of good clinical practice and EBP. For this reason, it is necessary to integrate outcome measures into clinical practice and encourage the implementation of EBP (Mehta & Grafton, 2013). However, the literature reports an inconsistent use of outcome measures by physiotherapists.

To date, no research study has been carried out to determine the use of outcome measures and the factors that influence the use of outcome measures at CBR level in Gauteng Province. The researcher has observed that currently no recommended or approved outcome measures are used in community-based physiotherapy services in Gauteng.

Use of outcome measures in developing countries across the world appears to be inconsistent. El-Sobkey and Helmy (2012) reported poor use of outcome measures among physiotherapists in Egypt. However, a survey conducted in India revealed that a higher percentage of physiotherapists used outcome measures in clinical practice (Mehta & Grafton, 2013).

Lack of time and lack of knowledge are the most cited barriers towards the use of outcome measures while support from colleagues and positive attitudes are reported as facilitators (Swinkels et al., 2011).

As evidence-based and outcome-orientated professionals, rehabilitation professionals need to embrace and understand the value of measurement to rehabilitation and health care (Mothabeng, 2013). Considering the potential to rehabilitate and reintegrate patients back into the community, the use of valid and reliable measurement tools is advocated. Therefore, the study aims to determine the factors that influence the use of outcome measures by community-based physiotherapists.

1.3 RESEARCH QUESTIONS

The specific research questions addressed in this study were:

1. What are the participant's characteristics?
2. To what extent do the Gauteng community-based physiotherapists use outcome measures?
3. What are the top five high-ranked participation-level outcome measures?
4. What are the influencing factors towards the use of outcome measures?
5. What is the relationship between?
   a) the use of outcome measures and demographic variables, i.e. age, sex, education, job title, district, training, recommended participation-level outcome measures, years of experience as a community-based physiotherapist, total years of experience, working hours per week and number of patients seen per week?
   b) the use of outcome measures and influencing factors?

1.4 AIM AND OBJECTIVES

1.4.1 Aim

The aim of the study was to determine the factors influencing the use of outcome measures by community-based physiotherapists in Gauteng Province, South Africa.

1.4.2 Objectives

The study objectives were:

1. To describe the participants' characteristics, as collected by a demographic questionnaire in Section A question 1 to 10 covering age, sex, education, job title, years of experience as a community-based physiotherapist, total years of experience, district, training, recommended participation-level outcome measures, working hours per week and average number of patients seen per week.
2. To determine the use of outcome measures by community-based physiotherapists in Gauteng Province, South Africa, by question 2 in Section B of the questionnaire.
3. To determine the top-five high ranked outcome measures used by the community-based physiotherapists, by question 4 in Section B of the questionnaire.
4. To determine the factors influencing the use outcome measures by community-based physiotherapists in Gauteng Province, South Africa, by question 1 to 18 in Section C of the questionnaire.
5. To determine the relationship between the
   a) use of outcome measures and age, sex, job title, district, training, recommended participation-level outcome measures, years of experience as a community-based physiotherapist, total years of experience, working hours per week and number of patients seen per week though analytical statistics.
   b) the use of outcome measures and influencing factors through analytical statistics

1.5 DELIMITATIONS

This study focused specifically on community-based physiotherapists in the Gauteng Province Department of Health and not on hospital-based Gauteng physiotherapists or community-based physiotherapists from other provinces. A questionnaire was used to collect the data (with open-ended and closed questions).

1.6 DEFINITION OF KEY TERMS

The key terms used throughout the chapters in this thesis are defined below for a clearer understanding.

Community-based physiotherapists

In this study, community-based physiotherapists are physiotherapists who are based at community health centres and clinics and who are employed by the Gauteng Department of Health for CBR for people with disabilities.

Community-based rehabilitation

CBR is a strategy within community development for the rehabilitation, equalisation of opportunities and social integration of all people with disabilities. The CBR strategy is implemented through the combined efforts of the disabled people themselves, their families and communities, and the appropriate health, education, vocational and social services (ILO/WHO/UNESCO, 2004).

Outcome measures

Outcome measures are tools for measuring the outcomes of health care interventions over time (Copeland, Taylor & Dean, 2008). In this study: it refers to all general outcome measures.

1.7 OUTLINE OF THE CHAPTERS OF THE DISSERTATION

The thesis is organised into six chapters.

Chapter 1 presents the background to the study and describes the problem statement, purpose, objectives and the scope of the study.

Chapter 2 summarises a review of the relevant literature that provides the rationale for the study being undertaken. It also describes the preferred approaches that are used to conceptualise the study.

Chapter 3 presents the methodology employed to answer the objectives of the study. Aspects of the methodology discussed in this chapter include, but are not limited to, research design, study population measurement instrument, and data collection and analysis.

Chapter 4 presents the results of the study in relation to the objectives as stipulated under Section 1.4.2.

Chapter 5 discusses the results of the study, regarding the published literature, and highlights the implications of these results for both local and international audiences.

Chapter 6 discusses the conclusions drawn by the study in relation to the research aims and the research findings. The strengths and limitations of the study are also discussed. Recommendations for local and national stakeholders and for future research are made based on the study findings.

CHAPTER 2

LITERATURE REVIEW

2.1   INTRODUCTION

In Chapter 1, the background and the problem statement, purpose, objectives and scope of the study were described. The literature review presented in this chapter reports on and discusses the background of the South African health care system in relation to community-based rehabilitation (CBR) and community-based physiotherapy. The chapter looks at evidence-based practice and outcome measures and their categories, which include the International Classification of Functioning, Disability and Health (ICF). Lastly, it deals with the use of outcome measures in physiotherapy and factors that influence the use of outcome measures. The discussion reviews the research conducted on each of these topics critically, examining the findings, limitations and conclusions of the studies reviewed.

2.2   SEARCH STRATEGY

A comprehensive literature search was conducted, guided by the aims and objectives of the study.

Electronic and manual literature searches were performed to select relevant resources for the review. The electronic search used PubMed, CINAHL and Science Direct as databases. The key words used for the searches were: "arthritis", "cerebrovascular accidents", "cerebral palsy", "outcome measures", "community-based rehabilitation", "physiotherapy" and "participation".

2.3   HISTORICAL BACKGROUND OF THE SOUTH AFRICAN HEALTH SYSTEM

After 1994, a National Health Policy was promulgated and adopted in South Africa in support of primary health care, with the implication that patients would be able to access the services closer to their residential areas (Ministry in the office of the Deputy President, 1997).

Historically, services in the public sector had been dominated by secondary and tertiary institutions. A shift in rendering services was made from the tertiary to the primary health care level to reduce hospital length of stay and institutionalisation.

The prior focus was mostly on the medical model approach where care was dictated to the patients and they had little to no choice in treatment and the disease was treated not the person, which had its limitations (Ministry in the office of the Deputy President, 1997). Hence, rehabilitation services were introduced as part of primary health care. These services were rendered at clinics and community health centres, where the concept of community-based rehabilitation (CBR) was also adopted. Community health centres have been designated low-intensity facilities in which rehabilitation should be offered by at least one rehabilitation professional or auxiliary rehabilitation worker (Department of Health, 2007).

2.3.1 Community-based rehabilitation

South African disability and rehabilitation policies have largely been based on the United Nations (UN) Standard Rules, which promote social model practices. It should be noted that CBR was developed and promoted as a strategy to increase coverage to most the population. CBR was introduced because South Africa was reported to provide services to 21% to 40% of the disabled population (WHO, 2002).

South Africa has two key policies that guide primary health care and CBR service provision. The National Rehabilitation Policy emphasises accessible, affordable and community participation as a main goal of the CBR strategy (Department of Health, 2000).

Although CBR is multisectoral, the World Health Organization (WHO) views the link with the health sector at Primary Health Care (PHC) level as important, as the skills of specialised professionals (e.g. physiotherapists and occupational therapists) are required for strengthening the rehabilitation services (WHO, 2003).

The PHC package for rehabilitation services describes the scope of services to be rendered at the levels of the clinic, community health centre, home and community. The core of the health sector in rehabilitation mainly involves disability prevention, medical diagnosis and therapeutic services, assistive device provision and provision of psychosocial rehabilitation. The PHC package describes services to be rendered at both PHC facility and community level.

The aim is to provide daily therapy service, providing assessment and therapy services to all age categories, mainly treating people with disabilities such as stroke and cerebral palsy and impairments that may arise from backache and sport injuries (Department of Health, 2001a, 2001b). The services include home visits, training of caregivers and family members, facilitating self-help support groups and networking with other organisations.

At clinic level, the emphasis is on the early detection of people at risk of developing disabilities and the services at the Community Health Centre (CHC) level are more extensive. Services at this level include early detection and initial assessments of all cases referred by the clinic, hospital or the community.

Rehabilitation literature often refers to the "multidisciplinary approach". The multidisciplinary approach is an approach where services are provided by diverse professionals who constitute a team that works independently of one another but with the aim of achieving a common goal (Cifu & Steward, 1999). The team may consist of a physician, nurse, physical therapist, occupational therapist, kinesio-therapist, speech and language therapist, psychologist, the patient and family/caregivers (Duncan, Zorowitz, Bates, Choi, Glasberg, Graham, Katz, Lamberty & Reker, 2005).

2.3.2 Community-based physiotherapy

The declaration of the Alma-Ata in 1978 advocated PHC as a strategy for achieving the WHO's goal of "Health for All" (WHO, 1978). CBR was introduced by the WHO as a strategy for bringing PHC and rehabilitation services closer to people with disabilities, especially in low-income countries. In 1994, the first CBR joint position paper was published and it recognised that people with disabilities should have access to all services that are available in the community, such as child health, community health services and others. Considering the evolution of CBR into a broader development strategy, a matrix was developed by the WHO in 2004.

The CBR matrix (WHO, 2010) provides a basic framework for CBR programmes. It highlights the need to target interventions in five key components: health, education, livelihood, social participation and empowerment. Each CBR programme is not expected to implement every component of the CBR matrix, but will vary depending on the needs of its users. Early programmes focused mostly on physiotherapy, assistive devices and medical interventions; however, the concept has evolved over the last 30 years. The goal of the health component is that people with disabilities achieve their highest attainable standard of health. It includes the following: promotion of health, prevention of injury and disease, medical care, rehabilitation and provision of assistive devices.

Physiotherapy forms an integral part of rehabilitation, which in turn forms an integral part of the services offered at PHC level. Provision of physiotherapy services at a PHC level should be based on the four pillars of PHC: promotive, preventative, curative and rehabilitative (South African Society of Physiotherapy, 1993). The role of the physiotherapist within the CBR model is to treat and prevent human movement disorders, with the aim of restoring function or minimising dysfunction and pain in all age groups, using various hands-on techniques such as mobilisation, manipulation, massage or acupressure.

A survey on CBR by the World Confederation for Physical Therapy (WCPT) found that physiotherapists played a variety of roles in CBR services. Physiotherapists assist health teams, CBR workers and community health workers in the delivery of rehabilitation services to people with disabilities.

Physiotherapy professional education needs to equip physiotherapists with the appropriate knowledge and skills to work in a variety of settings, including the PHC setting (WCPT, 2003).

The substantial gaps in research within CBR have been recognised in the World Report on Disability (WHO, 2011). The literature has identified the need for a stronger research base and observed that the existing body of evidence on the effectiveness and efficacy of CBR is weak. This critique relates to the need for robust research and systematic measurement of key outcomes of CBR (Lukersmith et al., 2013). This suggests that there is a need for a stronger research foundation and evidence base for the CBR programmes, which will assist in improving measurement, resource allocation and information provision.

2.4   EVIDENCE-BASED PRACTICE

In recent years, there has been a drive globally toward encouraging physiotherapists to evaluate current literature and incorporate the findings of current studies into their daily practice to enrich decision making and further improve the outcomes of their patients. Evidence-Based practice (EBP) is defined as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996). Given the contemporary rise in more streamlined care, in which patients have shorter hospital stays and fewer visits with clinicians, professionals have an increased accountability for the service they provide (Dijkers, Murphy & Krellman, 2012). Engaging with both research and clinical findings can enhance the proficiency of clinical practice and help to prevent the misuse, overuse and underuse of health care services (Scurlock-Evans, Upton &Upton, 2014).

Despite the clear benefits of EBP, its uptake within physiotherapy and other professionals has been inconsistent (Caldwell, Coleman, Copp, Bell & Ghazi, 2007). Many physiotherapists hold positive attitudes towards the use of EBP; however, this does not necessarily translate into consistent, high quality EBP. Barriers to EBP are apparent and include the lack of time and skills, and misperceptions of EBP. Health care professionals have raised concerns about the compatibility of aspects of EBP and the lack of clinically relevant research (Scurlock et al., 2014).

These concerns have also been raised by Dijkers et al. (2012), who reported that research unearthed by searches may have limited relevance to a clinician's problem. In rehabilitation, where there is still a great need to build the evidence, this can certainly be an issue.

2.5   OUTCOME MEASURES

The current emphasis on the use of outcome measures has increased the demand for physiotherapists to use outcome measures in evaluating the effectiveness of treatment interventions and in providing accountability.

Outcome measures are tools for measuring the outcomes of health care interventions over time (Copeland et al., 2008). Jette et al. (2009) elaborate that outcome measures assess the actual or perceived ability of an individual to carry out activities, such as moving in an environment or completing personal care, and to participate in life situations, such as work or household management. They can be used to measure the different components of health status, which include the physical impairments caused by a disease, the limitations imposed on the activity levels and restrictions on participation of an individual in society, his or her family life, work and recreation (WHO, 2001).

