

**WOMEN'S PERCEPTIONS AND EXPERIENCES OF POST-OPERATIVE
PHYSIOTHERAPY MANAGEMENT AT AN OBSTETRIC FISTULA CENTER IN
ELDORET, KENYA**

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ABSTRACT

Post-operative physiotherapy plays a vital role in the management of patients with incontinence in order to optimise the outcome of obstetric fistula surgery. Women who suffer residual urinary incontinence continue to experience shame, social isolation and institutional rejection. Incontinence continues to impair them leading to lower levels of role participation and restriction in most activities. Gynocare Fistula Center, Eldoret, receives a number of referrals for women with obstetric fistula requiring surgical and physiotherapy care. Many studies have focused on the determinants of surgical outcomes and social re-integration but none have focused on woman's perceptions and experiences with post-operative physiotherapy. While continence is not always achieved immediately after surgery, this study was designed to explore women's perceptions and experience of post-operative physiotherapy management at an obstetric fistula center in Eldoret, Kenya. Participants were then asked about their experiences and related perceptions and perceived challenges regarding the physiotherapy service following discharge from the Center. An explorative qualitative method was used to explore the women's perceptions and experiences of the post-operative physiotherapy management, as well as their perceived challenges regarding access to physiotherapy post discharge.

The study was conducted at an obstetric fistula Centre in Eldoret, Kenya. Purposive sampling was used to select a sample of 32 participants. Data was collected from ten (10) women with recto- and vesico-vaginal fistula repair (VVF) who were considered for semi-structured interviews. The other 22 women participated in three (3) separate focus group discussions to validate the semi-structured interviews because saturation was reached by the 10th interview. These were the only patients who met the inclusion criteria of the study

and were admitted at Gynocare Fistula Center from 28th May 2015 to 12th July 2015. Interviews were audio recorded, transcribed verbatim and analysed into themes and categories by use of a thematic content analysis framework. Permission to conduct the study was obtained from the Senate Research Committee of the University of the Western Cape, as well as the relevant hospitals and authorities in Kenya. Informed written consent was obtained from all the participants. Confidentiality and the right to withdraw from the study were also explained to all participants.

Overall, the majority of women in this study had positive experiences after pelvic floor muscles training (PFMT) group exercise sessions in the two week period of the study. Participants' perceptions were reported to have been interfered with by the initial referral amongst the interdisciplinary team and women understanding of the role of physiotherapy management. The study revealed a lack of knowledge and awareness of physiotherapy services among patients and healthcare providers in this context; socioeconomic challenges; limited accessibility to physiotherapy services; and challenges with the PFMT implementation process. In conclusion, there is a need for documentation of patients' experiences and perceptions in relation to the establishment of guidelines for the management of women with residual stress urinary incontinence. Therefore, post-operative physiotherapy management should involve health education, documentation of each patient pelvic floor assessment, intensive and supervised PFMT sessions, home program exercises (HPE) and follow-ups; while also acknowledging the challenges around accessing physiotherapy services that are faced in the country.

Key words: Prolonged obstructed labour, vesico-vaginal and recto-vaginal fistula, Obstetric fistula surgery/repair, residual/stress urinary incontinence and post-operative physiotherapy.



DECLARATION

I hereby declare that this thesis on **“Women’s perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Centre in Eldoret, Kenya”** is my own work and that it has not been submitted for any degree or examination in any other university and all the sources used or quoted have been indicated and acknowledged by listing the complete references.

Catherine Mwikali Muia

August, 2017

Signature: 

Witness:

1. Dr. Nondwe Mlenzana



2. Miss Naomi kingau

DEDICATION

I dedicate this thesis to my beloved children Tracey Chebet Mwende and Timmy Kiprop for their kind understanding and support for doing without me for such a long time.



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First and foremost, I thank Almighty God for giving me good health, empowering me with knowledge, wisdom and guidance during my stay in South Africa while undertaking my studies. I also extend my heartfelt gratitude to the **County Council of Ostergotland, Sweden, Dr. Ake Bjorn and Dr. Christer Anderson** for sponsoring my studies. Further gratitude goes to my employer Moi University, College of Health Sciences, School of Medicine, Department of Orthopedics and Rehabilitation for granting me the study leave to further my studies.

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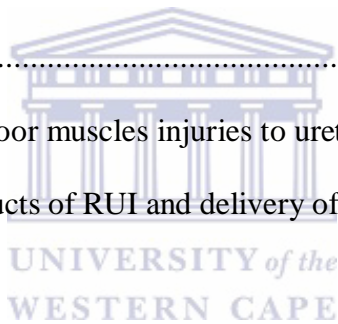
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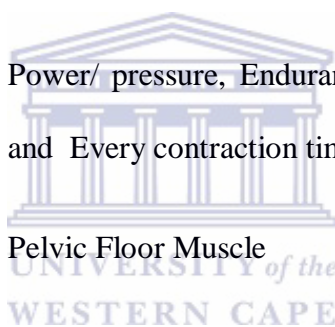
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ABBREVIATIONS

ADL	Activities of Daily Living
ACSM	American College of Sports Medicine
LUTS	Lowers Urinary Tract Symptoms
EAS	External Urethral Sphincter
FGDs –P (No.)	Focus Group Discussion –Participant Number
FIGO	International Federation of Gynaecology and Obstetrics
GDP	Gross Domestic Product
IAS	Internal Anal Sphincter
ICD	International Cooperation Days
ICF	International Classification of Functioning, Disability and health.
ICIQ	International Consultation on Incontinence Questionnaire
IREC	Institutional Research Ethics Committee
IRIN	Integrated Regional Information Networks
I-QOL	Incontinence- Quality of Life
KDHS	Kenya Demographic and Health Survey
KHQ	Kings Health Questionnaires

KNH	Kenyatta National Hospital
MDGs	Millennium Development Goals
MOH	Ministry of Health
MPESA	Mobile phone-based money transfer
MTRH	Moi Teaching and Referral Hospital
MSc	Master of Science in Physiotherapy
NICE	National Institute for Health and Clinical Excellence.
PERFECT	Power/ pressure, Endurance, Repetitions, Fast contractions, and Every contraction timed.
PFM	Pelvic Floor Muscle
PFME/T	Pelvic Floor Muscles Exercise or Training
PFMT /E	Pelvic Floor Muscle Training or Exercises
RSI	Residual Stress Incontinence
RUI	Residual Urinary Incontinence
RVF	Recto-Vaginal Fistula
S.L.P	Sanduku la Posta
SSI	Semi-Structured Interviews



SUI	Stress Urinary Incontinence
TBAs	Traditional Birth Attendants
TENS	Trans-cutaneous Nerve Stimulation
UI	Urinary Incontinence
UK	United Kingdom
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
VVF	Vesico-vaginal fistula
WADADIA	Women and Development Against Stress in Africa
WCPT	World Confederation for Physical Therapy
WHO	World Health Organization

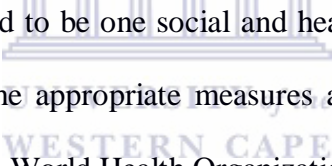


CHAPTER ONE

INTRODUCTION

This chapter presents the background of the study. The overview of the global burden of obstetric fistula and regional prevalence and its incidence as well as its complications for affected individuals, families and the community in general. The surgical and post-operative physiotherapy management for residual urinary incontinence are presented. Finally, the statement of the problem, research questions, aim and objectives of the study are presented. The definitions of key terms used in the study, abbreviations are provided, as well as the general outline of the thesis.

1.0 Background to the Study



Obstetric fistula has continued to be one social and health problem that can be prevented, treated and rehabilitated if the appropriate measures are put in place (De Bernis, 2007; Wall, 2006). According to the World Health Organization (WHO, 2007) an obstetric fistula is any abnormal link between a mother's vagina and bladder (vesico-vaginal fistula (VVF) and or rectum through which her urine or both urine and faeces (rectum-vaginal fistula (RVF) continually leak (De Bernis, 2007). There are two broad classifications of obstetric fistula; the vesico-vaginal and recto-vaginal (Waaldijk, 1995). Vesico-vaginal fistula is caused by prolonged obstructed labour of the second stage of child birth due cephalo-pelvic disproportion (CPD) and under established obstetric care (Dolea & AbouZahr, 2003). According to Karshinia and Otubu (2006) and Danso (2005), the condition is characterised by continuous leakage of urine via the urethra, bypassing of the usual continence mechanism of the bladder and urethra, persistent perineal wetness, perineal

excoriations, and urinary odour. The majority of affected women lose self-esteem and isolate themselves from society, while others are neglected and abandoned by their spouse and sometimes even their relatives (Ahmed, Genadry, Stanton & Lalonde, 2007). In extreme cases, some are treated like outcast in their community (Umoiyoho, Inyang-Etoh & Etukumana, 2012).

It is estimated that the VVF incidence in sub-Saharan Africa is about 20,000 to 33,451 cases annually with a prevalence rate of 262,000 cases (Stanton, Holtz & Ahmed, 2007). This rarely happen in the USA and Europe and if does, is due to malignant disease, radiotherapy or surgical injury to the bladder during hysterectomy (Langkilde, Pless, Lundbeck & Nerstrom, 1999). In Kenya, 92.2% of VVF cases are due to obstetric injuries while 12.3 % of VVF in UK are the same, compared to 70% from pelvic surgery (Were, 2015). In Kenya, a country with an incidence rate of approximately 3000 new cases each year at 1-2 cases per 1000 live births, with only 7.5% having access to obstetric fistula treatment (Odhiambo, 2010; Family Care International & United Nations Population Fund, 2007).

The aetiology of VVF or RVF is pelvic floor injury occurring during prolonged or obstructed labour (Goh & Krause, 2016). Labour is the normal process of a foetal delivery involving three stages. During the first stage, there is enlargement of the cervix to 10 centimetres. The second stage involves child expulsion while the third stage involves delivery of the placenta. If the second stage is delayed for more than 10 to 12 hours it is termed prolonged labour (AbouZahr, 2003), while obstructed labour occurs when the pelvis of the mother is small and cannot allow the foetus' head to pass through the birth canal (cephalo-pelvic disproportion) (Hofmeyr & Shweni, 2010). Constant pressure on

pelvic soft tissue leads to poor blood circulation, resulting in tissue necrosis and subsequent obstetric fistula formation (Tebeu et al., 2012; Wall, 2012). This occurs if the anterior and posterior vaginal wall, bladder, urethra and rectum are compressed between the foetal head and the maternal pubis. Incontinence occurs after the 4th and 14th day post-partum when the dead tissue sloughs off, leaving a fistula.

Globally, 80% of maternal deaths are caused by prolonged, obstructed labour (Hofmeyr et al., 2009), and those who survive are often diagnosed with obstetric fistula (Nystedt, Högberg & Lundman, 2005). This implies that for every 40,000 women who die, there are approximately 73,000 women who suffer obstetric fistula annually in the world (AbouZahr, 2003). According to the Global Burden of Disease, maternal death and disability are caused by obstructed labour (AbouZahr, 2003) occurring in every 4.6% of live births, with over 6 million cases being the result of prolonged obstructed labour (Wall, 2012). In developing countries where maternal mortality is high, the prevalence and incidence of obstetric fistula is also high. In Sub-Saharan Africa, these cases account for 86% of the annual 563,000 maternal deaths. This is higher than the International Cooperation Day (ICD) and 5th United Nation's Millennium Development Goals (MDGs) with a target of 147 from 300 per 100,000 live births worldwide (MDGs, 2014; World Bank Group (Ed.)(2012).

In Kenya, 90% of obstetric fistula cases are reported to be due to under-utilisation of maternity services, underdeveloped obstetric care facilities, impoverished health systems and low-socio-economic levels in the population (Iyengar & Iyengar, 2004). In the USA and Europe, 70% of cases were due to pelvic surgery (Were, 2015; Wall, 2006). One of the devastating effects of child birth in low emergency obstetric care services is obstetric

fistula (Pearson & Shoo, 2005; Nystedt et al., 2005), which could be improved by making health care systems accessible and affordable for everyone. Unfortunately, the lack of political will to prioritise health care and safe maternal services in Sub-Saharan Africa (Shiffman & Smith, 2007) has led to slow implementation of the 5th Millennium Development Goal (MDGs) strategies that may have reduced maternal mortality and morbidity to fewer than 147 per 100,000 live births (Hogan et al, 2010; Shiffman, Stanton & Salazar, 2004; WHO, 2003). This rarely occurs in developed countries like the United States of America and Europe, due to improved obstetric health care services that are available, accessible, and affordable for all. These countries also have well-equipped facilities and a regular supply of medication that are maintained by skilled health staff who manage normal and complicated deliveries (Wall, Arrowsmith, Briggs, Browning & Lassey, 2005). Unlike in Kenya where 75% of the population live in rural areas where there is poor access and limited referral systems resulting, forcing the majority of women to deliver their children at home under the care of traditional birth attendants (TBAs) (UNFPA, 2003). This has resulted in Kenya having a high maternal mortality and morbidity ratio, estimated at 488 per 100,000 live births, which is much higher than the 5th Millennium Development Goals target of 147 per 100,000 live births Kenya Demographics surveys (KDHs, 2010).

Obstetric fistula commonly occurs in women living in poverty and in cultures where a woman's status and self-esteem is dependent almost entirely on her marriage and ability to bear children. In addition, other factors such as malnourishment, poor literacy, and early and forced marriages have been highlighted as predisposing young girls (under twenty years) to early pregnancy (Harrison, Mabeya, Goldenberg & McClure, 2015; Wall, 2012).

The underdeveloped pelvis that predisposes these young women aged between 12 and 20 years old (a mean age of 16 years) to prolonged obstructed labour during child birth (Muleta, Fantahun, Tafesse, Hamlin & Kennedy, 2007; Wall, Karshima, Kirschner & Arrowsmith, 2004; Waaldijk, 1994).

The impact of obstetric fistula varies at an individual level, some women do not have the ability to control urine or faeces, walk, work, eat and they are productive members of their community (Wall et al., 2005). Others may not even see the value of living (Mselle, Moland, Evjen-Olsen, Mvungi & Kohi, 2011). Still others are hiding themselves due to the sense of shame associated with obstetric fistula (Yeakey, Chipeta, Tauro & Tsui, 2009).

One of the common co-morbidities associated with peroneal nerve injury leads to abnormal gait caused by drop foot (Khisra & Nyamongo, 2012; Yeakey et al., 2009; Waaldijk & Elkins, 1994). Besides this, other patients report having suicidal thoughts, maternal depression, uterine stones, infertility, obstetric fistula, uterine rupture, and amenorrhea as a result of vaginal scarring and prolapsed uterus (Liambila & Kuria, 2014; Kayondo et al., 2011; Holme, Breen & Arthur, 2007). Others become depressed as a result of the offensive odour associated with the condition (Bohio, Brohi & Bohio, 2015; Mutiso et al., 2011) while others engage in prostitution to earn a living as a result of low self-esteem (Cook, Dickens & Syed, 2004).