There are three main purposes behind the use of outcome measures: clinical care, research and audit. In clinical care, outcome measures are used to establish a patient's baseline, assess the patient's symptoms, monitor changes in the patient's health status, aid in clinical decision making and, lastly, evaluate the effectiveness of interventions, care or service (Bausewein, Daveson, Benalia, Simon & Higginson, 2008). Research into outcome measures enables physiotherapists to use the information obtained to assist with the clinical decisions regarding treatment options, which allows for better assessment of the patient's progress. At service level, the clinical audit that uses the results of the outcome measurement encourages continual quality improvement of service delivery (Copeland, 2009).

Therapists must possess a basic understanding of the properties of measurement for them to measure outcomes. Outcome measures should be standardised, have detailed instructions for administration, scoring and interpretation of results, and meet the criteria for

reliability and validity (Wedge, Braswell-Christy, Brown, Foley, Graham & Shaw, 2012). Validity, reliability and responsiveness collectively are termed "psychometric properties" of an outcome measure. Reliability is the extent to which a measurement is free from error, although error is present in all types of measurement. Validity is the extent to which an outcome measure evaluates a variable or construct of interest, whereas the terms "responsiveness" and "sensitivity to change" refer to the ability of an outcome measure to detect change when it has occurred and to remain stable when change has not occurred (Resnik & Dobrzykowski, 2003). These psychometric properties can be evaluated by using various methodological and statistical approaches.

It is important for clinicians and researchers to have a thorough understanding of the psychometric properties of outcome measures and to use this evidence to select the most appropriate outcome measure(s) for their measurement needs (Bialocerkowski, O'Shea & Pin, 2013). This will give users confidence in their measurement process.

2.5.1 Categories of outcome measures

Outcome measurement can be broadly categorised as either general measures or disease-specific measures. Generic measures are used to measure the wellbeing of all types of patients, regardless of their condition. The emphasis is on the positive aspects of physical, social and emotional wellbeing. These measures are used for surveys that attempt to document the range of disability in a general population and focus on the overall impact of the health condition. Thus, they are particularly useful for comparing outcomes across populations or patient groups (Potter, Fulk, Salem & Sullivan, 2011). For example, the medical outcomes study Short Form 36 (SF-36) is a common generic measure that measures mental, physical and social wellbeing and has been classified as a powerful tool for comparing the burden of disease and benefits of treatment (Ware, Snow, Kosinski & Gandek, 1993).

The SF-36 is subdivided into two separate health constructs: the physical component summary score (PCS) and the mental component summary score (MCS). Subscales of the SF-36 measure eight different health concepts, which include general health, physical functioning, role functioning, bodily pain, mental health, emotional functioning, vitality and

social functioning. However, generic measures lack the precision required to enhance effective health care decision making.

Generic measures may not always provide a sufficient level of detail or responsiveness for measuring change in a single patient over time. In this instance, disease-specific measures are applicable. These measures focus on a disease or disorder and address the most relevant concerns for a target population. They also exhibit great depth but little breadth. They have the aim of being more clinically and socially significant in relation to specific conditions and being able to discriminate more finely between patients' levels of severity of condition, and of being more sensitive to their clinical outcomes. They provide insight into the relationship among body function/structure impairment, activity limitation and participation restrictions (Potter et al., 2011).

Examples of disease-specific measures are the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Stroke Impact Scale-16 (SIS-16). WOMAC was originally developed for patients with osteoarthritis of the knee (Stratford, Kennedy, and Hanna, 2004) and the SIS-16 was developed to assess the physical function in patients with stroke (Duncan, Lai, Bode, Perera & DeRosa, 2003). These measures do not allow comparison across different groups of patients. However, they can be criticised for being too narrow in focus, while neglecting the measurement of important outcome and modifying variables (e.g. social support, adjustment, coping, life satisfaction, self-esteem, depression and other domains).

2.5.2 International Classification of Functioning, Disability and Health (ICF) and outcome measures

The ICF is a classification system developed by the WHO to record and organise a wide range of information about health and health-related states that complements information already available within the WHO International Classification of Diseases-10 (Resnik, Bradford, Glynn, Jette, Hernandez & Wills, 2012). The ICF was endorsed by the World Health Assembly in May 2001 (WHO, 2001).

It is a statistical tool for describing the lived experience of functioning and its restrictions in the context of diseases and other health conditions, which are classified in the International Statistical Classification of Diseases and Related Health Problems (ICD).

The overall purpose of the ICF is to provide a standard language and framework for the description of human functioning and its negative notion: disability. The system is divided into two components. The first covers functioning at three levels: body function, body structure, and activities and participation. The second component covers factors that comprise the context for functioning, which include environmental and personal factors. From its components, the ICF defines functioning and disability as multidimensional concepts related to body functions and structures of people, the activities people do and the life areas in which they participate, and the factors in their environment that affect these experiences.

The ICF defines 'impairment' as a problem in body (physiological and psychological) function or structure (anatomical parts of the body); 'activity' is the execution of a task or action by an individual; and 'participation' is involvement in a life situation (WHO, 2001). The second domain includes environmental and personal factors that could influence an individual's level of functioning and recovery within the categories of the first domain. It promotes a holistic model of patient care, with the focus on enabling patients to participate in society, in contrast to the previous focus on pathology and impairment (WHO, 2001). In the ICF, a person's functioning is conceived as a dynamic interaction between health conditions and environmental and personal factors. Thus, clinicians should consider using outcome measures across all levels of the ICF, including participation, to gain a broad understanding of the impact of a patient's health condition.

Valid and reliable outcome measurement tools have been developed to address all dimensions of the ICF framework and to measure such constructs (Jette, Tao & Haley, 2007). The ICF places these measures into one of the three domains, impairment, activity and participation restrictions, depending on what the measure intends to measure (Salter, Foley, Jutai & Teasell, 2007). For physiotherapists, this framework entails moving away from focusing on pain, muscle strength and other impairments and placing greater emphasis on activity and participation-level outcome measures.

Impairments (often assessed as symptoms and signs) are usually the best markers of prognosis and help in interpreting other data. In addition, change at the level of impairment might be used to show that the intervention had its primary intended effect, if it is expected to alter impairment (Wade, 2003). Lastly, there will be occasions when reducing impairment is itself the primary goal. For example, studies that investigate control of pain or reduction of spasms might correctly have pain intensity or spasm frequency as the primary measure of outcome. The Modified Ashworth Scale (MAS) is an example of an outcome measure at the level of impairment that is used to determine the amount of resistance or tone perceived by an examiner when moving a limb (Gregson, Leathley, Moore, Sharma, Smith & Watkins, 1999).

The main aim of activity limitations measures is to reduce limitation on activities (disability, behaviour), and the primary outcome is therefore usually at the level of activities.The activities may be within or outside the home and could include the activities needed to take part in work. The main difficulty is to choose a measure that will detect the change expected (Wade, 2003). Many measures may either include too many items that are not of relevance or too few to cover the range of possible outcomes. An example of the activity limitation measure is Barthel Index. The Barthel Index (BI) is an outcome measure for activity limitations that measures the level of independence in performing functional activities. It includes basic mobility, self-care activities and an assessment of bladder and bowel continence (Hsueh, Lee & Hsieh, 2001). The BI is one of the most commonly used functional outcome measures (Joseph & Rhoda, 2011).

Most clinical rehabilitation aims to maximise social participation. Unfortunately, measures of participation are currently less developed than measures of more basic activities (Wade, 2003). Moreover, many factors well outside the control of the rehabilitation team may affect participation. Consequently, it is rarely the focus of rehabilitation research trials, and it is rarely measured. The Reintegration to Normal Living Index (RNLI) has been found to be one of the most widely used participation outcome measures. It was developed as a short and simple way to assess, quantitatively, the degree to which individuals achieve reintegration into their social background (Wood-Dauphinee, Opzoomer, Williams, Marchand & Spitzer, 1988).

2.6   THE USE OF OUTCOME MEASURES IN PHYSIOTHERAPY

The use of outcome measures in physiotherapy was first discussed in the 1990s (Cheeson, Macleod & Massie, 1996). However, a review of the literature indicates an inconsistency on the part of physiotherapists in using outcome measures in clinical practice (Inglis, Faure & Frieg, 2008; Jette et al., 2009; El-Sobkey & Helmy, 2012; McAuley, 2014; Mehta & Grafton, 2013).

Various studies have reported a high percentage of physiotherapists using outcome measures. Inglis et al. (2008) reported that 84% of the physiotherapists in a study conducted in South Africa used outcome measures while 91% of the respondents reported having heard of outcome measures. The study involved a population of physiotherapists who belonged to the South African Society of Physiotherapy (SASP). Impairment-based measures were the outcome measures predominantly used. However, the study population was limited to the physiotherapists on the email list of the SASP and therefore the findings could not be generalised to the rest of the South African physiotherapy population. Bias was also introduced with access to email being a prerequisite for participation, as this is not available to everyone.

Similar findings were reported in a study conducted by Burton, Tyson and McGovern (2012) among health care professionals in the United Kingdom (UK). The study aimed to identify the current clinical practice; how health care professionals working in stroke rehabilitation used outcome measures; and their perception of the benefits of and barriers to use.
The results indicated that 96% of the respondents used at least one outcome measure. The findings are supported by a study conducted by Mehta and Grafton (2013) among musculoskeletal physiotherapists in India. The results of the study indicated that 80% of the respondents used outcome measures and the most commonly used outcome measures were impairment-based measures.

The literature indicates that despite the reported increased use of outcome measurement, poor use of outcome measures has been reported in studies conducted (Jette et al., 2009; El-Sobkey & Helmy, 2012).

A study conducted in the United States (US) among physiotherapists reported poor use of outcome measures (Jette et al., 2009). The aim of the study was to determine the use and perceived benefits of and barriers to standardised outcome measures (SOMs). The results indicated that 40% of the participants reported using outcome measures. The use of outcome measures was related to speciality certification status, practice setting and the age of most patients treated.

El-Sobkey and Helmy (2012) reported similar findings in a study conducted amongst Egyptian physiotherapists. The purpose of the study was to describe the self-reported beliefs in EBP and SOMs, the extent of their adoption in clinical practice, and the perception of the benefits of and barriers to the adoption of EBP and SOMs.

2.7   FACTORS THAT INFLUENCE THE USE OF OUTCOME MEASURES

Despite the importance of measuring outcomes in clinical practice, a variety of barriers limit the use of outcome measures and evidence suggests that rehabilitation therapists do not routinely apply outcome measures in practice. Several factors are considered to influence the use of outcome measures among physiotherapists (Wedge et al., 2012; Burton et al. 2012; Zidarov & Poissant, 2014).

These factors include characteristics of the measure, clinician, workplace, patient, research and guidelines. Results of previous studies have identified barriers such as lack of knowledge and lack of familiarity with outcome measures (Swinkels et al., 2011; Duncan & Murray, 2012). Lack of knowledge ranged from knowledge relating to psychometric properties of outcome measures, to analysis and interpretation of results and, finally, understanding of and familiarity with outcome measures (Duncan & Murray, 2012). Physiotherapists who had a masters' level qualification and those who had clinical speciality were more likely to use outcome measures in clinical practice (Jette et al., 2009). Similar findings were reported by Wedge et al. (2012), who stated that a difference in knowledge of outcome measures was found between new graduates irrespective of the highest degree earned and those who had not had recent academic exposure. Physiotherapists have indicated a need for small-scale education, feedback on the use of outcome measures and guidance on which outcome measures to choose.

Although continuing education was identified as a source of information, not all courses provide this type of information. Therefore, it is evident that physiotherapists require more information on the outcome measures available and this information needs to be easily accessible.

Despite the lack of knowledge, positive attitudes of clinicians improved the use of outcome measures in a study among physiotherapists in the Netherlands (Swinkels et al., 2011). However, while clinicians generally expressed positive attitudes to outcome measures, they were unable to transpose these attitudes to the systematic use of outcome measures. Attitudes towards the use of outcome measures were generally positive and were associated with the perceived relative advantage of using outcome measures in practice (Zidarov & Poissant, 2014).

Insufficient time is cited as the top barrier to EBP across health care professional groups (Copeland et al., 2008; Burton et al., 2012). The lack of time included time for analysis, calculation, scoring, administering and re-administering outcome measures (Jette et al., 2009). This seems to be a universal barrier towards the use of outcome measures. The lack of time could be linked to the lack of support for outcome measures in organisations.

Organisational factors such as low organisational priority and support for outcome measures were reported as barriers (Jette et al, 2009; Duncan & Murray, 2012). The organisational context has an important influence on individual decisions to adopt and use outcome measures (Zidarov & Poissant, 2014). The adoption and routine use of outcome measures are more likely to succeed if key individuals are supported by an organisation.

In facilities where the use of outcome measures is encouraged, there appears to be strong administrative support and allocation of time or search facilities for investigating appropriate tools (Wedge et al., 2012). This suggests that organisations can increase the likelihood of successful routine outcome measurement by providing sufficient support and adequate allocation of resources.

The suitability of outcome measures has been reported as a barrier in studies. Outcome measures have been found not to be specific enough to measure outcomes and some have not been sensitive enough to measure the types of change made during interventions

(Stapleton & McBrearty, 2009). The findings are supported by Duncan and Murray (2012), who reported that some outcome measures were too subjective and did not inform their practice.

In summary, the literature indicates a lack of consistency in using outcome measures in practice both locally and internationally. Certain factors influence the use of outcome measures either positively or negatively. Lack of knowledge and time were identified as the most common barriers to the use of outcome measures while positive attitudes and support from colleagues were identified as facilitators.