Often those women do not take part in any meaningful family and community work (Ahmed & Holtz, 2007; Hilton, 2003). A study by Wall et al. (2004) found that 65% of women with VVF who had been married subsequently got divorced or separated from their partners. Others faced gross social isolation and institutional neglect due to their offensive

odour (Muleta, Hamlin, Fantahun, Kennedy & Tafesse, 2008), leading to calls for an international response aimed at eliminating obstetric fistula (Donnay & Weil, 2004). In similar studies, Ahmed and Holtz (2007) and Wall et al. (2005) reported social isolation, depression and socio-economic consequences among women diagnosed with obstetric fistula. According to WHO (2011), women who suffer from obstetric fistula present with constant urinary and faecal incontinence, which often leads to social isolation, skin infections, kidney disorders and even death if left untreated.

After obstetric fistula surgery women want to be healthy again with the sense of gaining purpose and a means to support their families. Unfortunately, this does not happen for everyone because some women report stress urinary incontinence after surgical repair that requires a longer physiotherapy intervention (Wall, 2006). According to the guidelines developed by De Bernis (2007), surgical repair of obstetric fistula and comprehensive pre- and post-operative physiotherapy advocate for restoration of the desired functional outcome levels. Obstetric fistula surgery has demonstrated successful closure in 80-95% of cases (Browning, 2006). Despite successful obstetric fistula surgical repair, 16-32% of these women remain incontinent (Kayondo et al., 2011).

Obstetric fistula continues to exist in Kenya due to limited capacity of health professionals to repair obstetric fistula, leading to a situation where the rate at which new incidences occur in the country exceeds the ability to manage them (Lewis & De Bernis, 2006). This places more than 3000 women in Kenya, and 3.5 million women globally, in need of emergency obstetric fistula care, especially those who are living in low resource countries (Bangser et al., 2011).

Despite the need to have trained health professionals, only a limited number of physiotherapists get two weeks of training, which is not enough to specialise in gynaecological conditions. The campaign to end fistula in Africa emphasises special training for fistula surgeons in the Gynocare fistula facility (Hawkins, Spitzer, Christffersen-Deb, Leah & Mabeya, 2013). Rarely does it mention any physiotherapy specialisation for handling residual stress urinary incontinence in women following fistula repair (Mselle et al., 2011; Browning, 2006; Miller, Lester, Webster & Cowan, 2005). This will inform physiotherapists on the up-to -date clinical practices.

This is also worsened by the limited number of fistula facilities and physiotherapists who are specialised to work at these facilities. This might have contributed to the poor outcomes of the number of women who seek obstetric fistula treatment and rehabilitation of their residual stress incontinence (Wall, 2006; Ministry of Health & UNFPA Kenya, 2004; UNFPA, 2003). This may have led to more than 2 million women and girls living with untreated fistula with approximately 50,000 to 100,000 new cases occurring every year in Sub-Saharan Africa, South Asia and Middle East (Bellows, Bach, Baker & Warren, 2014; Stanton et al., 2007; Wall, 1998). This places more women in need of obstetric fistula surgery and physiotherapy rehabilitative services (Ahmed et al., 2007; Lewis & De Bernis, 2006).

Despite Kenya partnering with Action to End fistula, not all patients get access to proper medical treatments due to a lack of information regarding the treatability and preventability of their condition (Wall, 2012; WHO, 2011). Many women continue to suffer in silence, unaware of the available treatment options (KDHs, 2010). However, the continued training of health professionals to prevent, treat and rehabilitate women with obstetric fistula might

achieve continence levels (Khisa & Nyamongo, 2012; Molzan, Johnson, & Lake, 2007; Holme et al., 2007; Donnay & Ramsey, 2006). However, there are still cases of residual urinary incontinence (RUI) post-obstetric fistula surgery that require physiotherapy intervention.

The Gynocare Fistula Centre is a non-governmental organisation (NGO) in Kenya, which is the largest fistula UNFPA facility that provides consultant and referral services for obstetric fistula surgeries in Western Kenya. Gynocare Fistula Centre is certified as a training centre by the International Federation for Gynaecology and obstetrics (FIGO) (Serour, 2012). It offers a fistula surgeon training programme as a strategy to achieve sustainable capacity in Africa and Sub Saharan Africa (Relief, 2015). It has a bed capacity of 25. It has a tailored training unit, where post-fistula surgery patients are equipped with technical skills such cloth-making for empowering them to become independent while waiting to be re-integrated with their families. Gynocare Fistula Centre is the Regional fistula facility in Kenya which advocates the Ending of obstetric fistula, working in partnership with UNFPA (Gatwiri & Fraser, 2015). This is done through community outreach and sensitizations programmes (Bellows et al., 2014; Donnay & Ramsey, 2006).

Any physiotherapy campaign should try to decrease the incidence of urinary incontinence of pre- and post-obstetric surgery of VVF, and will require explorative research in order to understand the experiences and perceptions of women with respect to their post-operative physiotherapy management.

Studies have shown 49% to 60% benefit of urinary incontinence recovery among patients who had early and supervised physiotherapy intervention, use of neuro-stimulation, home

exercise programmes, follow-ups, and health education, relative to those who did not attend intensive post-operative physiotherapy management (Castille et al., 2014). A one-year follow-up of the PTMT regime and abdominal pressure control exercises showed decreased urinary leakage and improved quality of life (QOL) (Castille, et al., 2015; Avery et al., 2004). In Kenya, no studies have supported the use of physiotherapy services for obstetric and gynaecological conditions using evidence-based guidelines for clinical practice by the National Institute for Health and Clinical Excellence (NICE, 2006). As the poor use of physiotherapy interventions continue, there will most likely be an increase in the incidence of RUI. Residual urinary incontinence will continue to have negative impacts on the life of affected women, their family's, society and the country's economy in general (Ahmed & Holtz, 2007). The health sector has identified physiotherapy as an integral part in rehabilitating patients with RUI. However, there are a lack of studies to explore women's perceptions and experiences, and the ways in which post-operative physiotherapy management is administered. That makes it difficult to determine the use of various physiotherapy interventions in the management of RUI-related patients' symptoms and quality of life outcomes.

1.1 Problem Statement

Surgery has a high success rate but after 6 months a high rate of RUI is still reported due to sexual activity, high density work force that negatively increases abdominal pressure exerting of PFM interfering with healing process, and poor adjustment to lifestyle modifications. In addition, surgery is not suitable for all types of obstetric fistulas. Post-operative physiotherapy is one potential management options for patients with RUI, but there is limited information available regarding women's perceptions and experiences of

the treatment. Further evidence could lead to an exploration of women's perceptions and experience to increase the use of post-operative physiotherapy, including referrals, in order to improve the symptoms of RUI, leading to a higher QOL for women with obstetric fistula.

It is assumed that short term post-operative physiotherapy does improve the continence levels of the patients over time although there no published studies to support this claim. It is also assumed that once these women are discharged they will face no challenges post-operatively. But woman only regain their continence levels, restore their self-esteem, improve her preparation to role taking, status in the family and facilitate her re-integration with the rest of the community members, based on home exercise programmes, which has not been written down for them but verbally prescribed.

There are few studies that have been conducted in other African countries on the perceptions and experiences of women undergoing post-operative physiotherapy, but none have been completed in Kenya. Therefore, it is important to explore the women's perceptions and experiences of post-operative physiotherapy, as well as the ways in which physiotherapy was administered to these women. This will establish a basis to improve the ratio of physiotherapists to patients, develop further training, and better equip physiotherapy departments.

1.2 Research Question

What are women's perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Centre in Eldoret, Kenya?

1.3 Aim of the Study

To explore women's experiences and perceptions of post-operative physiotherapy management at an obstetric fistula Centre in Eldoret, Kenya.

1.4 Objectives

1.4.1 Specific Objectives

- 1.4.2.** To explore women's perceptions of post-operative physiotherapy management at an obstetric fistula Centre in Eldoret, Kenya.
- 1.4.3.** To explore women's experience of post-operative physiotherapy management at an obstetric fistula Centre in Eldoret, Kenya.
- 1.4.4.** To explore post-operative physiotherapy management that was administered to women with obstetric fistula repair at an obstetric fistula Centre in Eldoret, Kenya.
- 1.4.5.** To explore women's perceived challenges in accessing physiotherapy post-discharge from the Centre in Eldoret, Kenya.

1.5 Significance of the Study

Post-operative physiotherapy management can have a significant impact on continence and QOL outcomes that impact on various aspects of patient's lives (Lozo & Morgan, 2015). Post-operative physiotherapy management is crucial for assessing, planning and evaluating treatment outcomes, referring to other appropriate services, and raising awareness among women. Some women do not understand the role of physiotherapy in the management of bladder and rectal symptoms after obstetric fistula surgery at the fistula centre. Knowledge of women's perceptions and experiences may lead to increased use of physiotherapy

services, as well as post-operative compliance (Fisher, Steele, Bruce-Low & Smith, 2011; Bristow, Carter & Martin, 2015). In addition, the study results may be of value by adding to the existing literature and for physiotherapy teaching curricula for obstetric and gynaecological conditions.

1.6 Purpose of the study

The primary purpose of this study was to explore women's perceptions and experiences of post-operative physiotherapy management for obstetric fistula surgery. The secondary purpose was to explore additional options for post-operative physiotherapy management, as well as highlighting women's perceptions around accessing physiotherapy following discharge from the fistula centre. This could facilitate the development of National Women's Health Policy in the restoration of woman's health to improved functional levels, defining the role of physiotherapy in pelvic floor dysfunction following obstetric fistula surgery.

1.7 Definition of Terms

Biofeedback: This is an external sensor used to assess a process that indicates pelvic floor muscles (PFM) activity at rest, on contraction, and in relaxation. It is used to measure the strength of individual PFM contraction, as well as the contracting muscles (pressure measurement) and direction of contraction (ultrasound) (Bernards et al., 2014).

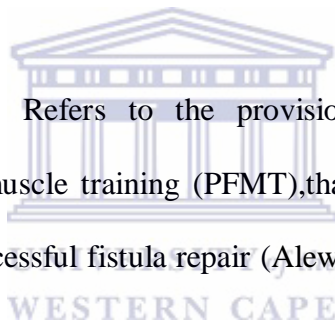
Challenges: These are the encountered and perceived barriers of participants, including understanding of the role played by physiotherapy in patient management, the lack of physical modalities, and likelihood of encountering barriers around accessing physiotherapy management in other hospital settings, especially follow-ups (WHO, 2010).

Colpoperineorrhapy: Surgical repair of a lacerated perineum that is secondary to injury during childbirth especially the posterior recto-vaginal fistula (Waaldijk, 1994).

Electrical stimulation: Refers to the use of physical electrotherapy modalities such transcutaneous nerve stimulation to facilitate the contraction of the PFM with the aim of achieving effective training of the pelvic floor in order to provide sufficient support during intra-abdominal pressure to prevent urinary incontinence (UI) (Bernards et al., 2014).

Experience: Refers to encounters or events that have a positive or negative impression after physiotherapy intervention for managing women's continence levels after fistula repair (Dictionary, 2008).

Implementation processes: Refers to the provision of information related to the facilitation of pelvic floor muscle training (PFMT), that aims to reduce incontinence and increase wellness after a successful fistula repair (Alewijnse, Metsemakers, Mesters & van den Borne, 2003).



Incidence: Describes how susceptible the rest of the study population was to obstetric fistula (WHO, 2011).

MPESA: This is a mobile money service whereby cash can be managed through the mobile telephone network (Bangser, 2011).

Obstetric fistula repair surgery: An intra-vaginal operation whereby there is interposition of labial fat or muscle that fills up the potential dead space as well as providing additional bladder neck support that improves continence by reducing scarring between the bladder neck and the vagina. This is done by training the obstetric fistula

surgeon to improve the urethral closure mechanism with the aim of restoring the urethral function, giving women another chance to live a normal life (WHO, 2011; Hilton, 2003).

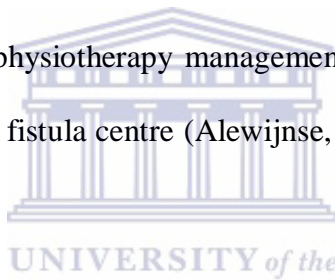
Physiotherapy management: The World Confederation for Physical Therapy (WCPT) defines physical therapy as a rehabilitative practice using therapeutic techniques, electrotherapy, and home exercise programmes in order to manage musculoskeletal pain and dysfunction. It also includes the provision of services that aim to develop, maintain and restore maximum movement and functional ability throughout the lifespan of individuals. The Chartered Society of Physiotherapy (CSP) (2013) defines physiotherapy as a branch of rehabilitative medicine aimed at helping patients in the wards and in follow-up clinics. This is to maintain their recovery or improvement, or while restoring body movements and function, especially when someone has pain, injury, illness or disability, and thereby maximising their quality of life.

Physiotherapy interventions: These are physical methods, together with the use of electrotherapy machines, to administer treatment to incontinent patients. They include biofeedback, electrical nerve-stimulation, pelvic floor muscle, or Kegel, exercises, and vaginal cones (Bø & Hilde, 2013).

Pelvic Floor Muscle Training: This is a programme of repeated voluntary pelvic floor muscle contractions that are taught and supervised by a physiotherapist or health care professional after vesicovaginal fistula repair in order to minimise outcomes of residual stress incontinence. This involves the prescription of pelvic floor muscle rehabilitation (Bo, 2009; Browning, 2006).

Pelvic Floor Muscle Effects: Refers to the ability to control urine leakage and vaginal flatus, develop a firm vagina, and facilitate a sense of body function and hope of living an active lifestyle. The role of pelvic floor muscle training in the current study was geared toward restoring urethral function and therefore improving episodes of urine leakage. There is evidence that RUI can lead to individual changes of movements in the execution of physical activities (Bo, 2007), reduced participation in role taking, and limitations to one's activities of daily living (O'Donovan, Doyle & Gallagher, 2009; Nygaard, Kreder, Lepic, Fountain & Rhomberg, 1996).

Perceptions: These are factors that influence adherence to the home programme, follow-up, referrals, and accessing physiotherapy management in other rural hospitals following discharge from the Gynocare fistula centre (Alewijkse, Mesters, Metsemakers, Adriaans & Van Den Borne, 2001).



Prevalence: Refers to how widely obstetric fistula affected women during the period the study (WHO, 2011).

Residual or stress urinary incontinence: Refers to the leaking of urine from the bladder after successful repair of injuries to the urethral and bladder neck. It may be worse as a result of scarring, especially with the involvement of vesicles in the neck of the urethra and pelvic floor dysfunction despite successful closure. This occurs when there is a disruption of the sphincter muscles within the urethra so that they cannot contract and thereby prevent unusual urine flow even when the bladder is empty (Kayondo et al., 2011).

Vaginal cones: This is a weight that is inserted into the vagina with the main aim of training and strengthening the PFM (Bernards et al., 2014).

1.8: Summary of Chapters

Chapter One provides the background of the study and highlights the growing global prevalence and incidence of obstetric fistula secondary to birth complications. Obstetric fistula surgery and post-operative physiotherapy management for urinary incontinence are outlined. The problem statement, research question, aim, specific objectives and significance of the study are also presented. The chapter ends with the definitions of terms and abbreviations used in the study.