Although no existing theory underlies the use of outcome measures in physiotherapy, the conceptual framework for the theory to be used in the study was compiled from the literature. Refer to Figure 2.1.

```
┌─────────────────────────┐                    ┌─────────────────────────┐
│        Barriers         │                    │      Facilitators       │
└─────────────────────────┘                    └─────────────────────────┘
              ⇓                                              ⇓
         ┌──────────────────────────────────────────────────────┐
         │          The use of outcome measures                 │
         └──────────────────────────────────────────────────────┘
                                 ⇑
         ┌──────────────────────────────────────────────────────┐
         │  Characteristics of the population                   │
         │    • Age                                             │
         │    • Sex                                             │
         │    • Years of experience as a                        │
         │      physiotherapist                                 │
         │    • Years of experience as a                        │
         │      community-based physiotherapist                 │
         │    • Training attended on participation-             │
         │      level outcome measures                          │
         │    • Recommended participation-level                 │
         │      outcome measures                                │
         │    • Highest level of education                      │
         │    • Job title                                       │
         └──────────────────────────────────────────────────────┘
```
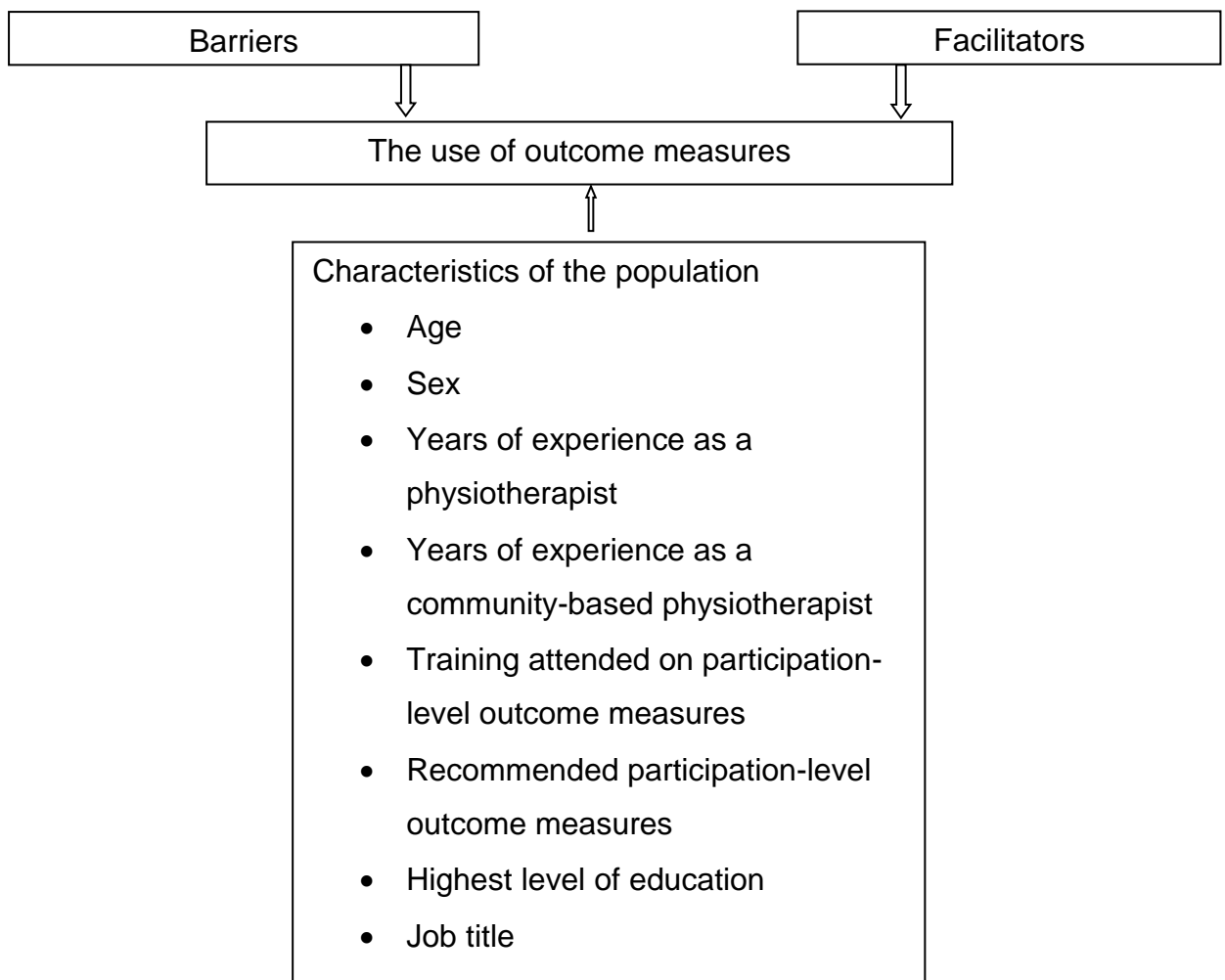
Figure 2.1: Conceptual framework for the study

CHAPTER THREE
METHODOLOGY

3.1   INTRODUCTION

This chapter describes the methodology employed in the execution of this research study. The chapter outlines the design chosen, the setting in which the study took place, the population studied, the methods of data collection, the pilot study conducted and how the data was analysed. It also describes the ethical and legal considerations.

3.2   STUDY DESIGN

A descriptive, quantitative study was chosen to explore the research questions. Descriptive studies are commonly used to describe the characteristics of an individual, a situation, or a group accurately and then may determine the frequency with which an event occurs or the frequency with which one event is associated with another (Streubert & Carpenter, 1995:98). A descriptive study design is thus an appropriate design for addressing the objectives set in this study.

3.3   STUDY SETTING

The study took place in five districts of Gauteng Province, South Africa: Ekurhuleni, Johannesburg Metro, Sedibeng, Tshwane and West Rand. These areas were identified by the presence of the community-based rehabilitation programme implemented in the province. The programme was established to provide rehabilitation services to patients with disabilities at clinics, community health centres and in patients' homes.

3.4   STUDY POPULATION

Babbie and Mouton (2001:100) refer to a population as the total group of people or objects that meets the designated set of criteria by the researcher. The study population consisted of all the community-based physiotherapists who are part of a multidisciplinary team in Gauteng Province. The multidisciplinary team consists of physiotherapists, occupational therapists, audiologists, speech and language therapists, podiatrists and social workers. The community-based physiotherapists are based in the clinics and CHCs and they render services in the community such as home visits and providing support for non-governmental organisations (NGOs). These physiotherapists included the community-service physiotherapists that were placed in clinics and CHCs across the five districts in Gauteng Province as part of compulsory community service.

The physiotherapists are divided into categories per years of experience and responsibility. Physiotherapists who have less than ten years of experience are classified as Production Grade One, those with more than ten years and less than twenty years as Production Grade Two and finally those with more than twenty years as Production Grade Three. Physiotherapists who are responsible for managing the teams are classified into two categories. Physiotherapy supervisors with less than eight years of experience are Chief supervisory Grade One and those with more than eight years are Chief supervisory Grade Two.

3.5   SAMPLING

Owing to the small number of community-based physiotherapists in Gauteng Province, the entire population was targeted for the study (i.e. total population sampling was envisaged). All physiotherapists (a total of 75) who were on the Gauteng Department of Health database during the year 2015 were invited to take part in the study. Only 60 participants attended the physiotherapy district meetings of which 48 participated in the study where the questionnaire was scheduled to be distributed. For this reason, a convenience sample was used. A statistician from the University of Pretoria was consulted about an optimum sample size, but made no recommendations in this regard owing to the small size of the total population.

3.6   DATA COLLECTION

This section describes the data-gathering instruments that were used to collect the data from the participants.

3.6.1   Measurement tools

Data was collected by means of a validated self-administered questionnaire. The questionnaire was designed to determine the extent of use of outcome measures and to determine factors that influenced the use of outcome measures, by community-based physiotherapists in Gauteng Province (see Annexure A).

3.6.2   Development of the questionnaire

The questionnaire that was used was compiled by Peters et al. (2002) and modified by Swinkels et al. (2011). The 18 questions came from the Barrier Facilitator Questionnaire, which was developed by Peters et al. (2002). Swinkels et al. (2011) modified the questionnaire and designed it to be physiotherapy specific. To ensure validity of the questionnaire, a literature search was conducted by Swinkels et al. (2011) for the facilitators of and barriers to implementation in health care in general and in physiotherapy practice. Swinkels et al. (2011) conducted semi-structured interviews to identify the facilitators of and barriers to the use of SOMs among physiotherapists. Finally, they quantified the factors that were included in the instrument in an online survey of physiotherapists in the Netherlands.

The 18 closed questions in Section C of the questionnaire were measured on a five-point Likert scale along a scale of "strongly agree", "agree", "neutral", "disagree" and "strongly disagree". Items in the questionnaire were divided into four categories: innovation characteristics, care provider characteristics, patient characteristics and characteristics of the organisational, social, political and societal context. No evidence could be found in the literature that the questionnaire had been used in a South African setting.

For this reason, some of the items were modified based on inputs from experts in the field. The experts included the Deputy Director for the rehabilitation programme and Assistant Directors in Rehabilitation from the five districts in the Gauteng Department of Health. Three experts with more than 20 years of experience as physiotherapists gave inputs (as reflected in section 3.6.3).

The questionnaire was developed to investigate the use of and factors that influence the use of outcome measures. The questionnaire consisted of three main sections, which are explained below.

3.6.2.1 Section A. Demographic data

Section A focused on the personal details of the community-based physiotherapists, such as age, gender, years of experience and qualification. Questions aimed at gaining information on the training received (either undergraduate or course attended), district, recommended participation-level outcome measures by the district or province, working hours and the average number of patients treated in a week.

3.6.2.2 Section B. The use of outcome measures

Section B was about the use of outcome measures, such as the preferred outcome measures, the number of outcome measures used during evaluation and treatment, how often these outcome measures were used and the top five participation-level outcome measures used.

3.6.2.3 Section C. Factors influencing the use of outcome measures

This section focused on the barriers to and facilitators of the use of outcome measures.

3.6.3 Pilot study

A pilot study was conducted with participants from the Western Cape Rehabilitation Centre.

The aim of the pilot study was to:

- Pre-test the different sections of the compiled questionnaire
- Determine how long it took to complete the questionnaire
- Test the face validity of the questionnaire

The population for the pilot study was community-based physiotherapists from Western Cape Province, who were identified from the provincial rehabilitation database. Only participants who were working for the Western Cape Department of Health were included and those who were employed by the University of Cape Town were excluded. According to Van Teijlingen, Hundley and Graham. (2001), a pilot study might give warnings about where the main research project could fail.

The pilot study was conducted from February to March 2015. The questionnaire was sent to the participants by email. Reminder emails were sent after two weeks. Eleven participants (eight females and three males) responded. In addition to completing the questionnaire, the participants were asked to comment on the clarity of items. Face validity of the data-gathering instruments was ensured with input from the Assistant Directors in Rehabilitation, who critically evaluated the instrument and commented on its content. The participants also commented that the questionnaire items were generally clear but a few changes were made based on the comments.

One change was made to Section A, the demographic part of the questionnaire. An additional question was added: "Are there recommended participation-level outcome measures for community-based rehabilitation in your work area?"

A change was made to Question 4 in Section B. The initial question was: "Please indicate your top 5 participation-level outcome measures for arthritis, cerebrovascular accident and cerebral palsy." The question was rephrased and modified as: "Please indicate your top 5 high-ranked participation-level outcome measures."

An optional question was added for those that had specific outcome measures that they used for the three conditions: "Please indicate the specific participation-level outcome measures you use for cerebrovascular accident, cerebral palsy and arthritis patients."

Lastly, in the barriers and facilitators section (Section C), an additional item was added to the option menu: "There are too many measuring instruments to choose from."

3.7   PROCEDURES FOR DATA COLLECTION

The following steps were taken in the collection of the data:

- The researcher contacted all the districts to request permission from the Assistant Directors to administer the questionnaire during one of the monthly physiotherapy meetings.
- The researcher telephonically communicated with the district managers to get the date and time for the meetings and requested that the meeting be extended for 20 minutes to enable the distribution of the questionnaire.
- Questionnaires were distributed by the researcher during the meeting and collected later after the meeting. An information brochure accompanied the questionnaire (Annexure A). The brochure explained the aim of the study and guaranteed confidentiality of the response. All the questionnaires were collected after the meeting and examined for completeness.

3.8   DATA ANALYSIS

The statistical analysis of the data was conducted in consultation with a statistician from the University of Pretoria. The collected data was coded and entered into the computer program Microsoft Excel 2010. This served as an input data for the program Stata 12. In Stata, the data was processed to give the descriptive data; for example, frequencies, percentages, means and standard deviations.

To establish whether there was an association between the demographic variables, factors influencing the use of outcome measures and the use of outcome measures, a Fisher's exact test was conducted. The Fisher's exact test is a version of a Chi-square test used when no assumption is made regarding the expected frequency (Fisher, 1934).

This meant that this statistical analysis was best suited to this study. The level of significance was set at $p < 0.05$.

The categories "age", "job title", "years of total experience", "years of experience as a community-based physiotherapist" and "average number of patients seen per week" were collapsed into fewer categories. Initially "job title" was categorised into seven groups. However, owing to the small number of community-based physiotherapists in some of the groups and the abnormal distribution, the statistician suggested that this data be grouped into three groups for ease of data analysis. The specific data-analysis procedure is presented in Table 3.1 below.