Chapter Two presents a review of the existing literature on the causes and co-morbidities of obstetric fistula in Kenya, as well as the prevalence of obstetric fistula-related injuries. Also included is the definition and classification of obstetric fistula, the mechanisms of injury, surgery, and physiotherapy management of those patients with residual urinary incontinence. Finally, the chapter highlights the guidelines, principles, and different components of physiotherapy management.

Chapter Three describes the methods used in the study. The study setting, research approach and research design for a qualitative study was outlined. Furthermore, the study population, sampling method procedure and data collection instruments are presented. The procedure for qualitative data collection is described, as well as the method of data analysis, and the ethical considerations for the study.

Chapter 4 presents the qualitative data from the semi-structured interviews and focus group discussions that attempted to explore the experiences of women who received post-operative physiotherapy management at the Gynocare Fistula Centre. The results included ways in which post-operative physiotherapy was administered to them, as well as their perceived challenges regarding their access to physiotherapy services following discharge

from the center. The chapter presents the pre-determined and emerging themes which were illustrated by the use of verbatim quotes.

Chapter Five presents the discussion of the qualitative results. It furthermore provides a summary of the study and draws conclusions based on the findings. Limitations to the study are also outlined. In addition, recommendations based on the main findings of the study are made.



CHAPTER TWO

LITERATURE REVIEW

This chapter provides an overview of the existing literature regarding various aspects of obstetric fistula. A brief review is drawn on the pelvic anatomy and physiology, the prevalence and incidence of obstetric fistula, established obstetric fistula facilities, surgical outcomes of the obstetric repair, mechanism of injury, awareness of obstetric fistula facilities, and the clinical management of the condition. The various components of pre- and post-operative physiotherapy rehabilitative processes of a patient presenting with RUI post-obstetric fistula surgery are discussed. Finally, the chapter ends with a discussion of the bio-psycho-social model of rehabilitation that is relevant to the study.

2.0 Pelvic Anatomy and physiology

This figure shows some of the female pelvis structures interrupted during vertex delivery.

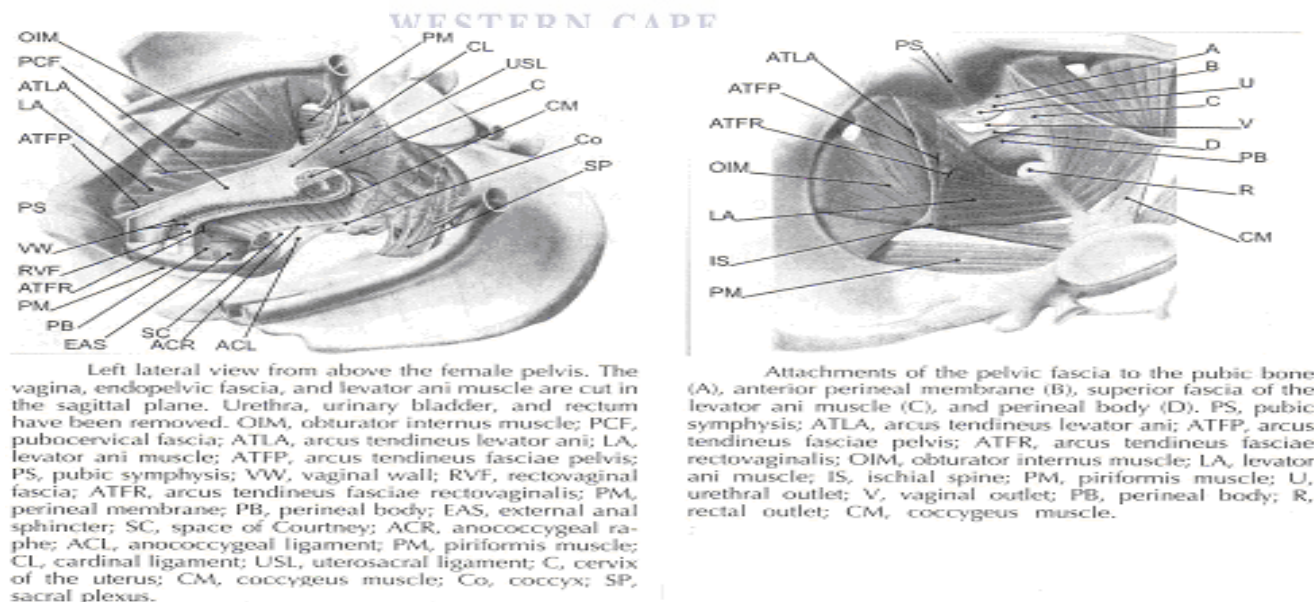


Figure 1: Female Pelvis Structures

Figure 1 was adopted with permission from Global Fistula map (Relief, 2015).

There are two main functions of PFM; they provide support to the pelvic viscera and enable constriction of the urethra, vagina and anal canal. It is important that this is understood by both the patient and physiotherapist. The pubococcygeus, ileococcygeus, and ischiococcygeus muscles provide the physical support to the pelvic viscera. The puborectalis muscle enables the constriction of the anal canal, vagina, and urethra. This is the superficial muscle of the pelvic floor, which is innervated by the pudendal nerve (Guaderrama et al., 2005). The deep muscles (pubococcygeus, ileococcygeus and coccygeus) are innervated by the sacral nerve roots S2, S3, and S4 (Dyck & Thomas, 2005). Damage to the pudendal nerve during childbirth may cause dysfunction of puborectalis muscle and external anal sphincter muscles leading to urinary (vesico vaginal fistula) and faecal incontinence (recto-vaginal fistula).

The superior and lateral connective tissue attachments stabilise the vagina at different levels (Stepp & Walters, 2007). The cardinal-uterosacral ligament complex (level I) upholds the cervix and upper vagina over the levator plate and away from the genital hiatus. The mid-vagina is supported by lateral connections to the arcus tendineus fasciae pelvis (level II). The lower vagina is mainly supported by connections to the perineal membrane anteriorly and the perineal body posteriorly (level III).

The urethra and anal canal each have two sphincters. The anal canal has the internal anal sphincter (IAS) and external urethral sphincter (EAS). The urethra has the smooth muscle sphincter, located at the bladder neck and rhabdo-sphincter (EAS), while the puborectalis muscle acts as the 3rd constrictor of the anal canal and urethra. The vagina has only one constrictor mechanism, which is provided by the puborectalis muscles.

The autonomic, sympathetic (spinal) and parasympathetic (pelvic) nerves innervate the internal anal sphincter (IAS). Sympathetic fibers originating from the lower thoracic ganglia form the superior hypogastric plexus. Parasympathetic fibers originate from the 2nd, 3rd, and 4th sacral nerves to form the inferior hypogastric plexus, giving rise to the superior, middle, and inferior rectal nerves that innervate the rectum and anal canal. The efficacy of IAS is caused by Angiotensin 2 and prostaglandin $F_2 \alpha$ that modulate contraction of the smooth muscles. Sympathetic nerves mediate IAS contraction through the stimulation of α and relaxation through β_1 , β_2 and β_3 adrenergic receptors. Stimulation of parasympathetic (pelvic) nerves then causes relaxation of IAS through nitric oxide contained in the neurons located in the enteric plexus, which is responsible for 85% of resting anal pressure (Dyck & Thomas, 2005).

The muscle fibers of EAS are composed of fast and slow twitch types, which allow it to maintain sustained tonic contraction at rest and also allow it to contract rapidly with voluntary squeeze such as coughing. According to Bharucha (2006), motor neurons in Onuf's nucleus located in the sacral spinal cord innervate EAS muscle through the inferior rectal branches of the right and left pudendal nerves.

Studies by Delancey, Kearney, Chou, Speights and Binno (2003), and Dietz and Lanzarone (2005), reveal that anatomical disruptions of the puborectalis muscle are very common following vertex vaginal delivery in 20% - 35% of the parous mothers. The childbirth-related injury to the nerves and muscles of the pelvic floor lead to the development of urinary or faecal incontinence. A study by Stoker, Halligan and Bartram (2001) have shown a maximum stretch ratio of 3.5 to 1 in the posteromedial puborectalis during simulated childbirth, increasing stiffness of the lateral levator attachments of the levator ani

to the pelvic side wall, increasing the stretch on the levator ani muscles. Overstretching of levator attachments in the nullipara may subject the levator ani to higher stretch ratios during childbirth, increasing risk for nerves and muscle damage. This is demonstrated below with red markings.

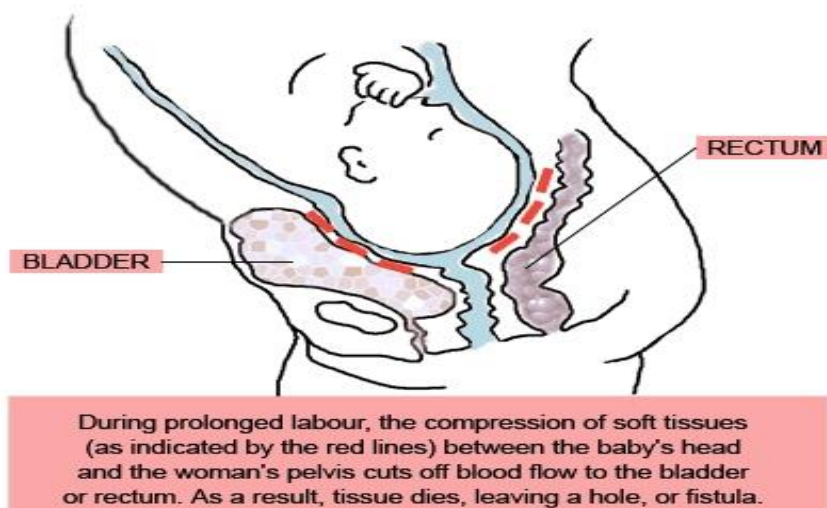


Figure 2: Pelvis common sites for obstetric fistula formation

(http://www.who.int/features/factfiles/obstetric_fistula/en (accessed January 23, 2017).

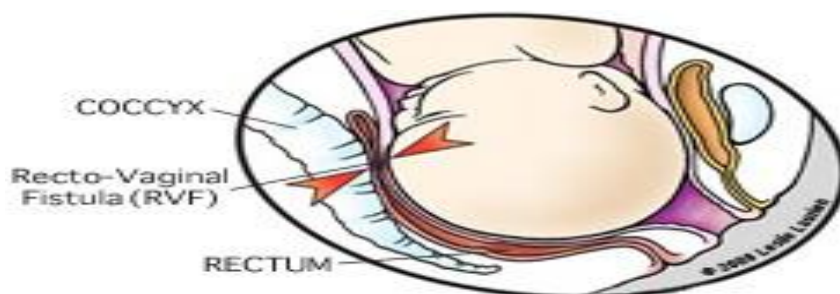


Figure 3: Common sites for RVF fistula

(http://www.who.int/features/factfiles/obstetric_fistula/en (accessed January 23, 2017).

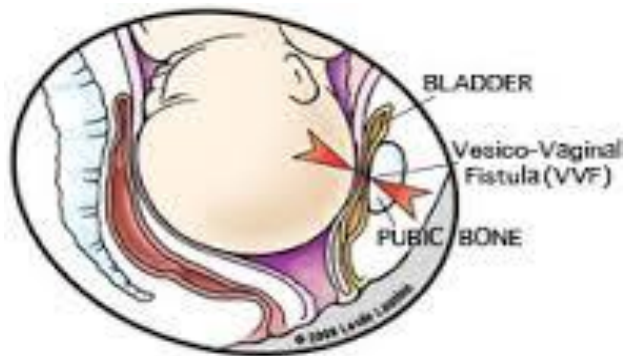


Figure 4: Common sites for VVF fistula

(http://www.who.int/features/factfiles/obstetric_fistula/en (accessed January 23, 2017). The figure below shows the resultant effects of prolonged obstructed labour that may lead to the formation of different types of vesicovaginal fistula as shown below;

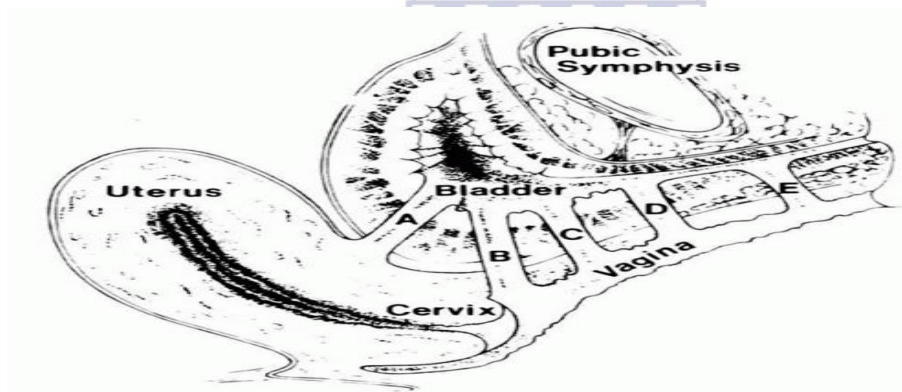


Figure 5: Birth injuries to bladder and vagina

A: Vesicocervical B: Juxtacervical C: Midvaginal vesicovaginal

D: Suburethralvesicovaginal E: Urethro vaginal

(Retrieved from [www: Medscape.com](http://www.Medscape.com) on 23/01/2017).



Figure 6: Clinical presentation of pre and post-obstetric fistula repair and physiotherapy rehabilitation for women with urinary incontinence, lower limb paraparesis and foot drop within the hospital and home set-up:

2.1 Prevalence and incidence of obstetric fistula

Globally, there are more than 300 million women suffering from pregnancy-related complications, with approximately 20million new incidences of obstetric fistula arising each year (WHO, 2005). Worldwide there are approximately 600,000 women who die annually due to pregnancy-related complications (UNICEF, 2013). Out of this, 99% come

from developing countries and for every woman who dies 30% or more suffer obstetric fistula (Wall, 2009; Say, Pattinson & Gülmezoglu, 2004). Currently there about 15 to 30 women who suffer from pregnancy morbidities, including obstetric fistula, which is treatable and preventable (Capes, Ascher-Walsh, Abdoulaye, & Brodman, 2011). This is common in adolescent girls whose pelvises are underdeveloped (Wall et al., 2004) and is a health consequence of child marriages in Africa (Nour, 2006; UNICEF, 2005). According to Lewis and De Bernis (2006), for every 100,000 deliveries there are 124 new cases of obstetric fistula occurring in rural areas compared to no cases in urban areas in sub-Saharan Africa.

Some in-depth studies have shown that between 100,000 and one million women live with untreated obstetric fistula in Nigeria (Adler, Ronsmans, Calvert & Filippi, 2013; Wall, 1998). In Bangladesh over 70,000 women live with untreated obstetric fistula (Ijaiya et al., 2010). Similarly, in Nigeria, Ethiopia, and some parts of West Africa, the incidence of obstetric fistula were estimated to be 1-10 per 1000 deliveries (Adler et al., 2013; Wall, 1998). Another study showed that Ethiopia had approximately 9,000 women who develop obstetric fistula annually, with only 1,200 of these accessing treatments. Approximately 6 to 24% of them present with both VVF and RVF (Leung & Chung, 2009). These women may lack immediate action to restore the pelvic functions and live with disabilities for longer than is necessary before receiving medical interventions (Ahmed & Tunçalp, 2015).