The original data for the use of participation-level outcome measures was captured in a continuous category as "zero outcome measure", "one outcome measure", "two outcome measures", "three outcome measures", "four outcome measures" and "more than four outcome measures". The results revealed that very few participants used participation-level outcome measures. The variable was therefore re-coded, for analysis, to capture all the participants who used the outcome measures and those who did not use them.

The original data for the Likert scale was captured as "strongly agree", "agree", "agree/disagree", "disagree" and "strongly disagree". For data analysis, "strongly agree" and "agree" were re-classified as "agree", and "disagree" and "strongly disagree" were classified as "disagree". For data analysis, the factors in Section C were further labelled for ease of analysis (see Annexure B). The factors were further grouped as "care provider characteristics", "patient characteristics", "innovation characteristics" and "context characteristics" (see Annexure B).

Table 3.1: Statistical methods and techniques

Sub-aim	Test
Describe the participants' characteristics	Mean Standard deviation Frequency Percentage Range
Determine the use of outcome measures	Frequencies and percentages
Determine the top five high-ranked participation-level outcome measures	Frequencies and percentages
Determine the influencing factors affecting the use of outcome measures	Frequency Percentages
Determine the internal consistency of factors influencing the use of outcome measures	Cronbach's alpha
Determine the relationship between the use of outcome measures and the participants' characteristics	Fisher's exact test
Determine the relationship between the use of outcome measures and the factors influencing the use of outcome measures	Fisher's exact test
Determine the relationship between the use of outcome measures and categories of factors influencing the use of outcome measures.	Wilcoxon rank-sum test

3.9   ETHICAL AND LEGAL CONSIDERATIONS

3.9.1   Confidentiality

Participants were informed of the anonymity of the handling of questionnaires and data analysis prior to their consent to participate in the study. They were also informed that the findings of the study might be published but that confidentiality would be maintained (Annexure A). They were assured that the collected information would be for the sole purpose of the research study. The data collected was stored in a locking filing cabinet, where it could not be accessed by any unauthorised person.

3.9.2 Informed consent

Informed consent was considered to have been obtained when the participants completed the questionnaire (see Annexure A).

3.9.3 Approval

Permission to conduct the study was obtained from the Ethics Committee of the University of Pretoria, Faculty of Health Sciences, before implementation of the study (Reference No: 400/2014 – see Annexure C). Permission was also obtained from the Gauteng Province Research Committee (see Annexure D).

3.10 CONCLUSION

This chapter outlined the study design and the methodology that was followed to collect the data necessary to meet the objectives of the research study. The data-analysis method was also described. The findings of the study are presented in the next chapter.

CHAPTER FOUR
RESULTS

4.1 INTRODUCTION

This chapter details the results obtained from the study. The results are presented based on the objectives of the study. Graphs and tables are used to present the results for ease of reference to the descriptive and analytical statistics. The first objective was to describe the sample of community-based physiotherapists in Gauteng Province who participated in the study. The second objective was to describe the extent of the use of outcome measures by these participants. The third objective was to describe the factors influencing the use of outcome measures and the fourth objective was to describe the association between the variables that were investigated.

4.2 DESCRIPTION OF THE PARTICIPANTS' CHARACTERISTICS

Tables 4.1 to 4.3 list the characteristics of the sample. The sample consisted of 48 participants. The demographic data is presented according to the following variables: age, sex, highest level of education, job title, years of experience as a physiotherapist, years of experience as a community-based physiotherapist, district where employed, training attended on outcome measures, recommended participation-level outcome measures in work area, working hours in a week and the average number of patients treated in a week.

The sample of community-based physiotherapists comprised 37 (77.1%) females and 11 (22.9%) males, with a mean age of 29.8±8.8. The largest proportion was within the following two age categories: 24 to 31 years of age (35.4%) and more than 31 years of age (35.4%). The participants who were younger than 24 years of age made up 29.2% of the sample. The highest level of education of participants ranged from a diploma to a bachelor's degree. Of the 48 participants, two (4.2%) had a diploma and 46 (95.8%) had a bachelor's degree in physiotherapy. Most the participants (37.5%) were community-service physiotherapists and the minority were production physiotherapists (31.3%) and chief supervisory physiotherapists (31.3%).

Table 4.1: Profile of the sample by age, sex, highest level of education and job title (n=48)

Variable	Frequency (%)
Age category in years	
Less than 24 years	14 (29.2)
24-31 years	17 (35.4)
More than 31 years	17 (35.4)
Sex	
Male	11 (22.9.)
Female	37 (77.1)
Highest level of education	
Diploma	2 (4.2)
Bachelor's degree	46 (95.8)
Job title	
Community-service physiotherapist	18 (37.5)
Production physiotherapist	15 (31.3)
Chief supervisory physiotherapist	15 (31.3)

The total years of experience ranged from 0 to 35 years, with a mean of 5.9±7.9 years. The majority (39.6%) of participants had less than one year of experience while 33.3% had between one and nine years of experience. Thirteen participants (27.1%) had more than ten years of experience as physiotherapists. The years of experience as a community-based physiotherapist ranged from 0 to 15 years, with a mean of 2.5±3.2. Most of the participants (43.7%) had less than 1 year of experience as community-based physiotherapists while 31.3% had between 1 and 4 years of experience. Twelve participants (25%) had more than 4 years of experience as community-based physiotherapists as shown in Table 4.2 below.

Most of the participants (35.4%) were from the Ekurhuleni district and the Johannesburg metropolitan district (31.3%). Eight participants (16.7%) were from the Tshwane district and the minority were from the West Rand (8.3%) and Sedibeng districts (8.3%).

Table 4.2: Profile of the sample by years of experience as a physiotherapist, years of experience as a community-based physiotherapist and district (n=48)

Variable	Frequency (%)
Years of experience as a physiotherapist	
Less than 1 year	19 (39.6)
1-9 years	16 (33.3)
More than 9 years	13 (27.1)
Years of experience as a community-based physiotherapist	
Less than 1 year	21 (43.7)
1-4 years	15 (31.3)
More than 4 years	12 (25.0)
District	
Ekurhuleni	17 (35.4)
Johannesburg metro	15 (31.3)
Sedibeng	4 (8.3)
Tshwane	8 (16.7)
West Rand	4 (8.3)

As shown in Table 4.3, more than three-quarters of the participants (81.3%) stated that they had never attended training either during their undergraduate studies or post graduate on outcome measures while 18.7% reported that they had attended training on outcome measures. The vast majority of participants (83.3%) had no recommended participation-level outcome measures by the district rehabilitation programme in their work area, 3 participants (6.3%) had recommended participation-level outcome measures while 10.4% did not know whether they had recommended participation-level outcome measures in their work area or not. All the participants (100%) stated that they worked 40 hours a week, which meant that among the participants none was working part time. The average number of patients treated in a week ranged from 20 to 78 patients, with a mean of 43.6 ± 12.4.

Table 4.3: Profile of the sample by training on outcome measures, recommended participation-level outcome measures and average number of patients treated in a week (n=48)

Variable	Frequency (%)
Training on participation-level outcome measures	
Yes	9 (18.7)
No	39 (81.3)
Recommended participation-level outcome measures[1]	
Yes	3 (6.3)
No	40 (83.3)
Don't know	5 (10.4)
Average number of patients treated in a week	
Less than 35	10 (20.8)
35-50	27 (56.3)
More than 50	11 (22.9)
Number of working hours per week	
40 hours	48 (100)

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[1] Recommended participation-level outcome measures are those outcome measures that are recommended by the rehabilitation managers in the different districts to be used by the community-based physiotherapists.

4.3 DETERMINE THE USE OF OUTCOME MEASURES

Results on the preferred level of outcome measures, number of outcome measures used, frequency of outcome measures used and the top five high-ranked participation-level outcome measures are presented below.

4.3.1 Preferred level of outcome measure

As illustrated in Figure 4.1, most of the participants (52.1%) preferred to use a combination of either impairment or activity-level outcome measures with participation-level outcome measures, while 47.9% of the participants preferred to use only impairment and activity-level outcome measures.
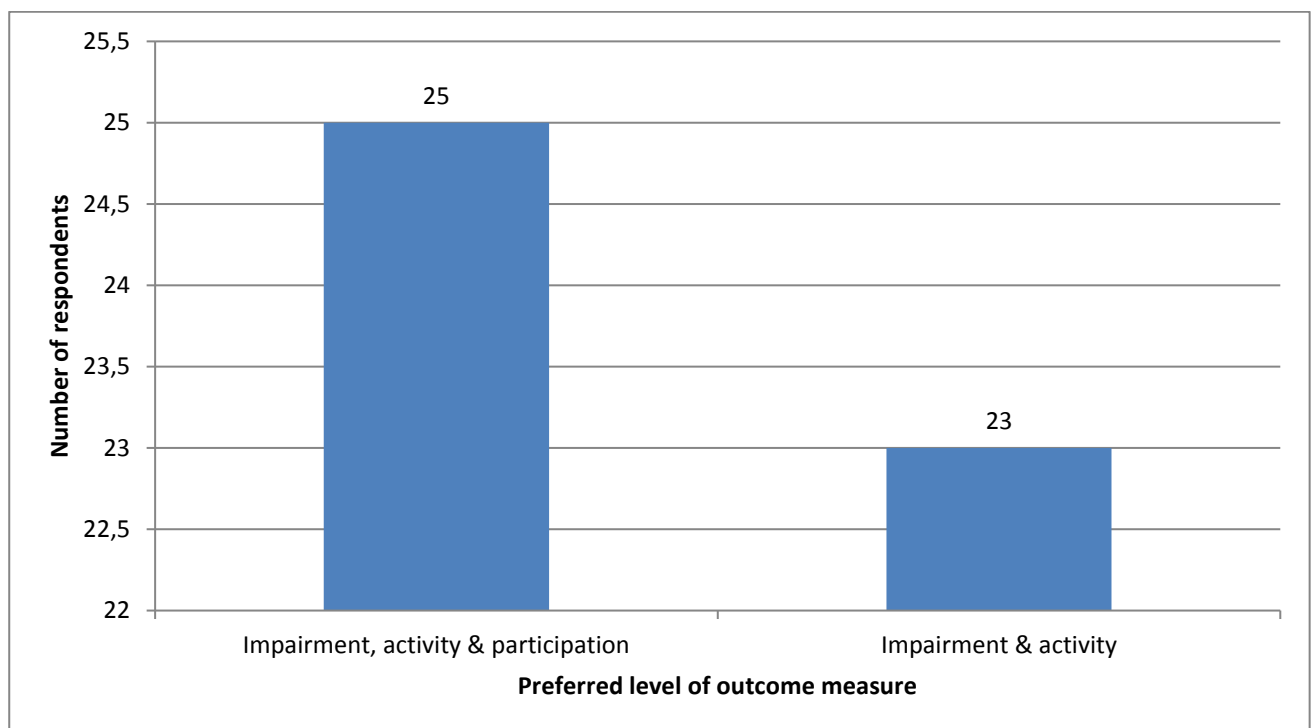
Figure 4.1: Histogram of the preferred level of outcome measure (n=48)

4.3.2 Number of outcome measures used

Figure 4.2 shows the distribution of the number of outcome measures used.

More than two-thirds (62.5%) of the participants reported that they did not use any outcome measure for evaluation and treatment of patients, while 27.1% used one outcome measure and 8.3% used two. Three outcome measures were used by 2.1% of the participants.
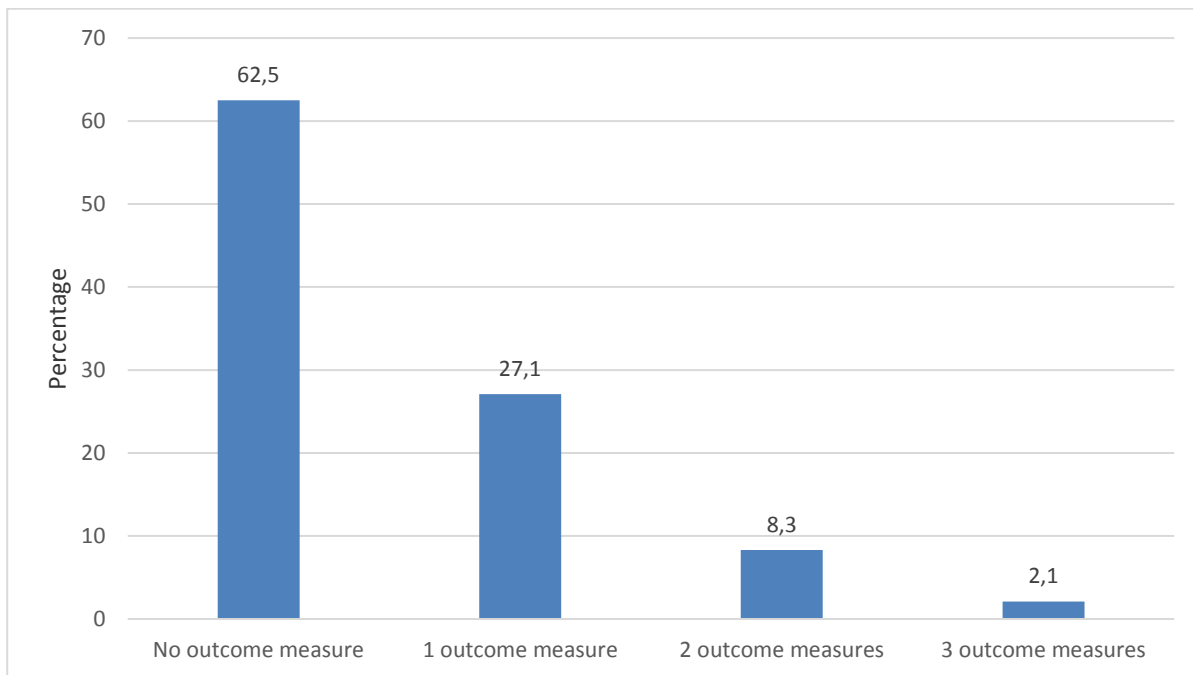
Figure 4.2: Histogram of the number of outcome measures used (n= 48)

4.3.3 Frequency of outcome measure use

Figure 4.3 illustrates that 64.6% of the participants reported using no outcome measures; this means that for every five patients seen no outcome measure was used. Eleven participants (22.9%) used the outcome measures in one out of five patients that they treated, while four participants (8.3%) used them in two out of five patients. Those who used them in three out of five and five out of five patients respectively were 4.2% of the participants.
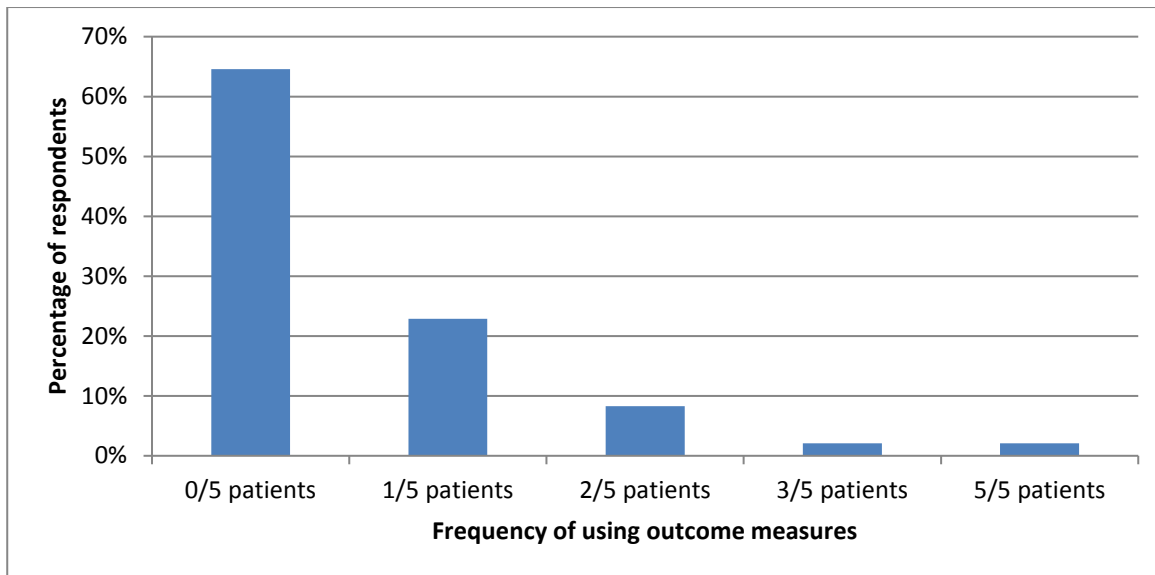
Figure 4.3: Histogram of frequency of outcome measure use (n= 48)

4.3.4   Top five high-ranked participation-level outcome measures

The participants were asked to list their top five high-ranked outcome measures. Responses were received from 16 participants while the remaining 32 left the question unanswered. The top five high-ranked participation-level outcome measures were identified as the community integration questionnaire or CIQ (37.5%); the Maleka Stroke Community Reintegration Measure or MSCRIM (25%), which is an outcome measure that was developed in South Africa; Quality of Life (QoL) Index (12.5%); Barthel Index or BI (12.5%); and, lastly, the Rivermead Mobility Index (6.3%).

4.4   DETERMINE FACTORS INFLUENCING THE USE OF OUTCOME MEASURES

Facilitators that influenced the use of outcome measures by the participants are presented in Table 4.4 below while barriers are presented in Table 4.5 and discussed in Section 4.4.2.

4.4.1   Facilitators of the use of outcome measures

As shown in Table 4.4, the results indicated that nine questions were classified as facilitators.

Table 4.4: Distribution of facilitators influencing the use of outcome measures (n=48)

Factor	Agree	Agree/disagree	Disagree
In general, I resist using measurement instruments	11 (22.9%)	4 (8.3%)	**33 (68.7%)**
I have a positive attitude towards the use of measurement instruments	**46 (95.8%)**	2 (4.2%)	0 (0%)
Using measurement instruments gives me enough room to include patient preference	**33 (68.7%)**	15 (31.3%)	0 (0%)
Patients value the use of measurement instruments to gain insight into their functioning	**28 (58.3%)**	18 (37.5%)	2 (4.2%)
Co-workers support the use of measurement instruments	**37 (77.1%)**	3 (6.2%)	8 (16.7%)
My supervisor supports the use of measurement instruments	**31 (64.6%)**	9 (18.7%)	8 (16.7%)
Patients support the use of measurement instruments	**21 (43.7%)**	26 (54.2%)	1 (2.1%)
I find the use of measurement instruments a problem because I have had no training in using them	23 (47.9%)	1 (2.1%)	**24 (50.0%)**
The use of measurement instruments leaves enough room for me to make my own clinical decision	**30 (62.5%)**	18 (37.5%)	0 (0%)

The overall analysis revealed that the greatest facilitators were care provider characteristics: a positive attitude towards the use of measurement instruments (95.8%), support from co-workers (77.1%), no resistance to the use of measurement instruments (68.7%), use of measurement instruments giving enough room to include patient preferences (68.7%), support from the supervisor (64.6%) and use of the measurement instrument leaving enough room for the care provider to make their own clinical decision (62.5%).

Of the participants, 58.3% found that patients valued the use of measurement instruments, 50.0% found using a measurement instrument not a problem because they had had no training while 47.9% had a problem. 43.7% agreed that patients supported the use of measurement instruments.

4.4.2   Barriers to the use of outcome measures

Table 4.5 shows that eight barriers were identified by the participants as follows. Overall, analysis showed that the greatest barriers to the use of participation-level outcome measures in Gauteng Province were: the lack of knowledge (91.7%), insufficient skills (72.9%), insufficient knowledge (68.7%), difficulty in changing routine (68.7%), that using measurement instruments was time consuming (66.7%), many outcome measures to choose from (62.5%), lack of physical space (62.5%) and not suitable for the clinic setup (62.5%). The results suggest that most of the barriers are care provider characteristics, followed by innovation and context factors.

4.4.3   Determine the internal consistency of factors influencing the use of outcome measures

To determine the internal consistency of factors that influenced the use of outcome measures, Cronbach's alpha test was performed. The results of the analysis are summarised in Table 4.6 below.

The results of the test indicated that there was a good item-test and item-rest correlation for C4, C7, C9, C13, C15 and C16. The Coefficient alpha was 0.70 for the factors influencing the use of participation-level outcome measures. A coefficient of 0.70 is regarded as acceptable for research purposes, between 0.71 and 0.80 as respectable, >0.80 as good and >0.90 as excellent (George & Mallery, 2003).

Table 4.5: Distribution of barriers influencing the use of outcome measures (n=48)

Factor	Agree	Agree/disagree	Disagree
I have sufficient knowledge to use measurement instruments	14 (29.2%)	1 (2.1%)	**33 (68.7%)**
I have sufficient skills to use measurement instruments	11 (22.9%)	2 (4.2%)	**35 (72.9%)**
Changing routine is difficult for me	**33 (68.7%)**	2 (4.2%)	13 (27.1%)
Using measurement instruments is time consuming	**32 (66.7%)**	4 (8.3%)	12 (25.0%)
There are too many measurement instruments to choose from	**30 (62.5%)**	3 (6.2%)	15 (31.3%)
The use of measurement instruments fits my way of working in the clinic well	**30 (62.5%)**	1 (2.1%)	17 (35.4%)
I find the use of measurement instruments a problem because I have no physical space	**30 (62.5%)**	1 (2.1%)	17 (35.4%)
I would like to know more about the use of measurement instruments before I decide to use them.	**44 (91.7%)**	2 (4.2%)	2 (4.1%)

4.5   QUALITATIVE FINDINGS

The questionnaire contained two open-ended questions. The first of these two variables were "barriers" (to use of participation-level outcome measures). The second open-ended question variable was "facilitators".

4.5.1 Barriers

Responses obtained from the participants regarding barriers were as follows:
- Lack of resources
- Staff shortage
- High target for headcounts set by the districts in relation to the available staff. Headcounts are described as the total number of patients seen by the physiotherapist

4.5.2 Facilitators

No additional facilitators were identified by the participants.

Table 4.6: Summary of internal consistency

Item	Observation	Sign	Item-test correlation	Item-rest correlation	Average inter-item covariance	Alpha
C1	48	-	0.1707	0.0238	.136603	0.7204
C2	48	+	-0.0505	-0.1918	.1497445	0.7408
C3	48	-	0.3432	0.2015	.1260136	0.7021
C4	48	-	**0.7874**	**0.7303**	.1029021	0.6476
C5	48	-	0.2043	0.1492	.1345693	0.7034
C6	48	-	0.1594	0.0780	.1354004	0.7075
C7	48	+	**0.7581**	**0.6828**	.1004348	0.6460
C8	48	-	0.3134	0.2131	.1289079	0.6991
C9	48	+	**0.6891**	**0.6147**	.1089122	0.6610
C10	48	+	0.1652	0.0334	.136225	0.7167
C11	48	+	0.2545	0.1267	.131323	0.7078
C12	48	-	0.0586	-0.0364	.139468	0.7160
C13	48	+	**0.7704**	**0.6836**	.095145	0.6387
C14	48	-	0.1705	0.0262	.1364857	0.7197
C15	48	+	**0.7480**	**0.6343**	.0920682	0.6401
C16	48	+	**0.8259**	**0.7420**	.0858071	0.6214
C17	48	+	0.2601	0.1609	.1313328	0.7030
C18	48	-	0.1067	0.0246	.1371995	0.7106

4.6   DETERMINE THE RELATIONSHIP BETWEEN VARIABLES

The results on the relationship between the demographic variables, the use of outcome measures and the factors influencing the use of outcome measures are presented below.

4.6.1   Establishing the association between the use of outcome measures and the participant's characteristics

To establish whether there was any association between the use of outcome measures and the demographic variables, a Fisher's exact test was performed. The results of the analysis are summarised in Table 4.7 below.

No significant association was found between the use of outcome measures and the demographic variables of "age", "sex", "job title", "education", "district", "training", "recommended outcome measures", "years of experience as a physiotherapist", "years of experience as a community-based physiotherapist" and "the number of patients seen in a week".

Table 4.7: A summary of the association between the use of outcome measures and the demographic variables

Item	Use of outcome measures
	Fisher's Exact (P-value)
Age	0.868
Sex	0.074
Education	0.071
Job title	0.653
District	0.689
Training	0.711
Recommended participation-level outcome measures	0.429
Years of experience as a physiotherapist	0.870
Years of experience as a community-based physiotherapist	1.000
Number of patients seen per week	1.000

4.6.2 Establishing the association between the use of outcome measures and the factors influencing the use of outcome measures

To establish whether there was any association between the use of outcome measures and the influencing factors, a Fisher's exact test was performed. The results of the analysis are summarised in Table 4.8 below. No significant association was found between the use of outcome measures and the influencing factors.

However, a significant (p=0.050) association between the use of outcome measures and lack of knowledge (C1) was found to exist. The significant association suggests that the poor use of outcome measures is associated with a lack of knowledge.

Table 4.8: A summary of the association between the use of outcome measures and the influencing factors

Item	Use of outcome measures
	Fisher's Exact
C1	**0.050***
C2	0.238
C3	0.324
C4	0.879
C5	1.000
C6	0.910
C7	0.664
C8	0.759
C9	0.766
C10	0.913
C11	0.755
C12	0.872
C13	0.808
C14	0.128
C15	0.387
C16	0.875
C17	0.691
C18	0.536

*Statistically significant at 0.05

4.6.3 Determine the relationship between the use of outcome measures and categories of factors influencing the use of outcome measures.

To establish the difference between those who did not use outcome measures and those who did use them and the different categories of influencing factors, the Wilcoxon rank-sum test was performed. The results of the analysis are summarised in Table 4.9.

Table 4.9: A summary of the association between the use of outcome measures and the categories of factors influencing the use of outcome measures

Item	Use of outcome measures
	Wilcoxon rank-sum (P-value)
Care provider characteristics	0.8210
Patient characteristics	0.2331
Innovation characteristics	0.1285
Context characteristics	0.9222

From Table 4.9, there was no significant difference between those who did not use outcome measures and those who did use them and the different influencing factors in the categories of care provider, patient, innovation and context.

4.7   CONCLUSION

The results of the study were presented in this chapter. The demographic details of the study participants were described, as were the results regarding the use of participation-level outcome measures. It was found that only a small percentage of the study participants used outcome measures. Important factors influencing the use of outcome measures were found to be time constraints, lack of knowledge and skills, positive attitudes and support from colleagues. Lack of knowledge was significantly associated with the poor use of outcome measures.

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

This chapter discusses the results of the study as they address the research aims and the objectives. The aim of the study was to determine the factors that influence the use of outcome measures by community-based physiotherapists. Throughout the chapter, relevant literature from both international and local perspectives is highlighted to compare where it is similar or different to the results, based on the data presented.

5.2 DEMOGRAPHIC DATA

The demographic variables are discussed below in relation to the literature.