The incidence of VVF is reported to be high in Sudan (Hilton, 2003), Ethiopia (Wall, 2006), Chad (Hilton, 2003), Ghana (Danso, Martey, Wall & Elkins, 1996) and Nigeria (Tahzib, 1983). In developing countries, the incidence rate stands at 1 to 2 cases per 1000

deliveries; with approximately 500,000 to 2 million women affected each year (Stanton et al., 2007).

The incidence of fistula is high where maternal mortality also tends to be high (Arrowsmith, Hamlin & Wall, 1996). Ethiopia is usually considered to have the highest maternal mortality of 1,050 per 100,000 live births in Africa, with concurrent vesicovaginal fistula of 350 fistulas per 100,000 deliveries. In Kenya, there are an estimated 3,000 young women and girls who develop VVF and RVF fistula annually, despite having between 30,000 and 300,000 unattended cases (Kimani, Ogutu & Kibe, 2014; Odhiambo, 2010). Several studies have shown obstetric fistula to be a preventable and treatable condition if all the necessary steps to access health services have been put in place (Miller et al., 2005; Donnay & Weil, 2004). For example, in East Africa (Kenya, Uganda and Tanzania) there are 4,500 to 5,000 new cases of obstetric fistula annually, that are preventable if emergency obstetric care is available and accessible (UNFPA, 2003).

2.2 Facilities for obstetric fistula surgery

The Global Fistula Map report (Relief, 2015) reports that there were 60,280 fistula surgeries performed globally in 267 facilities in 45 countries. Kenya has seven (7) fistula facilities with only ten (10) trained fistula surgeons across the country. In these facilities there were 842 surgeries, which is below the set targets of 1,500 annual fistula surgeries. This may mean that for every 50 women in need of fistula treatment only one (1) actually received it (Lozo & Morgan, 2015). In a country where the rate of obstetric fistula is estimated to be 3 to 4 women per 1,000 live births (Odhiambo, 2010), this means that only 7.5% get access to fistula medical care despite the high incidence of 3,000 cases each

(Echoka et al., 2014; Velez, Ramsey & Tell, 2007). According to Mselle et al. (2011), only one hundred (100) of the 3,000 women who suffer obstetric fistula annually will receive access to treatments in Kenya in government and private hospitals. Others do not seek obstetric fistula treatment due to poverty and cost involved (Muleta et al., 2008; Ahmed et al., 2007; Velez et al., 2007).

To address this need, the Gynocare Fistula Center in Kenya was established to facilitate obstetric fistula repair surgery, under the Action to End fistula programme. This was launched by the United Nations Population Fund's Obstetric Fistula Needs Assessment that identified Kenya, Ethiopia, Nigeria, and Niger as countries that had limited fistula facilities, few trained fistula surgeons, limited equipment, and inadequate medical resources (Wall, 2006; Miller et al., 2005).

The Gynocare Fistula Center provides free fistula repair surgery and physiotherapy services. Despite providing these services for free, very few women receive early fistula intervention. Some report remaining in obscurity due to the sense of shame that is linked to the condition (Yeakey et al., 2009). Others remain unaware of any obstetric fistula treatment despite the 80-90% success rate of fistula repair surgery in the available fistula facilities in the country (Molzan et al., 2007; Wall et al., 2005).

2.3 Surgical outcomes of obstetric fistula surgery

The clinical management of vesico-vaginal fistulas is entirely a surgical repair (De Bernis, 2007). The VVF plasty involves artificial lengthening of the urethra and reduction of scarring tissues within the urethral circumference. Browning (2004) advocates the use of a fibro-muscular sling in the surgical repair of VVF to prevent SUI. This restores the urethral

closure mechanism that is associated with residual urinary incontinence (Kayondo et al., 2011). The success rate of vesico-vaginal fistula closure following the first surgery is reported to be 80-95%, leading to a normal life again without social and economic consequences (Mselle et al., 2012; Jatoi, Jatoi, Shaikh & Sirichand, 2008; Ahmed & Holtz, 2007).

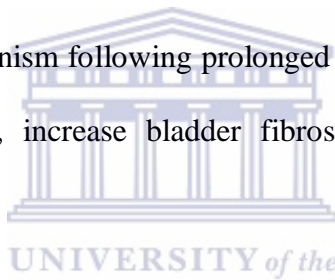
A study by Creanga and Genadry (2007) recommended the classification of obstetric fistulas before any surgical intervention in order to predict its most likely outcome. The most cited system of classification is the type, number, location, size (length and width); involvement of other pelvic organs; extent of vaginal scarring; attachment of the fistula to the pelvic wall; status of the urethral sphincter and permeability of the urethra; site of urethral orifices and how its edges relates to the fistula; the presence of recto-vaginal fistula and inflammatory lesion complications of the pelvis, vagina, vulva or the peritoneum (Kayondo et al., 2011).

Obstetric fistula can be vesicovaginal, rectovaginal, ureterovaginal, or uretovaginal. At the bladder, fistulae may be juxta-urethral, midvaginal, juxtacervical, and usually involve the continence mechanism. These are identified as simple or complex and single or multiple (Tebeu, et al., 2012). Studies by Goh, Stanford and Genadry (2009) and Waaldijk (1995) also recommend the use of these classifications.

The prognosis of surgical outcomes is usually determined by the presence of urethral involvement (partial or total); vaginal scarring (mild, moderate, severe); mobility of the urethrovesical junction is functioning normally and fixed to pubic bone); previous repair and vaginal stenosis (Genadry, Creanga, Roenneburg & Wheelless, 2007). In many

situations, there is no residual urinary incontinence immediately following surgery and following discharge from the Fistula Centre (Dumoulin et al., 2016). However, there remain 16-32% of of women who are urinary incontinent following the procedure (Khisia & Nyamongo, 2012; Nardos, Browning & Chen, 2009; Goh, Browning, Berghari & Chang, 2008; Wall et al., 2004).

Herbruck (2008) recommend a second surgery for restoration of defective lower urinary tracts and pelvic structures. However, with a second repair repeat, approximately 10% of these women will suffer stress urinary incontinence (Ruder, 2012). In addition, these incontinence levels have also been associated with birth injuries to the bladder vesical neck and urethral sphincter mechanism following prolonged obstructed labor. It is these injuries that alter destrusor activity, increase bladder fibrosis, and reduce bladder functional capacity to less than 50 ml.



However, reconstruction repair of obstetric fistula does not always achieve continence in all patients (Browning, 2006). This is associated with the damage and denervation of puborectalis, causing extensive scaring of the tissue surrounding the fistula (Goh et al., 2009). It is for this reason that early physiotherapy is suggested (Browning & Menber, 2008). The use of pelvic floor muscle training (PFMT) to strengthen PFM is suggested for the restoration of the closure mechanism for continence levels after fistula repair with good results (De Bernis, 2007). In addition, Castille et al. (2015), and Keyser et al. (2014) recognise that health education combined with a four (4) month pelvic floor physical therapy programme has been shown to optimise fistula surgery outcome as well as improve body functions and quality of life.

2.4 Mechanism of stress/residual urinary incontinence after surgery

Residual urinary incontinence is the involuntary loss of urine that continues to occur even after fistula closure, with or without physical exertion or a rise in abdominal pressure (Fantl, Newman & Colling, 1996). The mechanisms underlying the development of RUI include pudendal nerve injury during vaginal delivery (Clark, Scott, Vogt & Benson, 2001), incomplete regeneration after delivery (Kerns et al., 2000), and the loss of muscular, ligamentous, and fascial support of the urethra and bladder (DeLancey, 1994). The symptoms of RUI occur when the anatomic and functional integrity of the urethral sphincter cannot overcome any force linked with an increase in intra-abdominal pressure. (Bo,1995; DeLancey, 1988).

The intrinsic urinary sphincteric closure mechanisms has three different layers in the wall of the urethra, namely; the tunica mucosa, spongiosa and the muscularis that can be injured during birth or during fistula surgical repair. The extrinsic mechanism involves the pelvic floor, the vaginal wall, the endopelvic fascia, the arcus tendineus fasciae pelvis, and the levator ani muscles (Ashton-Miller & Delancey, 2007). The spontaneous recovery after physiotherapy will depend on the duration of the prolonged second stage of labour, number of pregnancies, chronic obstructive pulmonary diseases that tend to increase intra-abdominal pressure and thereby disrupting the fistula repair and healing process, psychological strain, poor understanding of patients physical condition; and levels of motivation and adherence to the pelvic floor programme.

The figure below tries to explain cause-effect relationship of events from the onset of the condition to management to the expected functional outcomes;

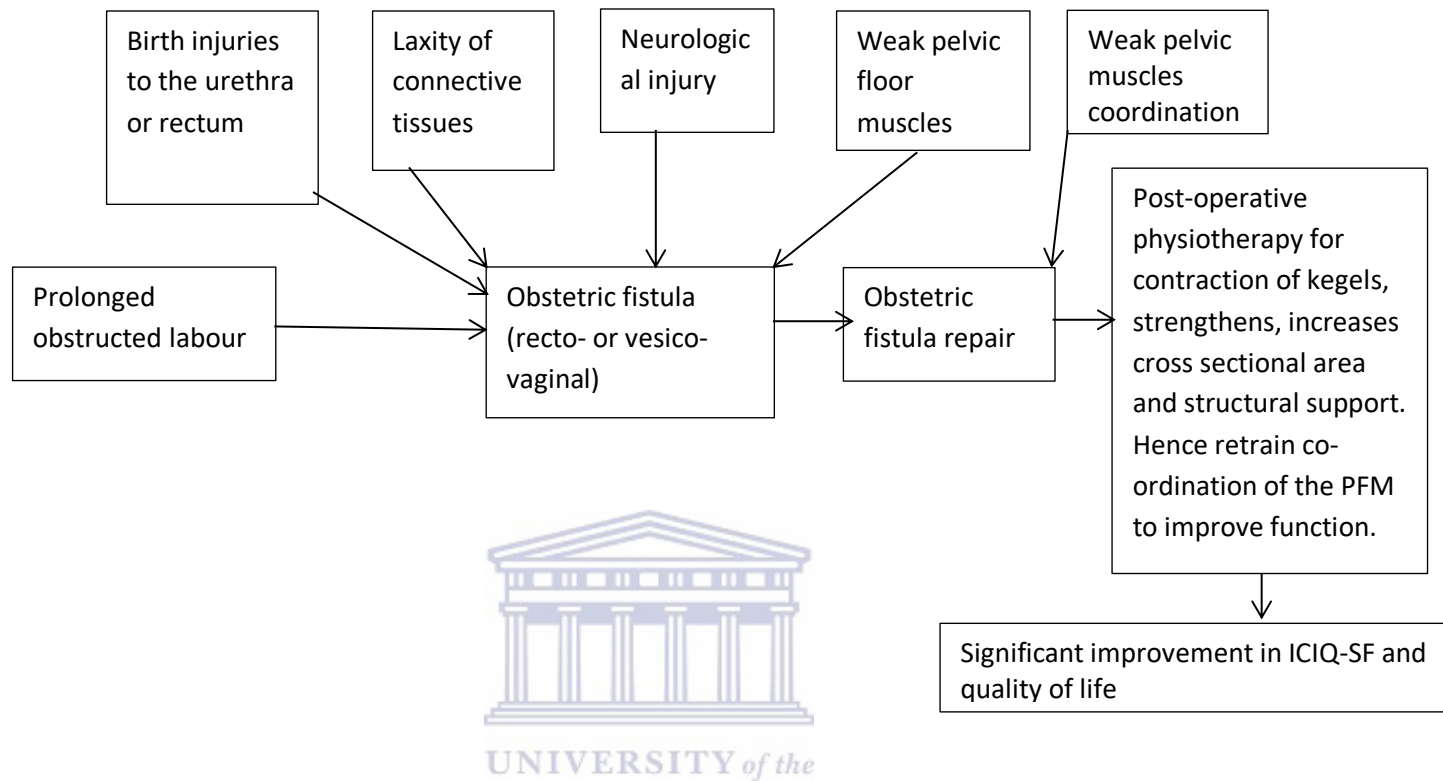


Figure 7: Cause-effect relationship of VVF surgery and Physiotherapy management of RUI.

The Figure is Modification of the pathophysiological model from Borella-France, Downey, Zyczynski and Rause (2008) showing how intensive PFMT results to improved continence levels and quality of life (QOL).

2.5 Women’s experiences and perceptions of post-operative physiotherapy management

Several studies have shown that pre- and post-operative physiotherapy experiences varied from one woman to another (Umoyoho et al., 2012). According to a study conducted by Raassen, Verdaasdonk & Vierhout (2008) early intervention and treatment of urinary incontinence (UI) enabled women to resume their normal lives, minimising their social and

economic challenges (Warren, 2014) as well as enabling their social re-integration (Mumbi, 2013). Some participants reported achieving the desired outcomes, while others presented with residual urinary incontinence, necessitating the need for a second obstetric fistula surgical repair and intensive physiotherapy programme in order to relieve their symptoms (Bø & Hilde, 2013). It was not understood if women's experiences and perceptions affect the adherence and utilisation of post-operative physiotherapy management at and from the obstetric fistula centre.

2. 6 Delivery of post-operative physiotherapy in Managing Obstetrics Fistula Surgery

2.6.1 Pre-operative physiotherapy management

A study conducted by Castille et al. (2014) showed that pre-operative physiotherapy interventions included pelvic floor exercise training and the management of abdominal pressure by strengthening transversus abdominis. Education to co-contract this muscle during increased abdominal pressure has shown to decrease the risk of urinary stress incontinence after surgery (Bø, Mørkved, Frawley & Sherburn, 2009). Women who attend to two or more pre-operative sessions are reported to undergo abdomino-pelvic care and perineology assessment at those sessions. This informs the physiotherapist on what to teach with respect to the functionality of perineal muscles, which follows a session or several sessions training on perineal contraction and initial biofeedback. Another study by Castille et al. (2015) reported significantly decreased risk of 52.6% of women not developing residual urinary incontinence. This study reports that group and individual sessions were beneficial, and that education on various techniques to be adapted during activities of daily living (ADL) can reduce the abdominal pressure that is believed to cause micro-injuries and tears to the newly repaired fistula.

Fayers and Machin (2013), and Avery et al. (2004) recommend the use of the International Consultation on Incontinence Questionnaire (ICIQ) to monitor patients' symptoms and efficacy of interventions prior to surgery. This tool has the ability to detect changes in the relief of patients' symptoms. According guidelines by NICE (2006), symptom scoring and quality of life assessment tools should be used to determine the relief of urinary incontinence symptoms after physiotherapy programmes. These tools include the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF), lower urinary tract symptoms (LUTS), Incontinence-Quality of life (I-QOL), and Kings Health Questionnaire (KHQ) (Oh & Hyeon, 2007). At the Gynocare Fistula Center it was unfortunate that assessment relied on patient-reported outcomes before and after surgery.

The National Institute for Health and Clinical Excellence (NICE, 2006) recommends pelvic floor exercises to strengthen pelvic floor muscles with the use of vaginal cones and biofeedback; and electrical stimulation therapy. The electrical currents activate the pudendal nerve to initiate muscle contraction in order to strengthen and re-educate weak pelvic floor muscles. In addition, the guidelines suggest bowel movement retraining which orients patients towards passing motion without straining the pelvic floor muscles.

2.6.2 Post-operative Physiotherapy management

Pelvic floor muscle assessment (Laycock & Jerwood, 2001), long PFM adherence (Bo, 1995) and intensive supervised PFMT are suggested for post-operative physiotherapy management. These approaches have shown good outcomes after obstetric fistula surgical repair in and out of hospital (Borello-France et al., 2008). Pelvic floor training, the use of transcutaneous electrical nerve stimulation (TENS) for damaged levator ani muscles and

the pudendal nerve has been proposed after obstetric fistula repair for treatment and the restoration of urethral function (Browning, 2006; WHO, 2005).

Since the introduction of Kegel exercises in 1948, pelvic-floor muscle training (PFMT) has been used in the treatment of different types of urinary incontinence with good results (Hay-Smith, Mørkved, Fairbrother & Herbison, 2008). According to Borello-France et al., (2008) and Goode et al. (2003), PFMT was shown to be 50 to 69% effective in controlling urinary leakage. Many studies have also advocated for PFMT exercise prescription within specific parameters; the use of a perineometer to assess the strength of the PFM, variation of the exercises type depending on strength and endurance, number of repetitions, performance, and frequency, in order to have good outcomes (PERFECT) (Laycock & Jerwood, 2001). According to Bo (1995), in order for treatment to be effective there is a need for exercise adherence and a frequency of 15-30 repetitions or more per day. These might vary from three or more times per day to three times per week, depending on patients' continence levels.

Following fistula surgery, pelvic floor muscle training or exercises (PFMT/E) have been shown to strengthen the voluntary periurethral and perivaginal muscles, which assisted in the closing force of the urethra and supporting of the pelvic visceral. This is reported to give the patient more control of micturition and thereby lowering the incidence of urine leakage (Bo, 1995). In addition, studies by Castille et al. (2014), and Lewis and De Bernis (2006), showed that some participants experienced reduced urinary leakage, changes in urination frequency, and improved strength of pelvic floor muscle contractions (Avery et al., 2004). However, studies by Moen, Noone, Vassallo and Elser (2009), and Nygaard et al. (1996), found that the outcome of post-operative physiotherapy is dependent

on pelvic floor muscle function and the physiological outcomes of obstetric fistula repair rather than the PFMT/E intensity, number of intervention and evaluation.

A study by Herbison and Dean (2013) advocates for the use of electrical stimulation and PFMT/E post-operatively. This is common for women who have suffered severe and multiple urinary and urethral injuries involving the pudendal nerve and who therefore cannot initiate any PFM contraction. It is this activation of the pudendal nerve afferents and hypogastric nerve efferents that will lead to contraction of striated periurethral and striated pelvic floor muscles, aiding with the urethral closing mechanism (Erikson & Eik-Nes, 1989).

The National Institute for Health and Clinical Excellence (NICE, 2013) recommends that neuro-stimulation be administered for the reactivation of sensory and motor function for those patients who present with neurological involvement; for example, those who experience bilateral lower limb paralysis and foot drop. This is to stimulate the sacral nerve roots, as well as the transcutaneous and percutaneous posterior tibial nerve. The NICE guidelines suggest that the surface electrode be placed above the sacrum and the transcutaneous posterior tibial nerve. Each patient appointment should be followed with routine digital assessment in order to confirm the contraction of levator ani muscles before a supervised session is continued (NICE, 2013; NICE, 2006). Since this technique requires privacy, it may be difficult to implement in institutions with limited resources. This may be associated with poorly developed or underprepared physiotherapy departments where there are few staff members with limited access to electrotherapy equipment (Conway, Gupta & Khajavi, 2008).

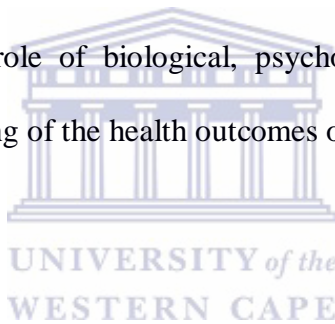
Therapeutic stimulation such as electrical stimulation of the PFMT and biofeedback is an alternative choice of treatment that aims to incorporate ADL, without an increase in intra-abdominal pressure. This would encourage women with urinary incontinence to comply with therapy as indicated in the NICE guidelines (2006). Home and ward programmes should be beneficial with occasional supervision incorporated with referral and follow-up to various rural hospitals where these women are discharged to. The PFME instructions should be of satisfactory with or without follow-up visits.

In addition, pelvic floor muscle exercise (PFME) programme components should be clearly demonstrated to patients after which educational or pamphlets materials should be provided. This should aim at teaching the patient how to assess the strength of pelvic floor muscle contractions, along with the number of times that the patient has to perform PFME (Fayers & Machin, 2013). Follow-ups in rural health settings for at least three months duration with eight contractions performed three times per day should be adhered to (NICE, 2006). For maximum benefit, patients should embrace exercise programmes with continuity that is lacking in most referrals to rural health facilities.

Some other researchers have found that supervised PFMT exercise programmes for a period of 6 months were better than all other methods of conservative treatment (Dumoulin & Hay-Smith, 2010). However, in Kenya the rationale for post-operative PFMT might be difficult to adhere to. This is due to limitations with access to hospital equipment, and a limited number of physiotherapists in rural health settings where women with residual urinary incontinence are referred to.

2.7 Theoretical Orientation: Bio-Psychosocial Models

Residual or stress urinary incontinence is one of the most common disabilities that women present with following obstetric fistula surgery (Browning, 2006). The common impacts include the loss of body control, and high financial, social and emotional costs that negatively affect ones' quality of life. The bio-psycho-social model suggests that RUI consists of reduced resilience of the urethral sphincter closure due to weak pelvic floor muscles and nerves that can cause impairments in physical and mental functioning, as well as restrictions to activities and participation (WHO, 2007). It addresses the consequences of RUI after fistula surgical repair, and considers the prognostic factors that may affect recovery, emphasising the role of biological, psychological and social aspects in the development and or worsening of the health outcomes of RUI (Borrell-Carrió, Suchman, & Epstein, 2004).



2.7.1 Biological model

Studies have shown that RUI occurs when there is a dysfunction of the intrinsic urinary sphincteric closure mechanisms, and the extrinsic urethral and vaginal wall support mechanisms are impaired (Bernards et al., 2014; Ashton-Miller & Delancey, 2007).

The **figure 8** below shows an anatomical arrangement pelvic floor muscles (PFM) in relation to urethra and rectum where obstetric fistula occurs during child birth:

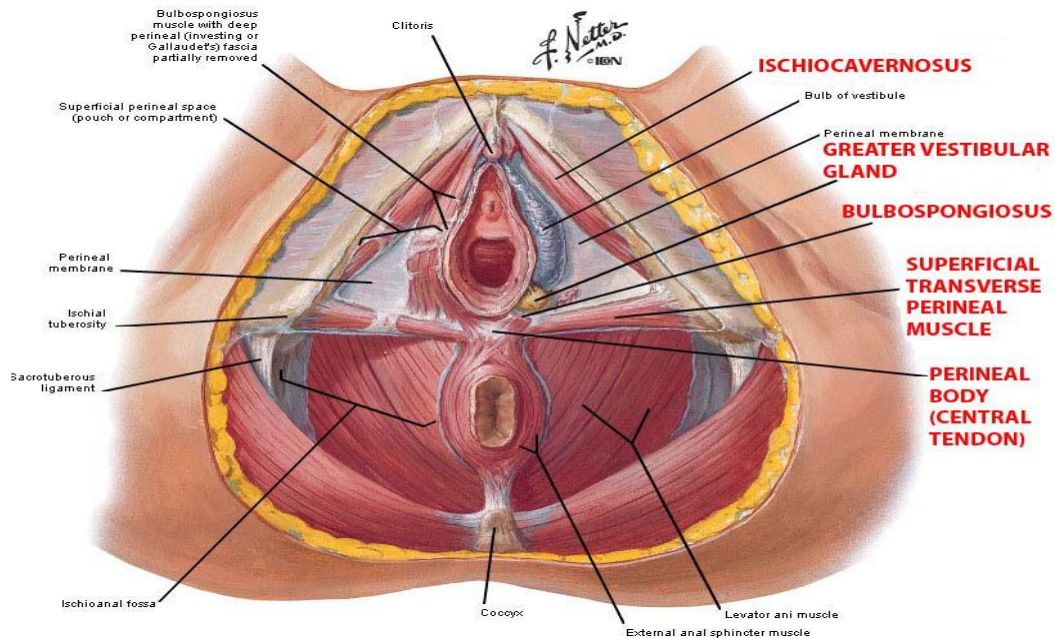


Figure 8: Effects of Pelvic floor muscles injuries to urethra and rectum
 Accessed at: <http://www.unmc.edu/dissection> on 25/05/2016.

2.7.2 Psychological Models

Residual urinary incontinence has a negative psychological impact on the individual, families, communities and some institutions, who tend to view themselves, and who are viewed by others, as disabled, greatly influencing their interpersonal relationships and interactions with others, thereby interfering with their quality of life. These women must cope with rejection, isolation, discrimination, pain, discomfort, shame, depression, suicidal episodes, and stigma from self, their partners, family and community members (Mumbi, 2013). This can be alleviated through psychological counselling and re-integration programmes, as well as the creation of awareness that obstetric fistulas are treatable and manageable despite the limited fistula repair resources that are available.

2.7.3 Social function

Residual UI that presents following fistula surgical repair may be referred to as a disability with respect to that person's physical condition. A disabled person is viewed as an individual who lacks the ability to execute or participate in an activity at an equivalent level when compared to a physically and mentally sound person with no limits to one or more major life activities (WHO, 2001). This has negative social implications for an individual's social identity, personal and social interactions; and societal expectations (Mselle et al., 2011).

The physiotherapy management of patients with RUI can be of value if evidence based-clinical guidelines consisting of physical examination based on reliable and valid assessment tools in order to determine the mode of intervention and physiological ability to restore body function. This will also enable physiotherapists to make decisions around improving efficiency and uniformity of patient care. An integral part of reducing the prevalence of RUI is to reduce risk factors by having supervised PFME, using evidence-based physiotherapy modalities, and integrating health education, home exercise programmes, and follow-up appointments.

2.9.4 Theoretical constructs

The **figure 9** below presents the links between the study topic and the pre- and post-operative physiotherapy delivery methods.

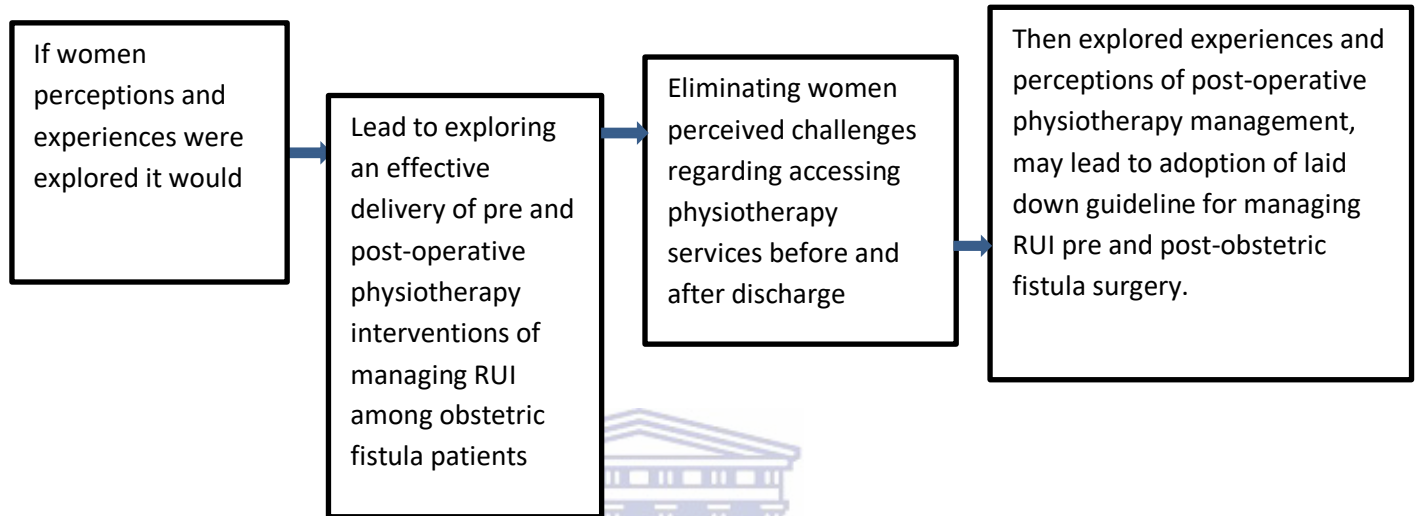


Figure 9: Theoretical constructs of RUI and delivery of PFMT were efficient for reducing urinary leakage in women with post-obstetric fistula repair and in improving subjective assessment. To maintain the effect, it is expected that PFMT has to be continued, despite perceived challenges regarding accessibility physiotherapy services following discharge.

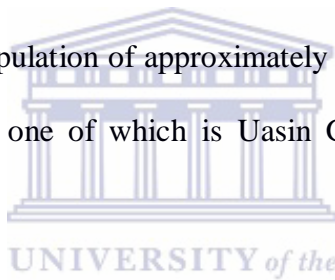
CHAPTER THREE

RESEARCH METHODOLOGY

The chapter describes in detail the research setting, research design, study population, sampling, the research instrument used for data collection and analysis. The chapter further describes the procedure that was followed, and finally the chapter ends with the ethics considerations.

3.0 Research Setting

The study was conducted at Gynocare Fistula Center in Eldoret, Kenya. Kenya is a country located in the eastern part of Africa and is among the developing countries in sub-Saharan Africa. The country has a population of approximately 40 million people (KDHs, 2010). It is divided into 47 counties, one of which is Uasin Gishu, where the Gynocare Fistula Center is located.



The Gynocare Fistula Centre is one of the largest fistula facilities in Kenya. It is run by Women and Development Against Stress in Africa (WADADIA) in partnership with the United Nations Fund for Population Activities (UNFPA). It is located in Eldoret town, approximately 500 metres east of the city centre and serves patients from all parts of the country. The facility has a bed capacity of 25 beds with 25 health care providers. It has well-established departments of gynaecology, nursing, laboratory services, radiology, nutrition, counselling, and physiotherapy. The staff complement consists of two obstetrician and gynaecological surgeons, twelve nurses, one psychological counsellor, one nutritionist, three laboratory technologists, three radiographers, two part-time physiotherapists, and a survivor of obstetric fistula repair.

The physiotherapy department is a small unit within the facility and is operational five days a week. Patients who are seen at this facility are referred from other hospitals, dispensaries, and health centres from around the country. The work load involves seeing between 14-20 patients daily, who are seen as in-patients in the physiotherapy department, who also lack electrotherapeutic equipment.

3.1 Research Design

The study used an explorative design that made use of qualitative methods for data collection and analysis (Creswell, 2013). The exploration of a process of this nature is best evaluated using qualitative methods because the main purpose of qualitative research is to describe and clarify the lived experiences of individuals (Knox & Burkard, 2009). Furthermore, using qualitative methods allows participants to express themselves in their own words, and the researcher is able to get rich information with respect to the participant's own perspectives (Howitt, 2010).