5.2.1 Age

The mean age of the community-based physiotherapists was found to be 29.8 ± 8.8. Of those participants who responded, 14 physiotherapists were under 24 years of age while 17 were between 24 and 31 years of age. Another 17 participants were above 31 years of age (see Table 4.1). It is evident that most of the community-based physiotherapists were under 31 years of age. This could be because the implementation of rehabilitation services at PHC level took place post 1994, with the reorientation of the health care system in South Africa (Department of Health, 2000).

5.2.2 Sex

Of the physiotherapists that participated in the current study, 11 were male and 37 were female. These findings are similar to those of a study conducted by Jette et al. (2009), which found that there were more female (68.1%) than male (31.9%) physiotherapists who participated in the study.

A local study reported similar findings, where 75% of the respondents were females and 25% were males (Mostert-Wentzel, Frantz & Van Rooijen, 2013). However, a Nigerian-based study conducted by Akinpelu and Eluchie (2006) reported that most the respondents were males (51.7%) while females (48.3%) were in the minority.

The higher percentage of female physiotherapists could be because physiotherapy is a female-dominated profession. Literature highlights that physiotherapy has been a profession that consists of a higher percentage of females than the percentage in the general population. The first physical therapy professional organisation in the US was called the "American Women's Physical Therapy Association". Men did not begin to enter the profession in increasing numbers until after World War 2 (Rozier, Thompson, Shill & Vollmar, 2001). The low number of male community-based physiotherapists and the low number of diploma holders (discussed below) could explain why there was no association between the use of outcome measures and the demographic variables.

5.2.3   Highest level of education

Of those who responded to the study, two participants were diploma holders while the majority (46) were bachelor's degree holders. The findings of the study agree with a study conducted by Akinpelu and Eluchie (2006) which reported that 81.4% of the respondents had a bachelor's degree while 14% had a master's degree and 34% had a diploma. Furthermore, the high percentage of degree holders supports the findings of a study conducted by Stokes and O'Neill (2008) in Ireland, who reported that the majority of the respondents were degree holders. A possible explanation for the high number of bachelor's degree holders in the current study could be the fact that currently physiotherapy training programmes in South Africa are university-based and no diplomas are offered. Diplomas were phased out with the introduction of the bachelor's degree. However, it is of concern that so few participants had post-graduate training.

5.2.4 Job level

The study participants consisted of 18 community-service physiotherapists, 15 production physiotherapists and 15 chief supervisory physiotherapists (see Table 4.1).

It is evident from the results of the study that the majority of the participants were community-based physiotherapists. This finding could be the result of the introduction of community service for new physiotherapy graduates in South Africa (Gounden, 2002).

Compulsory community service was introduced in South Africa as a strategy to improve staffing and it has been implemented in more than 70 countries (Lindquist, Engardt, Garnham, Poland & Richardson, 2006). According to Mohammed (2005), the public-private and urban-rural maldistribution of health care workers was one of the motivating factors for the institution of community service for South African health professionals in 1998. The programme started with doctors, dentists and pharmacists and, in 2003, grew to include physiotherapists, occupational therapists, speech therapists, audiologists, clinical psychologists, dieticians, radiographers and environmental health practitioners. (The programme applicants are required to make five choices from a list of public health care facilities approved for community service by the Department of Health.) Participants are legally required to complete a year in community service when registering for the first time with their professional council in South Africa.

5.2.5 Total years of experience

The mean years of experience in the current study were reported to be 5.9±7.9 years. The range of years of experience was from 0 to 35. The majority (nineteen) had less than one year of experience, while sixteen of the participants had between one and nine years. Thirteen participants had more than nine years of experience. The results of the study are similar to those of an international study conducted in Canada by Kay, Myers and Huijbregts (2001), which reported that the participants' years of experience ranged from 0 to 40 years. However, the mean years of experience were different from the current study's findings. In contrast, a South African-based study reported that 22.8% of physiotherapists had less than 1 year of experience while 32.6% had more than 10 years of experience.

A similar trend was reported in a study conducted among physiotherapists in the US, where a majority (57.1%) of physiotherapists had more than 10 years of experience (Jette et al., 2009). The higher percentage of physiotherapists with less than one year of experience in the current study can be explained by the fact that most of the physiotherapists were community-service physiotherapists as indicated in the study. In addition, physiotherapists and other health care professionals often either take up positions in private practice or leave the country to gain experience.

5.2.6 Years of experience as a community-based physiotherapist

The mean years of experience as community-based physiotherapists were reported to be 2.52±3.2 with a range of 0-15 years. Most of the participants (43.7%) had less than 1 year of experience while 31.3% had between 1 and 4 years. Only a small percentage (25%) had more than 4 years of experience. A local study conducted among physiotherapists by Maleka, Franzsen and Stewart (2008) reported that 88% of respondents had less than 1 year of primary health care experience while 7.6% had between 1 and 5 years of experience. Only a small portion (4.35%) had more than 10 years of experience. The results are similar to the current study.

5.2.7 District

In the current study, the results indicated that a majority of the participants were from Ekurhuleni (35.4%), Johannesburg metropolitan district (31.3%) and Tshwane (16.8%). The minority of participants Sedibeng (8.3%) and lastly West Rand (8.3%).

The distribution of the physiotherapists could be due to different approved staff establishments in the districts. The disability trends and population in the different districts could also be contributing factors. According to Census 2011, the City of Johannesburg constituted 36.1% of the Province's population followed by Ekurhuleni at 25.9% and Tshwane at 23.8%, with the least being Sedibeng at 7.5% and West Rand at 6.7% of the population (Statistics South Africa, 2011).

5.2.8 Training

The results of the current study showed that 81.3% of the participants had not received training on participation-level outcome measures while 18.7% had received training.

The results of the study contrast with an international study conducted by Zidarov and Poissant (2014), which reported that training was perceived as adequate at the beginning of the implementation. However, the absence of follow-up and training of new employees were also reported. Kall, Larsson and Bernhardsson (2016) in a study conducted among physiotherapists in primary care reported that after the implementation of a tailored, multi-component implementation of guidelines, a significantly higher proportion of physiotherapists in the intervention group than in the control group reported using outcome measures frequently. The lack of continued research on the use of outcome measures could be a possible explanation of the poor reported training on the subject in the current study.

5.2.9 Recommended participation-level outcome measures

In the current study, only 6.3% of the participants indicated that they had participation-level outcome measures recommended in their work areas; however, 83.3% reported that no participation-level outcome measures had been recommended in their work areas and 10.4% did not know whether they had them or not. The finding confirms that the physiotherapists used a variety of methods to measure patient progress. In Canada, the report by Kay et al. (2001) indicated that a manual on the battery of rehabilitation outcome measures had been compiled and published to improve the use of outcome measures. The study indicated that 46% of the physiotherapists used the published manual on outcome measures and 69% of the physiotherapists reported that the use of outcome measures was mandated in their work area.

5.2.10 Average number of patients in a week

The results of the study indicated that 20.8% of the participants had fewer than 35 patients in a week while 56.3% had between 35 and 40 patients and 22.9% had more than 50 patients. In contrast, an international study reported that the respondents had between 2 and 15 patients (Van Peppen, Maissan, Van Genderen, Van Dolder & Van Meeteren, 2008).

Similar findings were reported by Swinkels et al. (2011), who reported that the number of patients in a week ranged from 16 to 20. The large number of patients treated in a week in the current study could be due to the evident shortage of physiotherapists. Many developing countries have insufficient numbers of physiotherapists to operate at a local level and they are mainly located at hospitals and to a lesser extent at district services. For example, in developed countries the average physiotherapist to population ratio is 1: 1,400 compared to an estimated average of 1: 550,000 in developing countries (Twible & Henly, 2000).

5.3 THE USE OF OUTCOME MEASURES

The preferred level of outcome measures, number of outcome measures, frequency of outcome measure use and the top five high-ranked participation-level outcome measures are discussed below.

5.3.1 Preferred level of outcome measures

The results of the current study indicated that 52.1% of the participants preferred a combination of both impairment or activity-level measures and participation-level outcome measures, while 49.9% preferred impairment and activity-level outcome measures. Impairments are usually the best markers of prognosis and change at the level of impairment might be used to show that the intervention has had its primary effect. However, most clinical rehabilitation aims to maximise social participation. Measures of participation are currently less developed than measures of basic activities (Wade, 2003). In contrast to the current study, a local study reported that impairment-based outcome measures were predominantly used, while the participation type was the least preferred outcome measure (Inglis et al., 2008).

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The study further indicated that participation-level outcome measures were the least user friendly by the physiotherapists. The preference for the impairment-level outcome measures could be because these physiotherapists felt that participation-level outcome measures were not user friendly. The findings were supported by Mehta and Grafton (2013) in a study conducted among physiotherapists in India.

A 1998 study found that the length of hospital stay at Chis Hani Baragwanath hospital in Gauteng Province, South Africa was an average of 12 days and patients might be discharged with a low functional status (Hale & Eales, 1998). This makes it evident that patients may be discharged into the community at an acute or subacute stage, which requires a range of outcome measures for treating the patient.

As an example, from professional experience, a patient who has just had a stroke is admitted to a hospital and is discharged within three days either due to a shortage of beds or for other reasons. Most of the time this patient will come to the physiotherapist with a referral card from the doctor that has only the patient details and the diagnosis without any physiotherapy assessment or report. Upon initial observation of the patient, the physiotherapist cannot only focus on whether the patient can go to church or participate in the community when the patient presents with poor trunk control and limited range of motion in one of the joints. Therefore, a goniometer will be needed to measure range of motion, the BI scale to measure certain activities and the community reintegration measure to measure the integration of the patient back into the community. Thus, a combination of outcome measures will be relevant for rehabilitating the patient at PHC level.

5.3.2   Number of outcome measures used

In the current study, the results indicate that 62.5% of the participants did not use outcome measures, while 27.1% used one outcome measure for evaluation and treatment. Only 10.4% of the participants used between two and three participation-level outcome measures. This suggests that only 37.5% of the participants used outcome measures. The findings of the study agree with a study conducted in New Zealand, which reported that 40% of the respondents used back-related outcome measures (Copeland et al., 2008).

The findings also corroborated those of El-Sobkey and Helmy (2012) in a study conducted amongst Egyptian physiotherapists.

In contrast, Burton et al. (2012) conducted a study among health care professionals in a UK county that found that 96% of health professionals in stroke rehabilitation used at least one outcome measure. The outcome measures used in these last-mentioned studies ranged from impairment to activity-level outcome measures.

5.3.3   Frequency of use of participation-level outcome measures

In the current study, it was reported that the majority of the participants did not use any participation-level outcome measures in any patients seen during evaluation or treatment. However, 22.9% used an outcome measure in one out of five patients seen.

In contrast to the findings of the current study, the study conducted by Swinkels et al. (2011) among physiotherapists in the Netherlands reported that a total of 7% of the respondents did not use any outcome measures in any patients attended to. A majority (31%) used an outcome measure in one out of five patients seen, followed by 23% who used an outcome measure in two out of five patients seen. Lastly, 39% used an outcome measure in three or more out of five patients seen. Physiotherapists educated in America receive more years of entry-level education than is typical for other countries (Wedge et al., 2012). The results of the current study indicated that the use of participation-level outcome measures was not consistent in practice as compared to the developed countries. This could be the result of the lack of knowledge and the lack of time as already indicated in the study.

5.3.4   The top five high-ranked participation-level outcome measures

In the current study the CIQ, MSCRIM, BI, QoL Index and Rivermead Mobility Index measures were identified as the top five high-ranked participation-level outcome measures by the participants.

The CIQ is an outcome measure that is aimed at measuring the elements of participation and it is the most commonly used integration measure (Willer, Ottenbach & Coad, 1994).

Measuring community integration has been viewed as the goal of all rehabilitation professionals. The CIQ has been reported as the most frequently used community integration measure (Kim & Colantonio, 2010). It was also reported by the participants in the study as the top used outcome measure.

MSCRIM is a valid and reliable measure used to assess community reintegration following stroke for patients living in poor socioeconomic rural and urban communities (Maleka, 2010). The outcome measure is a South African-based measure that was developed in response to the need for a scale that specifically measured community reintegration and included more than a few items under the participatory domain. The outcome measure was further adapted in Nigeria (cf. Chiebuka, Christiana, Ayooluwa, Olusanjo & Akinpelu, 2016). It was reported as the second of the top high-ranked outcome measures by the participants in this study.

The BI is an activity-level outcome measure tool used to measure the level of independence in performing functional activities. It includes basic mobility, self-care activities and an assessment of bladder and bowel continence. An international study conducted at rehabilitation centres by Haigh, Tennant, Biering-Sorensen, Grimby, Marincek, Phillips, Ring, Tesio and Thonnard (2001) identified the functional independence measure and the BI as the most widely used measures in stroke rehabilitation. The BI has been used in South African-based studies (Lees et al., 2000).

QoL outcome measure tools are not specific but generic. The most commonly used QoL outcome measures were identified as Short Form 36 (SF-36) and EuroQol-5D (EQ-5D) (Joseph & Rhoda, 2011). SF-36 is a generic health survey developed to assess health status in the general population and most studies that have investigated it have found that it has a large ability to detect change. EQ-5D is a measure designed to obtain an indication of the level of difficulty experienced in mobility, self-care and usual activities. The use of SF-36 and EQ-5D has been reported in South African-based studies (Jelsma, 2010; Westaway, 2010).

The Rivermead Mobility Index is an activity outcome measure that is aimed at assessing mobility (Collen, Wade, Robb & Bradshaw, 1991).

It has been reported that it can be used to predict short length of stay in hospitals for people with strokes as early as five days after a stroke (Sommerfield, Johansson, Jonsson, Murray, Wessari, Holmqvist & von Arbin, 2011).