By adopting this method, the researcher was able to achieve a greater breadth and depth of women's experiences and perceptions on post-operative physiotherapy, which is difficult to determine quantitatively (Ulin, Robinson & Tolly, 2005; Frederikson, Chamberlain & Long, 1996). This method of data collection was also appropriate since it pursued the individual responses and views on fistula management (Creswell, 2012). While qualitative research has been criticised for its subjective characteristic, this is the reason that it enables the collection of individual experiences and perceptions. The researcher is able to access subjectivities and so prompt a sense of the individual within the participant (Parker, 2004).

3.2 Study Population

The population for the study included all women with obstetric fistula who were admitted to the Gynocare Fistula Centre during the time of data collection. Most women were informed of the programme through radio campaigns which were aired throughout the country by WADADIA in partnership with UNFPA. Women who had an obstetric history of prolonged labour prior to their urinary incontinence or both urinary and faecal were selected. They were further classified by the surgeon under Waalidjik (1994) in order to determine the type of fistulae before surgery (Karateke, Cam, Ozdemir, Guney, Vatansever & Celik, 2010). A fistula that involved mild damage to the urethral closure mechanisms meant that continence status was restorable through repair and PFMT. Some of these women were scheduled for VVF plasty while others for colperineorrhaphy, or both. It is these women who were referred for post-operative physiotherapy for two weeks, after which they were discharged without any physiotherapy follow-ups. The facility admitted 91 patients during this period of study from 28th May 2015 -12th July 2015.

3.3 Research Sample

A purposive sampling method was used to select information rich cases for the study (Tongco (2007; Patton, 1990). The researcher employed purposive sampling as a strategic approach for selecting the participants based on their ability to provide rich information (Ulin et al., 2005). This method was based on the judgement of the researcher, taking into account the elements that embraced the most characteristic representatives of the population to be studied (Marshall, 1996). These characteristics included different geographical regions, ethnic groups, and different age groups. The sample incorporated women from different parts of the country at different ages who were able to speak English

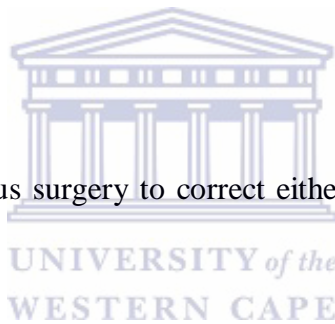
or Swahili, in addition to having communicative proficiency. Thirty two (32) women qualified for inclusion in the study.

3.3.1 Inclusion criterion;

- ❖ Patient was admitted for the first time with either or both recto- and vesico-vaginal fistula
- ❖ Patient had undergone obstetric fistula surgery and was undergoing post-operative physiotherapy management
- ❖ Aged between 16 and 49 years old
- ❖ Ability to speak and understand spoken and written Swahili and English

3.3.2 Exclusion criteria

- ❖ Patient with previous surgery to correct either or both recto- and vesico-vaginal fistula
- ❖ Patient with other medical conditions



3.4 Data Collection Instruments

Semi-structured interviews (SSI) and focus group discussions (FGDs) were used for data collection (Morgan, 1997). The semi-structured interviews were used as the primary strategy for data collection (Bogdan & Biklen, 1982), while the focus group discussions were used to capture group dynamics that were not possible with interviews. Secondly, saturation of data capture was reached by the 10th interview, and the FGDs were therefore also used to validate the interview data. The researcher used semi-structured questions and probes, which allowed the researcher to explore the complexity of the issue under

investigation. It gave the participants the opportunity to respond in their own words and to express themselves fully (Pelto & Pelto, 1997). The interviews also allowed the researcher to control the line of questioning. However, the researcher's presence may also have influenced participant responses so that at times the participants were not equally articulate and perceptive.

According to Kitzinger (1995, p. 299), a focus group discussion in the field of health and medicine "is particularly useful for exploring people's knowledge and experiences and can be used to examine not only what people think, but how they think and why they think that way."

The study used interview guides that made use of semi-structured, open-ended questions with probes for the data collection. Two interview guides were prepared, ten (10) for the interviews and three (3) separate FGDs for the remaining 22 participants respectively. Interview guides included sets of broad questions aimed to steer the interviews and FGDs and the order of the question was not important (Lee, 2008). Interview guides were prepared that would ensure that similar information would be obtained from each participant and set of the focus groups (McNamara, 2009). The researcher was free to probe and explore within the predetermined inquiry areas. The interview guides ensured good use of the limited interview discussion time by making the interviews and discussions more systematic and comprehensive, helping to keep the interactions focused (McNamara, 2009). Interview guides provided more focus than the conversational approach while still allowing a degree of freedom and adaptability in obtaining information from participants. The interview guides (**Appendix H**) were developed based on the literature, research aim, and objectives (Lofland, Snow, Anderson & Lofland, 2001). The interviews and the FGDs

were flexible enough that issues that arose were explored to the satisfaction of the researcher. The subjects gave their views, perceptions and experiences without straying from the aim and objective of the study (Rubin & Rubin, 2011). The order of the questions was not followed, and not all the questions were asked or asked in the same way to all the subjects, and groups. This was done to allow the interviews and discussions to flow as comfortably as possible.

A general question was used to start the interviews and FGDs in order to make the participants comfortable before getting to the finer details of the study. Probes were used whenever it was necessary, the purpose of which was first, to highlight for participants the depth that was desired for responses. The second purpose was to enable participants refine particular responses.

3.5 Data Collection Procedure

Ethical clearance and approval was obtained from the Senate Research Committee of the University of the Western Cape before the study commenced, (**Appendix A**). Ethics clearance was also obtained from the Institutional Research and Ethics Committee at Moi Teaching and Referral hospital (**Appendix B**). Consent to conduct the study were obtained from Gynocare Fistula Center and Maternity Home (**Appendix C**), and from the nursing officer in charge of the inpatient department. The researcher was provided with an opportunity to attend both doctor and consultant ward rounds. This enabled the researcher to make participant selection as they were admitted to the facility. The researcher explained the aim and objectives of the study to potential participants, who were selected based on characteristics as described in the inclusion criteria. When an individual showed

interest in participating, they were provided with the information sheet (**Appendix D**), and later asked to fill in a consent form (**Appendix E**).

The researcher later contacted the participants and scheduled the interview for a time and place that was convenient for them. Participants who gave consent were then formally invited to take part in the study with a letter which included the study information of the study and the researcher's contact details should they require any further clarifications.

During the interviews and FGDs, the researcher introduced herself as a student in physiotherapy and that the project was part of the Master's programme at the University of the Western Cape. Interviews were conducted with participants and stopped when data saturation was reached. That took between forty-five minutes and one hour for each participant. The remaining numbers of participants were divided into three separate focus groups. Each focus group had between six and eight participants. The discussions took between one hour and one hour, thirty minutes. The researcher conducted the interviews and the FGDs with the help of a research assistant. The participants described their perceptions, experiences and opinions on the physiotherapy management they had received post fistula surgery. The interviews and the FGDs were audio recorded and the research assistant took field notes. Saturation was reached when participants were giving the same information that had been given by the other participants or groups.

Three interviews and one FGD were conducted every week until completion of the data capturing period. After every interviews and FGDs, the audio recordings were played back to the participants and the group so as to confirm whether it was a true reflection of the interviews and the discussion, and if necessary, used to provide clarification. This served as member checks and also was meant to ensure that the recorded information was clear

and of good quality. Any changes that arose were made on a notepad and this extra information was later merged into the transcripts. In areas where the researcher wanted more explanations on a topic, she made additional telephone calls to participants. A summary of the analytic categories and subcategories, as well as verbal explanation of interpretations and preliminary conclusions were made, and presented to the first five participants of the interviews and two members of each FGD. They were in agreement that the items accurately reflected the interviews and focus group discussions. All the interviews and the discussions were conducted at the facility since all the participants were inpatients.

3.6 Trustworthiness

Baumgartner, Strong and Hensley (2005) suggest that the concepts of credibility, transferability, dependability and confirmability be used as indicators that aim to increase confidence in the trustworthiness of the findings in a qualitative study. The aim of trustworthiness is to support the argument that the interpretations of the findings are an accurate reflection of what participants reported (Creswell & Miller, 2000)

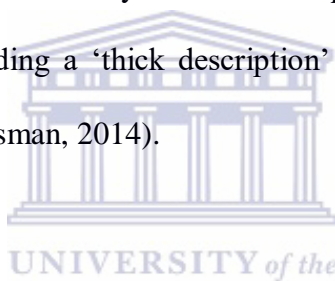
3.6.1 Credibility

Credibility refers to the confidence in how well the data gathering and processes of analysis addressed the intended focus of the research (Graneheim & Lundman, 2004; Polit & Hungler, 1999). To address credibility, the researcher sampled participants from different parts of the country, from different age groups, and included patients with VVF, RVF, and both VVF and RVF, and described them as proposed by Brink (1999). The researcher also gathered information until saturation was reached, used field notes and

member checking after the interview as recommended by Lincoln and Guba (1985). During the process of member checking, 11 participants reviewed a summary of the data analysis and final results of the inquiry. An independent review from two postgraduate students and a peer review by a local supervisor further supported the credibility of the study (Lincoln & Guba, 1985; Woods & Catanzaro, 1988).

3.6.2 Transferability

This refers to the extent to which the findings can be transferred to other settings or groups. The researcher in this study has provided a detailed description of the research methods used during data collection and analysis. This is supported by direct quotes from the interviews and FGDs, providing a ‘thick description’ of the participant experiences and perceptions (Marshall & Rossman, 2014).



3.6.3 Dependability

Dependability refers to the degree to which data may change over time, together with changes in how the researcher makes decisions during the analysis process. In the current study, the researcher addressed dependability by giving adequate information about participants’ verbatim quotes to allow the reader to make their own choices about the interpretation of the verbatim quotes. It was also addressed by the use of a rigorous audit of all data sources and data reconstruction by a local supervisor from Moi University School of Medicine (Miles & Huberman, 1994).

3.6.4 Confirmability

According to Polit and Hungler (1999), confirmability is a sign that the data is sincere and reliable. This was achieved through face-to-face interviews, FGDs, and data

triangulation. Triangulation is a method used to check and establish the validity of a study by analysing a research question from multiple perspectives (Patton, 2002). This was achieved through face-to-face interviews, focus discussions and data triangulation where the study findings were corroborated by the supervisor and co-supervisors, who ensured student documented all procedures of research methodology were consistent with study objectives thought out the study process.

3.7 Method of Data Analysis

Bogdan and Biklen (1982, p.145) define qualitative data analysis as "working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others". Qualitative analysis requires some creativity; the challenge is to place the raw data into logical, meaningful categories, to examine them in a holistic fashion and to find a way to communicate this interpretation to others. The goal of qualitative data analysis is to produce a detailed and systematic recording of the themes and issues addressed in the interviews and the FGDs, and to link the themes together under a reasonable but exhaustive category system (Burnard, 1991).

As stated earlier, thematic content analysis was used to analyse the data (Ritchie & Spencer, 1993). This approach includes a clear and visible research method where the analysis is based on predetermined themes as well as the interview and discussion data (Creswell & Miller, 2000). Data analysis in this study began by translating the interviews and discussions from Swahili to English by a specialist in linguistic services, and then transcribed verbatim by a professional transcriber.

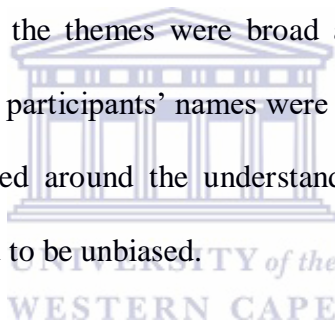
Data analysis entailed the preliminary familiarisation with the data (Graneheim & Lundman, 2004). The first analytic process was to make the amount of data more manageable while at the same time maintaining quality (Silverman, 2013; Graneheim & Lundman, 2004). The researcher went through every sentence and decided if it was related to the aim and objectives of the study, assigning codes to each sentence in order as a way of designating it as a meaningful unit. The researcher assigned a short descriptor (code) to each meaningful unit as a means of reference. The researcher then grouped codes together and named them to form themes. Having all pieces of the text related to a common theme together in one place enabled the researcher to identify new sub-themes and to explore them in a greater depth (Ulin et al., 2005). This process was repeated for other transcripts, and new patterns that emerged under each theme were noted.

Associated patterns were then joined and categorised into sub-themes. Themes were identified by means of putting together pieces of ideas, perceptions, views, opinions or experiences, which had little or no meaning when observed alone (Silverman, 2013; Graneheim & Lundman, 2004). In this way, all the important pieces of the transcripts were put together as one, according to the thematic approach (Elo & Kyngäs, 2008). This outline was then used for the whole dataset that was relevant to the study aim and objectives. The themes were developed out of the emerging issues from participants, with analytic themes emerging from the data and the aim and objectives of the study. The clusters were then examined to determine the varieties and classes within every theme, and the relations and patterns among themes were established.

Themes that arose from the participants were then merged to form a complete picture of the collective perceptions, needs, views, opinions and experiences of all participants.

However, the consistency of the ideas rested with the researcher who had rigorously studied how different ideas or components fit together in a meaningful way (Leininger, 1985). Therefore, the analysis was certainly subjective, with the likelihood that other researchers could find different themes from the same data. When gathering sub-themes to obtain a comprehensive view of the information, it was easy to see a pattern emerging. The next step was to construct a suitable argument for deciding on the themes in order to present the final interpretative analysis of the data. It was not a clear-cut procedure, as the data needed to be revisited several times to filter and classify the developing themes.

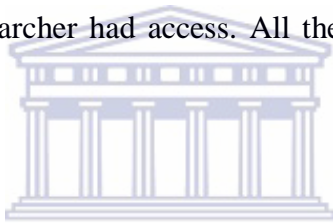
Discussions with two colleagues and a local supervisor who were also involved in the data analysis process agreed that the themes were broad and sufficiently comprehensive. In order to maintain anonymity, participants' names were changed and cited using codes. The research analysis was planned around the understanding of these discussions and was controlled in ways that aimed to be unbiased.



3.8 Ethics Considerations

Ethics approval to conduct the study was obtained from the Senate Research Committee of the University of the Western Cape (Ref.No.15/4/60) (**Appendix A**). Further permission was granted from the Institutional Research Ethics Committee (IREC) Committee at Moi Teaching and Referral Hospital (Ref.No.IREC/2015/33) (**Appendix B**) and the Gynocare Fistula Centre and Maternity Home, Kenya (**Appendix C**). Authorization for taking pictures and using it as illustration was sought as well as consent was obtained from each participant whose facial identities were obscured. Also consent was obtained from each participant and caregivers for those who were below 16 years old. Informed consent forms were signed by those who were willing to participate in the study. To ensure confidentiality, the researcher

ensured that participants remained anonymous, changing their names and identifying them using codes. The researcher afforded all participants the opportunity to withdraw their consent in accordance with the principles of qualitative research. Translation of the information sheet, consent form and focus group discussions were taken to a registered company which offers linguistic services so that they could be back to back translated from English to Swahili which is the local language for general public with different dialectic from different parts of the country (Appendix D(i), E(i) & F (i)). Using these translated Appendices the objectives of the study were explained to women and caretakers in the second largest native language. Audio recordings and other research materials were kept under lock and key where only the researcher had access. All the research material will be kept for 5 years.



3.9 Summary of the Chapter

The chapter described the research setting where the study was conducted and also presented the approach that was used for data collection. The study design, study population, sampling method, study sample and instruments were described together with the motivation for using these methods. The procedure for data collection and analysis were also explained. The chapter concluded with the ethics issues relating to the study.

CHAPTER FOUR

FINDINGS

In this chapter the findings of the study are presented in the form of qualitative thematic content. The findings included the participants' experience and perceptions of post-operative physiotherapy management at Gynocare hospitals in Kenya. The data was collected from ten (10) semi-structured interviews and three FGD for women suffering from obstetric fistula. Participants' quotes have been highlighted where they are appropriate to the discussion. The quotations alongside each of the identified themes and sub-themes have been extracted from the interviews, and are presented in inverted commas and in italic to differentiate them from the main body of text. Materials that are not relevant to the discussion have been removed and highlighted with "(...)". For the purposes of anonymity and confidentiality transcribed quotations from the semi-structured interviews will be highlighted by cryptogram **SSI** followed by participant **(P)** and number allocated (**SSI (P.No.)** and the FGDs **G (no)** (P. No) from **001 to 032** to represent the data extracts. The FGDs were numbered G1, G2 and G3 and had the following number of participants; G1 (n=8), G2 (n=6) and G3 (n=8).

In the current study, predetermined themes as well as themes that emerged from the interviews and discussions were developed based on the objectives of this study. Part one presents womens' experiences and perceptions of post-operative physiotherapy management. Part two presents the ways in which post-operative physiotherapy was administered, and parts three and four presents the results regarding the delivery of physiotherapy management, and challenges with experience of physiotherapy services respectively. In this section there are three tables which will be numbered from 4.1, 4.2 and

4.3. Table 4.1 and 4.3 present's demographic characteristics of the study sample. Table 4.3 presents themes and sub-themes that emerged from semi-structured interview and FGD. The chapter ends with a summary of the findings.

4.0 Demographic characteristics of the study sample (n=32)

Social demographic data describes the characteristics of the participants who took part in the current study. These features of the participants are presented in Table 4.1 for semi-interviews and 4.2 for FGDs. These tables describe the women who were involved in physiotherapy management at Gynocare Hospital. The tables (4.1 & 4.2) also presents the characteristics of women with VVF and RVF that related to the study inclusion criteria. Ten women with VVF and a few with both VVF and RVF participated in the semi-structured interviews, while 22 participants were involved in three different FGDs.

Semi-structured interviews were intended to provide information on the womens' experiences and perceptions of post-operative physiotherapy at each individual level, without the influence of others. The FGDs captured information around group dynamics and the collective understanding of how and why participants reported having certain experiences and perceptions about post-physiotherapy. In addition, FGDs enabled the researcher to evaluate existing programmes for women with residual urinary incontinence.

Detailed descriptions are shown in Table 1 below:

Table 4.1: Participants characteristics in Semi-structured interviews

Patients Code numbers	Age	Marital status	Residence	Occupation	Type of fistula	Years lived with fistula	Obstetric fistula surgery	Physiotherapy intervention(s)	Knowledge and Awareness of physiotherapy
002	49	Divorced	Rural	Casual labourer	VVF	27	VVF Plasty	PFMT	Not aware
003	49	Married	Rural	House wife	VVF	10	VVF plasty	PFMT	Not aware
007	27	Married	Rural	House wife	RVF +VVF	7	RVF colperionearrphy +VVF plasty	PFMT	Not aware
010	43	Widowed	Rural	House wife	VVF	28	VVF Plasty	PFMT	Not aware
011	49	Single	Rural	House wife	VVF	32	VVF Plasty	PFMT	Not aware
012	49	Widowed	Rural	House wife	VVF	32	VVF Plasty	PFMT	Not aware
013	45	Separated	Rural	House wife	VVF	10	VVF plasty	PFMT	Not aware
014	18	Single	Rural	Student	VVF	5	VVF Plasty	PFMT	KNH
016	28	Married	Rural	House wife	VVF	3 months	VVF plasty	PFMT	Not aware
020	31	Separated	Rural	House wife	VVF	3	VVF Plasty	PFMT	Not aware

Table 4.2: Participants characteristics in FGDs

Participants Group	Age	Marital status	Residence	Occupation	Duration of fistula	Type of fistula	Obstetric fistula surgery	Physiotherapy interventions	Knowledge and awareness of physiotherapy
GROUP 1									
G1-004	33	Married	Rural	Housewife	6 months	VVF	VVF Plasty	PFMT/E	MTRH
G-005	28	Married	Rural	Housewife	6 months	RVF +VVF	VVF plasty + colperinearrphy	PFMT/E	Not aware
G-006	20	Separated	Rural	Housewife	4	VVF	VVF plasty	PFMT/E	Not aware
G-008	29	Married	Rural		4	VVF+RVF	VVF plasty	PFMT/E	Not aware
G-018	25	Married	Rural	Housewife	6	VVF	VVF Plasty	PFMT	Not aware
G-029	25	Separated	Rural	Housewife	5	VVF	VVF plasty	PFMT/E	Not aware
G-031	29	Married	Rural	Housewife	7	VVF	VVF Plasty	PFMT/E	Not aware
G-032	41	Divorced	Rural	Housewife	17	VVF	VVF plasty	PFMT/E	Not aware
GROUP 2				Housewife					
G-001	18	Separated	Rural	Housewife	4 months	VVF	VVF Plasty	PFMT/E	Not aware
G-015	45	Separated	Rural	Housewife	9	VVF	VVF Plasty	PFMT/E	Not aware
G-017	48	Widow	Rural	Housewife	30	VVF	VVF Plasty	PFMT/E	Not aware
G-019	45	Separated	Rural	Housewife	4	VVF	VVF plasty	PFMT/E	Not aware
G-028	28	Married	Rural	Housewife	3 months		VVF Plasty	PFMT/E	Not aware
G-030	41	Separated	Rural	Housewife	5	VVF	VVF plasty	PFMT/E	Not aware
GROUP 3									
G-009	49	Widow	Rural	Housewife	32	VVF	VVF	PFMT/E	Not aware

G-021	16	Divorced	Rural	Housewife	5 months	RVF+RVF	VVF plasty +colostomy	PFMT/E	MTRH
G-022	19	Separated	Rural	Housewife	1	VVF	VVF plasty	PFMT/E	Not aware
G-023	22	Separated	Rural		2	VVF	VVF plasty	PFMT/E	Not aware
G-024	26	Separated.	Rural	Housewife	6	VVF	VVF plasty	PFMT/E	Not aware
G-025	49	Separated	Rural		24	VVF	VVF plasty	PFMT/E	Not aware
G-026	21	Divorced	Urban	Business woman	1	VVF +RVF	VVF plasty	PFMT/E	KNH
G-027	36	Married	Rural	Housewife	5	VVF	VVF Plasty	PFMT/E	Not aware

Key: **VVF**-Vesico-vaginal fistula; **RVF**-Recto-vaginal fistula; **KNH**-Kenyatta National hospital; **MTRH**-Moi Teaching & referral hospital; **PFMT/E**-Pelvic floor muscle training/exercises.



The age of the participants ranged from 16 to 49 years. The majority of the women were housewives who were dependent on their husbands. One was a casual labourer another one was still in school. The majority had come from rural areas (n=31) while one was living in an urban area. The majority were reported to have suffered obstetric fistula due to delays in seeking medical interventions. Eleven participants had home deliveries with the help of traditional birth attendants and all lost their babies. Twelve participants delivered at the hospital through caesarean section but also lost their babies. Seven participants had live births, two of which were diagnosed with cerebral palsy, and the remaining participants had still births. Only nine (9) participants had suffered obstetric fistula for fewer than three (3) years.

The most common type of obstetric fistula surgery performed on this group of participants was vesico- and recto-vaginal plasty. However five (5) participants had both RVF and VVF. Thirty two (32) had undergone obstetric fistula plasty and RVF colperioneorrhaphy. All participants were referred for post-operative physiotherapy management at Gynocare. Only four participants were aware of exercises and the rest were not aware of physiotherapy management for urinary incontinence. Most participants (n = 32) reported to have been provided with exercises at Gynocare following their obstetric fistula repair surgeries.

4.1 Development of Themes

The themes in the current study were predetermined based on the objectives of the study and the available literature. The study also elicited some informative first-hand insights from women with VVF and RVF with regard to post-operative physiotherapy management. The predetermined and emergent themes formed four main aspects of fistula management post operatively, including:

- Perceptions of physiotherapy
- Perceptions of post-operative physiotherapy management
- Experience of pelvic floor muscle training (PFMT)
- Perceived challenges regarding accessibility of physiotherapy following discharge.

Table 4.3: Themes and related categories

Themes	Categories
1. Perceptions of physiotherapy	<ul style="list-style-type: none"> • Patient awareness of physiotherapy • Interdisciplinary team awareness of physiotherapy • Understanding of physiotherapy management
2. Perceptions of post-operative physiotherapy management	<ul style="list-style-type: none"> • The PFMT implementation process • Learning in groups • Home exercise programmes
3. Experience of PFMT	<ul style="list-style-type: none"> • Positive experiences after PFMT • Negative experiences after PFMT • Ambivalence regarding PFMT
4. Perceived challenges regarding accessibility of physiotherapy following discharge.	<ul style="list-style-type: none"> • Socio-economic challenges • Lack of availability of physiotherapy services • Difficulty complying with home exercise programme

Each of these themes has various categories. Supportive quotes from participants are presented. The post-operative physiotherapy management will be described as narrated by participants from the time of admission at Gynocare Fistula Centre to the time of their discharge.

4.1 Theme 1: Perceptions of physiotherapy

During their interview of their perceptions, women talked about a number of issues related to the way they got to know about physiotherapy management of their condition. Most women were not referred for physiotherapy management in their previous referring hospitals as well as report lack of the awareness of physiotherapy within interdisciplinary team. In addition, patient lacked understanding importance of physiotherapy management of their conditions.

Responses from participants provided insight on the perceptions of post-operative physiotherapy management. These perceptions were classified into three categories: Patient awareness of physiotherapy, interdisciplinary team awareness of physiotherapy, and understanding of physiotherapy management. The three categories are presented in the next section, supported by quotes from the participants:

i) Patient awareness of physiotherapy

Overall, there was a gap in the knowledge and awareness of participants around the fact that there were trained physiotherapists who managed stress urinary incontinence in the health system. The majority of participants were therefore only cognisant of obstetric fistula surgery. The majority of participants reported that it was their first encounter with physiotherapists in managing their condition, which they had not experienced in other health facilities:

“...it is my first time to know there are doctors trained to treat people with exercises. The hospitals have ever gone I have never come across physiotherapists” (SSI-P003).

“... It is only in this place having meet doctors who treat using exercises. I did not know exercises can treat” (G2-P015).

The majority of participants (n = 28) did not know that physiotherapy existed and that it was an important component of managing residual urinary incontinence, despite public awareness campaigns by Action to End obstetric fistula in Kenya. These participants remained unaware what physiotherapy meant for the management of their condition. Some understood exercise as a form of fitness but did not link it to restoration of body function. The following were some of the supportive quotes:

“... To my understanding physiotherapy is physical exercises done by pupils during schools breaks. But telling me to do exercises for treatment I don't understand how it can treat a health condition! But with the several sessions have realised exercises treats my condition. Let there be awareness of what physiotherapy is” (SSI-P010).

“....it is my first time to know there are doctors (physiotherapists) trained to treat people with exercises. The hospitals have ever gone I have never come across physiotherapists” (SSI-P003).

ii) *Interdisciplinary team awareness of physiotherapy*

The majority of participants felt that the other healthcare providers did not acknowledge physiotherapy as an important component in the management of VVF and RVF. They felt that there other members of the interdisciplinary team should understand that the physiotherapist plays an important role in restoring pelvic floor muscle function after childbirth injury. Four out of 32 participants reported being referred for physiotherapy after their caesarean sections but the rest complained that they had been discharged without referral for physiotherapy management:

“No exercise (physiotherapy) was prescribed for me after caesarean section. It is only here (Gynocare) where I think physiotherapy is done for treatment of this condition” (SSI-P010).

“For the three deliveriesI have not been referred to physiotherapy or heard about it from another patient. It is only here (Gynocare) physiotherapy is administered for this condition” (G2-P001).

iii) *Understanding physiotherapy management*

The 32 women did not show any understanding of what physiotherapy was what it involved, and why it was necessary for the management of stress or residual urinary incontinence. Twenty-eight of the women had not been treated for their conditions with exercises, despite going to several hospitals seeking treatment for incontinence. These women understood exercise as a form of fitness but did not link it to restoration of continence following childbirth injury;

“...it is my first time to know there are doctors (physiotherapists) trained to treat people with exercises. The hospitals have ever gone; I have never come across physiotherapists” (SSI-P003).

“... It is only in this place have meet doctors (physiotherapists) who treat using exercises. I did not know exercises can treat” (G2-P015).

iv) Women’s perceptions on physiotherapists

The majority (n = 29) of participants felt that the physiotherapists were to be blamed for their poor perceptions and understanding of physiotherapy management. They added that physiotherapists in Kenya had not done enough to create awareness on the ground concerning their role in fistula management.

“I would also blame the physiotherapy fraternity, they have not done enough awareness concerning their involvement in management of fistula” (SSI-P014).

“Physiotherapy is an unknown line of healthcare; I did not know who a physiotherapist is until I came here. They need to make their services known to the Kenyans” (G1-P004).

Other participants blamed the Ministry of Health for not posting physiotherapists to all levels of healthcare facilities to ensure that the necessary medical services were delivered to relevant patients.

“...not all hospitals have physiotherapists, the government should ensure that all hospital have physiotherapist. Take an example the health centre in the rural areas where a lot of women go for delivery, you will never see a physiotherapist there” (SSI-P011).

“...the government is to blame for some extend. They only post physiotherapist to the big hospital and forget the small hospitals where the large population is....” (G1-P032).

4.2 Theme 2: Perceptions of post-operative physiotherapy management

During interviews some women made some statements related to interventions used to manage their condition. Women talked about the need to have prior physical examination to enable them monitor their progress. Learning how to execute groups exercise was embraced as it formed point of reference and identity. Others saw verbal instructions for home programme as an easily forgottable information over time and needed a written form of PFMT demonstration to act as point of remained following discharge. Three categories were analysed for this theme and will be presented as follows; the PFMT implementation process, learning in groups and Home exercise programme.

i) The PFMT implementation process

Obstetric fistula surgery, and pre- and post-operative physiotherapy were reported as being part of the core management of this condition by all participants. They all reported to have been managed with pelvic floor muscle training/exercises.

“Only exercises are what we did” (SSI-P004).

“It was only exercises which we have been doing” (G 1-P005).