The findings of the study revealed that the top five high-ranked participation-level outcome measures consisted of a combination of the activity-level and participation-level measures. A possible explanation could be that there is an overlap between the constructs of activities and participation. In the ICF framework, the domains of body functions and structure, activities, and participation are presented as distinct from one another (Ustun, Chatterji, Bickenbach, Konstanjsek & Schneider, 2003). Therefore, the ICF shows the concepts of activity and participation as two completely separate domains. An ongoing debate exists on whether these domains are conceptually distinct and, if so, how to distinguish between them (Jette et al., 2007).

5.4 FACTORS INFLUENCING THE USE OF OUTCOME MEASURES

Barriers to and facilitators of the use of outcome measures are discussed below.

5.4.1 Facilitators

In the current study, positive attitudes from the physiotherapists, support from co-workers, no resistance towards the use of outcome measures, the ability of the outcome measures to give enough room to include patients' preferences and to leave room to make own clinical decision, support from the supervisor, patients' value of outcome measures and their support were reported as facilitators. The most common facilitators were identified as positive attitudes and support from co-workers.

5.4.1.1 Support from co-workers

Previous studies by Van Peppen et al. (2008) and Deutscher, Hart, Dickstein, Horn and Gutviits (2008) reported similar findings to the study, indicating that co-operation of colleagues and support of management were recognised as facilitating routine use of outcome measures.

An organisation has an important influence on an individual's decision to adopt and use an innovation. The adoption and routine use of outcome measures are more likely to succeed if there is management support (Zidarov & Poissant, 2014).

Studies conducted by Stokes and O'Neil (2008), Swinkels et al. (2011) and Zidarov and Poissant (2014) reported that lack of management was identified as a barrier to the use of outcome measures. The lack of support included lack of directive, feedback, communication with staff and policies on standardised measures and communication.

5.4.1.2   Positive attitudes

A Netherlands-based study reported that the majority of physiotherapists indicated having a positive attitude towards the use of outcome measures and being convinced of the benefits of the use of outcome measures (Swinkels et al., 2011).

Similar findings were reported in Zidarov and Poissant's (2014) Canadian-based study conducted amongst a multidisciplinary rehabilitation team. The attitudes were positive and were associated with the perceived relative advantage of using outcome measures in clinical practice. However, the positive attitudes were unable to be transposed into the systematic use of outcome measures. The literature highlights that the need for physiotherapists to use outcome measures has been recognised worldwide and has been articulated in several policy statements (WCPT, 2003). However, despite these policy statements, routine use of outcome measures has largely failed to become embedded in practice globally.

5.4.2 Barriers

In the current study, lack of knowledge, lack of skills, lack of time, many outcome measures to choose from, lack of space and the unsuitability of the outcome measure for the clinic setup were reported as barriers to the use of outcome measures. The need for the physiotherapist to know more about measures, lack of knowledge and insufficient skills all relate to the lack of knowledge by the community-based physiotherapists. Therefore, the most common barriers were identified as lack of knowledge and lack of time, which finding is consistent with the findings in previous studies.

5.4.2.1   Lack of knowledge

Lack of knowledge has been cited as the most common barrier in literature (Swinkels et al., 2011; Wedge et al., 2012; Burton et al., 2012; Zidarov & Poissant, 2014). The knowledge lacking included the knowledge related to the psychometric properties of the outcome measures, familiarity with outcome measures, and understanding of the outcome measures in terms of scoring, analysis and interpretation of the results (Duncan & Murray, 2012). Stevens and Beurkens (2010) state that information about measurement instruments should be disseminated through publications and this should also include a focus on how to use and interpret the results of the instruments in daily practice. Health professionals are often required to complete the outcome measures with little or no training and they often have little understanding of the use and are afraid that outcome measures will be misinterpreted. Therefore, training in use of outcome measures should be provided at a level appropriate to the individual's role (Turner-Stokes et al., 2012).

5.4.2.2   Lack of time

Lack of time has been identified as a universal barrier across the studies conducted on the use of outcome measures (cf. Copeland et al., 2008; Jette et al., 2009; Swinkels et al., 2011; Burton et al., 2012; Duncan & Murray, 2012; Zidarov & Poissant, 2014).

High clinical loads and shortage of staff are both possible reasons for physiotherapists having insufficient time (Inglis et al., 2008).
The literature highlights that physiotherapists clearly identified time factors as relating to the administering of the questionnaire, scoring and interpretation of the results, reporting and providing feedback to the patients (Boswell, Kraus, Miller & Lambert, 2015). The perception of lack of time when administering outcome measures is a strong indicator that the outcome measures have not been integrated into the health professionals' practice.

An international study reported that difficulty changing routine was identified as a barrier to the use of outcome measures (Swinkels et al., 2011). Organisations can increase the likelihood of using outcome measures by providing training, administrative support and resources.

5.5 RELATIONSHIP BETWEEN THE USE OF OUTCOME MEASURES AND PARTICIPANTS' CHARACTERISTICS, FACTORS INFLUENCING THE USE OF OUTCOME MEASURES AND CATEGORIES OF FACTORS INFLUENCING THE USE OF OUTCOME MEASURES

The current study found no significant association between the use of outcome measures and participants' characteristics. Akinpelu and Eluchie (2006) found that the sex of the respondents and educational qualification had no significant influence on the familiarity with and utilisation and knowledge of outcome measures. However, the study reported that physiotherapists with more than 10 years of experience had more knowledge of outcome measures than those with less than 10 years of experience. Contrary to the findings of the current study, Jette et al. (2009) found that physiotherapists working in home care settings were 12 times more likely to use outcome measures than those who did not work in a home care setting. In addition, those with clinical speciality were nearly two times more likely to use outcome measures than those who did not have a speciality.

The use of the Outcome Measurement and Information Set is mandated in the home health care setting in Canada and this could be a possible explanation for why the physiotherapists in this setting are more likely to use outcome measures. In comparison to the current study, Jette et al. (2009) reported that 32% of the physiotherapists had clinical speciality and almost 43% of the physiotherapists had either a master's degree or a doctoral degree. The current study reported that among the physiotherapists there were no master's degree or doctorate holders. Continued professional education could be a contributing factor to the increased use of outcome measures.

Indeed, a lack of knowledge regarding the outcome measures was significantly associated with the poor use of outcome measures in the current study, suggesting that those who did not use the outcome measures indicated that lack of knowledge was a barrier. This finding indicates that the lack of training on and awareness of outcome measures by either the educational institutions in South Africa or the employer, the Gauteng Department of Health, contributed to the lack of knowledge.

5.6 CONCLUSION

Community-based physiotherapists reported a poor use of outcome measures by these physiotherapists in Gauteng Province. Just more than a quarter of the study participants used outcome measures during evaluation and treatment of patients. The most common factors that positively influenced the use of outcome measures were identified as support from colleagues and management as well as positive attitudes by the community-based physiotherapists. The factors that negatively influenced the use of outcome measures were identified as lack of knowledge and skills and the lack of time. There was no association between the use of outcome measures and the demographic data; however, an association was found between the use of outcome measures and lack of knowledge. This indicates the need for training.

CHAPTER 6
CONCLUSION

6.1   INTRODUCTION

In this chapter, the main findings regarding the research questions are summarised and general conclusions based on the findings of the study are drawn. The strengths and limitations of the study are also considered and suggestions for further research are made. This chapter concludes with recommendations for practice, policy and research.

6.2   PURPOSE AND FINDINGS

The overall aim of this study was to determine the factors that influence the use of outcome measures by community-based physiotherapists in Gauteng Province, South Africa. The overall aim was achieved through several objectives and processes as follows:

1. To describe the participants' characteristics. This was achieved through the completion of Section A of the questionnaire.
2. To determine the use of outcome measures by community-based physiotherapists in Gauteng Province, South Africa. This was achieved through determining the number of outcome measures used by the community-based physiotherapists in Section B of the questionnaire.
3. To determine the top five high-ranked outcome measures used by the community-based physiotherapists. This was achieved through the completion of Section B of the questionnaire.
4. To determine the factors influencing the use of outcome measures by community-based physiotherapists in Gauteng Province, South Africa. This was achieved through the completion of the Barriers and Facilitators questions in Section C of the questionnaire.

5. To determine the relationship between the use of outcome measures and age, sex, job title, district, education, training, recommended participation-level outcome measures, years of experience, number of working hours per week and number of patients seen per week; between the use of outcome measures and influencing factors as well as different categories of factors influencing the use of outcome measures. This was achieved by applying the Fisher's exact test and the Wilcoxon rank-test.

6.2.1 Findings related to the research questions

The findings of the study will be outlined in relation to the research questions.

6.2.1.1 Research question 1

What are the participant's characteristics? (Determined by the demographic data obtained in Section A)

The findings of the study revealed that there were more female than male physiotherapists and the age groups differed. There were also more bachelor's degree holders as compare to diploma holders and no postgraduate degrees. The categories of the physiotherapists as per the job title consisted mostly of community service physiotherapists followed by the other categories. Most off the participants had less than one year of experience. A small percentage of participants indicated that they received training on outcome measures. Less than ten percent of the participants indicated that they have recommended participation-level outcome measures at their work areas. Majority of the participants attended 35 to 40 patients per week. The working hours were similar across all the levels which was 40 hours per week.

6.2.1.2 Research question 2

To what extent do the Gauteng community-based physiotherapists use outcome measures? (Determined by the number of outcome measures used.)

To answer this research question, the participants were clustered into two groups characterised by the number of outcome measures used. Two groups were identified after analysis, one with those who used one or more than one outcome measure and one with those who did not use any outcome measures. The findings illustrated that those who did not use outcome measures were more than sixty per cent of the participants.

6.2.1.3 Research question 3

What are the top five high-ranked participation-level outcome measures?

The findings of the study suggest that the top five high-ranked participation-level outcome measures as reported by the participants were the CIQ, MSCRIM, QoL, BI and, lastly, the Rivermead Mobility Index. The outcome measures were a combination of both activity and participation-level outcome measures.

6.2.1.4 Research question 4

What are the influencing factors towards the use of outcome measures? (Determined using the barriers and facilitators questions developed by Peters, Harmsen, Laurant and Wensing (2002) in Section C of the questionnaire.)

The findings of the study suggest that the major facilitators towards the use of outcome measures are support from co-workers and positive attitudes, while the major barriers were identified as the lack of knowledge and lack of time.

6.2.1.5   Research question 5

What is the relationship between the use of outcome measures and age, sex, job title, education, district, training, recommended participation-level outcome measures, years of experience and number of patients seen per week; between the use of outcome measures and influencing factors; and, lastly, between the use of outcome measures and the categories of factors influencing the use of outcome measures?

The findings regarding the relationship between the use of outcome measures and age, sex, job title, education, district, training, recommended participation-level outcome measures, years of experience and the number of patients seen per week showed no significant association between these variables. The findings were not consistent with the literature, regarding education. Previous research has found that a higher level of education influences the use of outcome measures positively.The findings regarding the relationship between the use of outcome measures and the factors influencing the use of outcome measures revealed a significant association between the lack of knowledge and the use of outcome measures. The findings regarding the relationship between the use of outcome measures and the categories of factors influencing the use of outcome measures showed no significant association.

6.3   EVALUATION OF THE RESEARCH

The strengths and the limitations of the study are discussed below.

6.3.1   Strengths

The research was conducted within Gauteng Province and so was a good indication of the use of outcome measures among community-based physiotherapists in that province in South Africa. The response rate was high at 80%. The research process was thorough and effective as appointments were made to distribute the questionnaires and collect them from the participants during a meeting, in this way improving the response rate.
The alpha coefficient for the instrument used was 0.72 and this indicates a fair internal consistency of the measuring instrument. Since the whole population was targeted, the results of the study could be generalised to Gauteng Province.

6.3.2   Limitations of the research

Owing to the nature of the research, the data obtained was self-reported and so the results obtained may have been subject to recall bias on the part of the community-based physiotherapists. The questions on training were not detailed, which meant that what type of training was received and when was it received could not be established.

The questions regarding training on participation-level outcome measures did not require participants to specify whether it was obtained during undergraduate training or via a workshop attended, post-graduate training or in-service training at the workplace.
The inclusion of this specificity could have assisted in determining whether the gap was at the educational institutions or in the workplace.

The measuring instrument had limitations, as the questions were general and therefore not specifically related to participation level. The questions were also not related to the most common conditions seen in the Province, which are cerebrovascular accidents, cerebral palsy and arthritis. The inadequate response from the participants regarding qualitative questions was also noted as a limitation.

6.4   RECOMMENDATIONS

Recommendations regarding practice, policy, education and future research are discussed below.

6.4.1   Implications for practice

Owing to the findings that community-based physiotherapists lacked knowledge regarding outcome measures and used outcome measures infrequently, it is advised that community-based physiotherapists continually educate themselves regarding the outcome measures applicable to their scope of practice.
Educational workshops, resource materials, video demonstration and online discussion have been found to improve the use of outcome measures among physiotherapists (Schreiber, Marchetti, Racicot & Kaminski, 2015).

To assist in this, policy- and education-level practice is important. The implications of not using outcome measures are that there may not be consistency in developing measurable and meaningful treatment goals and monitoring them. The establishment of special interest groups on outcome measures where regular journal discussions are held would be useful. The special interest groups could be facilitated by the professional association and societies of physiotherapy in South Africa, which could facilitate courses and members accumulate Continuous Professional Development (CPD) points. The establishment of special interest groups is supported by the fact that the study identified support from colleagues and positive attitudes as facilitators of the use of outcome measures.

The use of outcome measures could also be added as a key performance indicator where performance is reviewed on a quarterly basis by the employer. Websites could also be established to promote the use of outcome measures, which could be facilitated at provincial level.

6.4.2 Implications for policy

Lack of space, knowledge and skills were identified as some of the organisational factors and care provider characteristics that negatively influenced the use of outcome measures.

The provincial Department of Health could implement a policy on the use of outcome measures in practice. A larger percentage of the participants reported that they had no recommended participation-level outcome measures in their work area; for this reason, the Department and the districts could be advised to approve certain outcome measures for use in their respective districts, based on the needs and burden of disease. Provincial rehabilitation managers in consultation with the community-based physiotherapists and other experts in the field could develop guidelines for the management of the specific conditions most commonly seen in the province and indications of specific outcome measures to use.

The implementation of the guidelines would then be monitored by the district rehabilitation managers in collaboration with district quality assurance teams in the form of audits.

These audits could be conducted on a quarterly basis, as they would be well positioned to reinforce the importance of assessment. In this way, therapists would feel supported in taking time during patient treatment to implement best practice recommendations related to this practice.

6.4.3 Implications for education

On the strength of the findings that there was a lack of knowledge regarding the use of outcome measures, it is, first, advised that educational institutions focus their training on outcome measures at an undergraduate level. Focus should be on not only impairment and activity-level outcome measures, which are more generally used, but also participation-level outcome measures.

An educational programme among physiotherapists has been found to increase the number of outcome measures used by physiotherapists in practice (Van Peppen, Schuurmans, Stutterheim, Lindeman & Van Meeteren, 2009; Swinkels, Meerhoff, Custers, Van Peppen, Beurskens & Wittink, 2015).

Secondly, management in the five districts should encourage the physiotherapists working in these districts to undertake postgraduate education so that the practice of evidence-based therapy is supported.

6.4.4 Recommendations for research

The following recommendations are made for future research:

- Developing a training programme on outcome measures and testing its implementation in practice
- Developing policies on the use of outcome measures in practice and testing their implementation
- Investigating the knowledge of outcome measures of new physiotherapy graduates

Mandatory measurement and reporting of results is perhaps the single most important step in reforming the health care system

Michael E Porter

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ANNEXURE A

Informed consent form and

the questionnaire

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

PARTICIPANT'S INFORMATION LEAFLET & INFORMED CONSENT FOR ANONYMOUS QUESTIONNAIRES

Researcher's name: Kwena Joyce Mabasa

Student Number: 99069076

Department of Physiotherapy

University of Pretoria

Dear Participant

FACTORS INFLUENCING THE USE OF PARTICIPATION-LEVEL OUTCOME MEASURES FOR CEREBROVASCULAR ACCIDENTS, CEREBRAL PALSY AND ARTHRITIS PATIENTS BY COMMUNITY-BASED PHYSIOTHERAPISTS IN GAUTENG PROVINCE, SOUTH AFRICA

1) INTRODUCTION

I am a Masters Degree student in physiotherapy in the Department of Physiotherapy, University of Pretoria. You are invited to volunteer to participate in my research project on the factors influencing the use of participation-level outcome measures for cerebrovascular accidents, cerebral palsy and arthritis patients by community-based physiotherapists in Gauteng Province, South Africa

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you.

2) THE NATURE AND PURPOSE OF THIS STUDY

The purpose of the study is to determine the extent to which the community-based physiotherapists use the participation-level outcome measures for cerebrovascular accident, cerebral palsy and arthritis. Another objective is to identify the influencing factors towards the use of cerebrovascular accidents, cerebral and arthritis participation-level outcome measures experienced by the community-based physiotherapists.

3) EXPLANATION OF PROCEDURES TO BE FOLLOWED

This study involves answering questions with regards to the participation-level outcome measures and the factors influencing the use. I would like you to complete a questionnaire. This may take about 20 minutes. The research assistant will collect the questionnaire from you. It will be kept in a safe place to ensure confidentiality. Please do not write your name on the questionnaire. This will ensure confidentiality. The researcher will be available to help you with the questionnaire.

4) RISKS AND DISCOMFORT INVOLVED

No physical or psychological discomfort or risks are foreseen in completing the questionnaire.

5) POSSIBLE BENEFITS OF THIS STUDY

The results of the study will benefit Gauteng department of health in terms of identifying the gaps in the service and also the academic institution in terms of guiding the curriculum content.

6) I understand that if I do not want to participate in this study, there will be no negative consequences.

7) I may at any time withdraw from this study

8) HAS THE SUDY RECEIVED ETHICAL APPROVAL?

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 3541677 / 012 3541330 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2008), which deals with the recommendations guiding doctors in biomedical research involving human/subjects. A copy of the Declaration may be obtained from the investigator should you wish to review it.

9) INFORMATION

If I have any questions concerning this study, I should contact Ms Joyce Mabasa, cell: 0716736773 or email: kwena.mabasa@gmail.com

10) CONFIDENTIALITY

All records obtained will be regarded as confidential. Results will be published or presented in such a fashion that participants remain unidentifiable. As you do not write your name on the questionnaire, you give us the information anonymously. The researcher will not be able to trace your information.

11) CONSENT TO PARTICIPATE IN THIS STUDY

I have read in a language that I understand the above information before giving my consent. The content and meaning of this information have been explained to me. I have been given the opportunity to ask questions and am satisfied that they have been answered satisfactorily. I hereby volunteer to take part in this study.

Note: **The implication of completing the questionnaire is that informed consent has been obtained from you. Any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.**

I sincerely appreciate your help.

Yours truly

Kwena Joyce Mabasa

Please answer all the questions honestly. Please cross in the relevant box and fill in where appropriate.

A. DEMOGRAPHIC INFORMATION

1) Age

----------years

2) Sex

Male	
Female	

3) Highest level of education

Diploma	
Bachelors	
Masters	
Postgraduate Diploma	
Doctorate	
Other: Specify	

4) Job Title

Community service physiotherapist	
Physiotherapy production grade 1	
Physiotherapy production grade 2	
Physiotherapy production grade 3	
Chief supervisor physiotherapist grade 1	
Chief supervisor physiotherapist grade 2	

5) Years of experience as a physiotherapist

---------------------years

6) Years of experience as a community-based physiotherapist

---------------------years

7) In which district are you working at present?

Ekurhuleni	
Johannesburg metro	
Sedibeng	
Tshwane	
West rand	

8) Have you attended training on participation-level outcome measures?

Yes	No

9) Are there any recommended participation-level outcome measures available in your work area?

Yes	1
No	2
Don't know	3

9) How many hours a week do you work as a physiotherapist?

----

10) How many patients a week do you treat on average?

B. USE OF PARTICIPATION-LEVEL OUTCOME MEASURES

1) What would your preferred outcome measure be?
 (Please indicate underneath by crossing, you can choose more than one answer)

Impairment-level	
Activity- level	
Participation-level	

2) For the evaluation and treatment of patients I use about........different participation-level   outcome measures:

0 outcome measure	
1 outcome measure	
2 outcome measures	
3 outcome measures	
4 outcome measures	
More than 4 outcome measures	

3) I use participation-level outcome measures during evaluation and treatment in:

0 of each 5 patients	
1 of each 5 patients	
2 of each 5 patients	
3 of each 5 patients	
4 of each 5 patients	
5 of each 5 patients	

4) Please indicate your top 5 high-ranked participation-level outcome measures and for each outcome measure how often you use this outcome measures in a week? (Example: Stroke Impact Questionnaire (stroke): 2 out of 19 patients per week)

Outcome measure	How often do you use it in a week?
1.	
2.	
3.	
4.	
5.	

C.INFLUENCING FACTORS

Please indicate by crossing in the relevant box whether you strongly agree, agree, agree nor disagree, disagree or strongly disagree.

	Strongly agree	Agree	Agree nor disagree	Disagree	Strongly disagree
1. I have sufficient knowledge to use measurement instruments					
2. I have sufficient skills to apply measurement instruments					
3.Changing my routine is difficult for me					

	Strongly agree	**Agree**	**Agree nor disagree**	**Disagree**	**Strongly disagree**
4. In general, I resist using measurement instruments					
5. I have a positive attitude towards the use of measurement instruments					
6.Using measurement instruments gives me enough room to include patient preferences					
7.Using measurement instruments during treatment is too time consuming					
8. Patients value the use of measurement instruments to gain insight into their functioning					
9.Patients find the use of measurement instruments too time consuming					
10.Co-workers (physiotherapists) support the use of measurement instrument					
11. My supervisor supports the use of measurement instruments					
12. Patients support the use of measurement instruments					
13.There are too many measurement instruments to choose from					
14. The use of measurement instruments fits my way of working in the clinic well					

	Strongly agree	Agree	Agree nor disagree	Disagree	Strongly disagree
15. I find using measurement instruments a problem because I do not have (physical) space					
16. I find using measurement instruments a problem because I have had no training in using them					
17. I would like to know more about the use of measurement instruments before I decide to use them					
18. The use of measurement instruments leaves enough room for me to make my own clinical decisions					

Are there reasons, other than the above statements that are barriers for you to the use of measurement instruments?
(Open question)
1.
2.
3.
4.
Are there reasons, other than the above statements that are facilitators for you for the use of measurement instruments?
(Open question)

1.
2.
3.
4.
Thank you for your participation

ANNEXURE B

Coding of Section C

C1	I have sufficient knowledge to use measurement instruments
C2	I have sufficient skills to apply measurement instruments
C3	Changing my routine is difficult for me
C4	In general, I resist using measurement instruments
C5	I have a positive attitude towards the use of measurement instruments
C6	Using measurement instruments gives me enough room to include patient preferences
C7	Using measurement instruments during treatment is too time consuming
C8	Patients value the use of measurement instruments to gain insight into their functioning
C9	Patients find the use of measurement instruments too time consuming
C10	Co-workers (physiotherapists) support the use of measurement instrument
C11	My supervisor supports the use of measurement instruments
C12	Patients support the use of measurement instruments
C13	There are too many measurement instruments to choose from
C14	The use of measurement instruments fits my way of working in the clinic well
C15	I find using measurement instruments a problem because I do not have (physical) space
C16	I find using measurement instruments a problem because I have had no training in using them
C17	I would like to know more about the use of measurement instruments before I decide to use them
C18	The use of measurement instruments leaves enough room for me to make my own clinical decisions

Care provider characteristics

C1	I have sufficient knowledge to use measurement instruments
C2	I have sufficient skills to apply measurement instruments
C3	Changing my routine is difficult for me
C4	In general, I resist using measurement instruments
C5	I have a positive attitude towards the use of measurement instruments
C10	Co-workers (physiotherapists) support the use of measurement instrument
C11	My supervisor supports the use of measurement instruments
C16	I find using measurement instruments a problem because I have had no training in using them
C17	I would like to know more about the use of measurement instruments before I decide to use them
C18	The use of measurement instruments leaves enough room for me to make my own clinical decisions

Patient characteristics

C8	Patients value the use of measurement instruments to gain insight into their functioning
C12	Patients support the use of measurement instruments

Innovation characteristics

C6	Using measurement instruments gives me enough room to include patient preferences
C7	Using measurement instruments during treatment is too time consuming
C9	Patients find the use of measurement instruments too time consuming
C14	The use of measurement instruments fits my way of working in the clinic well

Context characteristics

C13	There are too many measurement instruments to choose from
C15	I find using measurement instruments a problem because I do not have (physical) space

ANNEXURE C
Ethics approval

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences Research Ethics Committee

30/10/2014

Approval Certificate
New Application

Ethics Reference No: 400/2014

Title: The use of participation-level outcomemeasures amongst community-based physiotherapists in Gauteng Province.

Dear Mrs Kwena Mabasa

The **New Application** as supported by documents specified in your cover letter for your research received on the 26/09/2014, was approved by the Faculty of Health Sciences Research Ethics Committee on the 29/10/2014.

Please note the following about your ethics approval:
- Ethics Approval is valid for 1 year.
- Please remember to use your protocol number (**400/2014**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:
- The ethics approval is conditional on the receipt of 6 monthly written Progress Reports, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers; MBChB; MMed (Int); MPharMed.
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

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✉ Private Bag X323, Arcadia, 0007 - 31 Bophelo Road, HW Snyman South Building, Level 2, Room 2.33, Gezina, Pretoria

ANNEXURE D
Approval letter
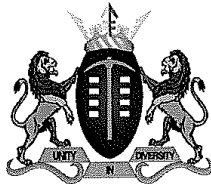
GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name (Principal investigator)	Kwena Joyce Mabasa
Organization / Institution	University of Pretoria
Research Title	Factors influencing the use of participation-level outcome measures for patients with cerebrovascular accidents, cerebral palsy and arthritis by Community-based physiotherapists in Gauteng province, south Africa
Contact number	Address: 29 Schalkswarts street, Orchards ext. 21, Akasia Cell: 071 148 7585/ 071 673 6773 Tel: 012 549 1782 Email: kwena.mabasa@gmail.com
Protocol number	P03012015
Date submitted	16/01/2015
Date reviewed	January 2015
Outcome	APPROVED
Date resubmitted	N/A
Date of second review	N/A
Final outcome	APPROVED

It is a pleasure to inform that the Gauteng Health Department has approved your research on "Protocol Title: Factors influencing the use of participation-level outcome measures for patients with cerebrovascular accidents, cerebral palsy and arthritis by Community-based physiotherapists in Gauteng province, south Africa. The Provincial Protocol Review Committee kindly requests that you to submit a report after completion of your study and present your findings to the Gauteng Health Department.

Approves / not approves

Dr R Lebethe
Acting DDG: Hospital Services

Date 29 01 2015