The major issue that was dealt with in their programmes was to reduce the intra-abdominal pressure that interferes with the healing process. Therefore, physiotherapy management was often geared towards the avoidance of ADLs. All the participants were in agreement that co-contraction of abdominal muscles were taught as well as the precaution measures to be taken.

“I was taught on how to do at least some activities at home and how to do that without putting pressure in my stomach” (SSI-P020).

“I was told to reduce the heavy work that I used to do to prevent pressure in my abdomen” (G3-P027).

Unfortunately, there was lack of electrotherapeutic modalities for the management of foot drop and lower limb weakness. In Kenya most hospitals lack appropriate physiotherapy equipment in both private and government institutions. Thus, all participants reported that they had been managed with exercise. The following were some of their responses:

“No machines were used to treat us. It was only exercises” (SSI-P003.)

“I did not see anything else, it was exercises” (G3-P025).

The participants described some challenges in the process of implementing physiotherapy treatment. Thirty (30) women highlighted the need for an examination prior to initiation of the group sessions. Women believed that this would have ensured that each of them was doing the right PFM.

“I guess examination would be necessary. ...if exercises are form of treatment to my condition then, I need to be assessed if am doing exercise wrongly so I can be corrected. If I am doing well, then I will keep up” (SSI-P016).

“The therapists just gave us instructions but did not confirm whether each of us was doing the right thing!”(G3-P027).

Unfortunately, some of the women remained sceptical with respect to vaginal digital examination by the therapist to confirm whether they were correctly contracting their PFM prior to and after the PFM sessions. The following were some of their responses:

“If examination (digital palpation) is the procedure, let it be done that way. But if there is no another way each patient can examine themselves, fine” (SSI-P020).

“I don’t mind though there is no privacy but it is good to know my progress” (GI-P008).

“I guess examination would be necessary. Because if exercises are form of treatment to my condition then, I need to be assessed if am doing exercise wrongly so I can be corrected. If I am doing well, then I will keep up.”

ii) Learning in groups

The majority of participants reported that PFMT was performed in a group, and they expressed satisfaction with the group exercise sessions:

“We carried these exercises as a group” (SSI-P012).

“It was exercises that we performed as a group” (GI-P032).

The group physiotherapy exercise class was performed under physiotherapist supervision. The participants pointed out that it was okay for them to be clustered into the group as it gave them a sense of identity and belonging. They pointed this out as a motivational and unifying factor.

“Being in a certain group for exercises gave me a sense of belongingbecause all suffered the same condition” (SSI-P013).

“In that group we became like a family” (G3-009).

Other participants reported using group therapy as a point of reference, in case they were not sure on how to execute the PFM exercises. The quotes were as follows:

“It is okay performing exercises as a group. We encourage each other and even if a new patient did not understand on how to carry out the exercises we are all able to direct her” (SSI-P020).

“It was fine (group).we all suffer from same condition” (G3- P009).

All participants were in agreement that verbal instructions were the only way that exercise prescriptions were presented to them:

“The physiotherapist tells us to squeeze and hold muscles within our buttocks and private parts for several counts while counting for us....” (SSI-P003).

“The exercises which I was shown were for squeezing the pelvic, abdomen and buttocks” (G3-P027).

In addition, the PFMT/E dose and starting position were verbally described to participants. Each participant was required to demonstrate how PFMT was carried out during the course of treatment regime. The number of sets and repetitions of exercises were reported to be the same as it was advised for self-management:

“Exercises were carried out three (3) times a day. These sessions were in the morning, at lunch hour and before going to the bed. There are 3 positions; lying on bed, sitting and standing up in which we performed several exercises. Each set of exercise hold was followed with a count of 6 seconds, then a release each, 10 repetitions. Then to the next until all was over. This was repeated individually in the morning and evening” (SSI-P010).

“We were either lying on bed, standing or sitting on bed edge. Then squeezed our buttocks pulling inwards, held the squeeze for 5-6 seconds count, repeated

for 10 each exercise, up to 6 different types in the morning , lunch hour when the therapist used to come then in the evening” (G1-P031).

iii) Home exercise programme

The home exercise programme was also reported by the majority of participants as the only way PFMT/E was progressed after discharge for self-management of their residual urinary incontinence back at home. Participants were aware they had to carry on with PFMT at home for a period of 6 months following discharge. The participants responded as follows:

“...I will continue with exercise for the next 6 months or more that is what the physiotherapist said” (SSI-P014).

“ ... I just go home and carry on with the prescribed exercises” (G3-P009).

All women appreciated the verbal instructions from the physiotherapist, as it guided and encouraged them to perform these exercises during various activities of daily living. However, there was a lack of PFM progression protocols to ensure compliance of PFM rationale:

“I was advised to continue with the same exercises. After three month I did not know what else to do because I had improved” (SSI-P013).

“She (therapists) only advice on what to do when she goes home, but not for the entire period. I think it’s important to have the step by step ways on how to move from one type of exercises to another ...” (G1-P031).

Verbal instructions by the therapists remained a challenge following discharge from the hospital. Some expressed a need to be provided with well-illustrated diagrams or

brochures for further reference. Compliance to self and home exercise programmes was agreed upon but there were no established strategies for reinforcement or progression over time. For example, measurements such as daily dairies and mobile clinics were not provided. However, the majority of participants revealed their willingness to comply with the physiotherapists' advice. Some pointed out a variety of challenges that seemed to interfere with the home programme approach, which could have been mitigated by the use of PFM brochures. Some participants reported a need for more PFM instructions apart from the verbal instructions that had been given to them at discharge:

“Exercises are not easy. If possible let there be drawn diagrams that can reminder us of the exercises shown here in case one forgets. Sister I told you it not possible to have physiotherapist at rural hospital that can make follow-ups with these exercises” (SSI-P002).

“...But let there be physiotherapy pamphlets issued before discharge containing these exercises. In case one forgets you have a point of reference” (G2-P017).

Compliance with home exercise programmes were cited as a challenge, possibly because they lacked outcome measures. Participants reported that the physical examination for PFM was dependent on patient-reported symptoms that were not quantified. All women were in agreement that there was an absence of objective assessment tools prior to and after PFMT/E. Some reported joining the group exercise sessions without any form of examination. This lack of baseline assessment might mean incorrect treatment, progression and prognosis. The following quotes highlight the concerns of some participants:

“No examination was done. Therapist would come in and each would lie to their beds or stand then we would just start without any examination” (SSI-P016).

“I was not examined I just joined the rest of the women and continued with the exercises” (G3-026).

All women vowed to comply with home exercise programmes back at home after they found positive results. But their PFM frequency and rate of recovery would not be significantly monitored nor guaranteed as there were not proper follow-up arrangements. Six women pointed out that their domestic duties would disrupt their home exercise programme but that nothing was done about it. It is at this point that a schedule of intensive supervised physiotherapy would be needed, in order for pelvic floor muscle training to be effective. Some participants revealed a tendency to not comply with ward and even home programmes due to several challenges. Their family roles were viewed as some of the challenges that they thought would interfere with exercise adherence:

“... I will try and carry on with them although home chores might make me forget. But I will try not to” (SSI-P003).

“A lot of family duties may interfere with the exercise plan (program). This may make me forget to carry on with my home programme” (G3-P023).

4.3 Theme 3: Experience of pelvic floor muscle training (PFMT)

During their narration of experience, women talked about different effect of PFMT to their residual urinary and fecal incontinence after an obstetric fistula surgery. Data analysis highlighted, three categories of womens' experiences of post-operative physiotherapy management emerged. These categories are discussed below.

(i) Positive experiences after PFMT

Most participants reported that incontinence had a significant negative influence on their personal lives. However, twenty participants reported tremendous positive experiences after starting with PFMT/E. This is illustrated in the following quotes:

“When I got this incontinence problem, life has never been the same again, I became like a social outcast. No one wanted to interact with me, but I don't blame them, I always smelt” (SSI-P014).

“After I was started on the exercises, there was a big change. At least I would be able to control urine. These for me, it meant a lot” (G2-P 015).

Negative impacts of obstetric fistula were reported by all participants. Uncontrollable urine leakage was said to have caused undesirable bad odour. This had led to emotional disturbance, rejection, and being ostracised to the extent of getting divorced.

“...So many times the whole compound would smell urine. My husband married another woman” (SSI-P010).

“For me I was not able to walk, even to go to my neighbours' houses or even prepare food for any one. The urine was all over where I went. I used to leave in fear especially when visitors were around...”(G1-P001).

However, improvements that were secondary to PFMT/E made it possible for the participants to interact with others freely and their social roles, social inclusion and community participation. These aspects were highlighted in the following quotes:

“I will go to church and even to the market place. I will take care of my children much better because I will increase my farming....I will wash clothes

without shivering like the way I used to be. Back home I will attend to my farm hoping all is going to be okay after all these treatments” (SSI-P012).

“Once well I will expand my business, get other husband to marry and give birth to two children” (G3-P026).

Likewise, participants reported that PFMT/E had significantly improved their physical lives. Fourteen (14) participants reported to take up their roles in managing household tasks, which initially had been compromised due to VVF and RVF. The impairments meant that women had withdrawn from cooking in their kitchens and prevented them from taking an active role in their family. The improvement in health status and subsequent improved quality of life was attributed to the positive effects of post-operative physiotherapy:

“Imagine (after these exercises) I can now go to the market buy foodstuff for my family, previously it was very difficult due to the fact that it could not be possible for the reason that I had to change my pads frequently”(SSI-P016).

“I am happy.... after these exercises I will ... remain dry for some time, I used to be soggy and packed with soggy pads” (G2-P 015).

Similarly, the majority of participants had planned to resume their income generating activities. One participant stated:

“I can now go back and continue with my business, it’s very difficult to sell groceries in the market when you are smelly. No customer comes to your stand. But now I will go back” (G2-P001).

While another participant commented:

“I will now start some business, at least am okay and have no fear of rejection by the society” (SSI-P002).

A minority of these participants were passionate about educating the public on fistula after their positive experiences with exercises. They vowed to engage in active fistula awareness campaigns. The following statements highlighted this:

“I know there are women out there who are suffering like I was; I will take part in fistula campaign and at least save someone from a life of condemnation. I know how bad it can be” (SSI-P003)

“Many women are suffering with fistula, I will take part in making women aware that fistula can be treated” (G3-P027).

Obstetric fistula had pushed some participants into a life of relative slavery. Frequent wetness demanded regular bathing, changing of rags, and daily washing of clothes, which translated to a high cost of living. However, with the positive effect of PFME, the majority of the participants reported a reduced cost of living as well as a reduction in their incontinence. Two participants responded as follows;

“...my cost of living will go down, this is because I will no longer need to use a lot of pads and detergents for frequent washing” (SSI-P013).

“ I no longer need to buy large amount of washing soap, now I can wash cloth at least three times a week, as opposed to previously where I had to wash cloth twice a day”(G2-P001).

Exercises had been reported by many participants to enable them to control their incontinence and restore body function. This allowed them to live without worrying about wetting themselves during the day and at night. The positive effect of PFMT

reduced the rate of changing inner wears leading to an improvement in sleeping patterns. This was supported by the following quotes:

“...Because of exercises I can sleep so well without any fear. Before operation I used to wake up after every one hour to change my underpants. Those days I can go at least for six hours, often time I wake up only once in the night” (G3-P009).

“...with this exercises I have already stopped smelling urine; I can sleep without walking up in the middle of the night. I am not worried of soiling myself in night. I feel life is back to normal” (SSI-P003).

In addition, findings revealed how participants had experienced reduced urinary and or faecal incontinence with the post-surgery physiotherapy management. The PFM training had changed their impairment and restored their body function:

“...since exercises I am better I can squeeze up and hold on urine not like before it just used to flow. I did couldn't tighten my private parts couldn't control urine from leaking” (SSI-P012).

“It used to leak a lot. Performing these exercises has helped me hold the urine back (G1-P005).

Self-care and assuming normal dieting was reported to have been associated with participants' ability to control and hold urine. These could not have been maintained with continuous urine leakage.

“I will dress like other women, eat and drink well. More so I will attend to the farm and attend each and every community work” (SSI-P010).

“...with exercises I can now maintain woman’s beauty. Dress smartly, put a little perfume and walks shoulders high like other women in our clan” (G2-P028).

(ii) Negative experiences after PFMT

Four participants reported no positive outcomes with PFMT. These four appeared to have negative attitudes as they explained how they had lost hope with regards to treating and managing their conditions. These were expressed as follows:

“For the two sessions (exercises) I have not experienced any difference. But I can tell you the operation (fistula surgery) helped me a lot “(SSI-P010).

“Am still leaking urine despite all the exercises.....”(G3-P021).

Four women did not report having experienced the desired effect of PFM training. They had had lived with negative perceptions that their condition was untreatable and they did not adhere to PFMT. Even though admission to Gynocare fistula centre ought to have changed their health, some remained sceptical even after witnessing positive reports of PFM from other participants:

“..... I don’t think it (exercises) can treat this condition alone without surgery. But I can tighten my perineum which I could before I came here” (SSI-P003).

“.. I am still leaking urine despite all the exercises. But my foot is okay now I can put on shoe and walk up and down the hills” (G3-021).

(iii) Ambivalence experiences after PFMT

A minority of participants reported having mixed experience with PFMT/E. Some complained that obstetric fistula repair, and the associated post-operative physiotherapy management did not relieve their urinary symptoms completely. It is from these mixed feelings that some reported that their ability to control urine leakage did not last long:

“Yes (physiotherapy have helped me). Although am still leaking urine but not as much as I used to before I started performing those exercises” (SSI-P002).

“(With exercise)...I can control urine but not all the time. Sometimes if I tighten up, it won’t leak but it hard to hold that way up to the toilet. So sometimes it will leak before reaching the toilet” (G1-P018).

4.4 Theme 4: Perceived challenges regarding accessibility to physiotherapy services following discharge

Most of the women had no money and were living in poverty. Majority (29) were housewives and dependent on their husbands. To access available physiotherapy services following discharge needed a considerable amount of transport money for lengthy distance travel and high cost of physiotherapy services in private and public hospitals. Women were not certain of adhering to the home exercise programme for six month but hoped this could have been possible if their were issued with pamphlets for a remained and referrals to nearby hospitals which was not possible due to lack of physiotherapy services. This theme elicited four (4) categories: socio-economic challenges, lack of availability of physiotherapy services, and difficulty compying with home exercise programme.

i) Socio- economic challenges

All participants admitted to the Gynocare Fistula Centre had physiotherapists who attended to them. These services were offered at no cost, unlike other government facilities where physiotherapy is offered at a fee of 300 Kenyan Shillings per exercise session, which is not affordable for many patients; contrary to other referral hospitals where all medical services are payable and not accessible to all.

The following were some of the responses:

“.... Patients’ here are treated free and even we are send bus fare from our homes to come to Gynocare Fistula Centre. Sometimes from the bus station they come for us with car taxi to this place and vice versa. They even pay for the theatre and exercises fee. I don’t have any energy left to work for bus fare. Only well-wishers can make me move from point A to Point B. Not me” (SSI-P 002).

“These government hospitals they can’t treat you if you have no money and even they can’t referral you to other hospitals where you can be treatment for free. Other hospitals were viewed to be in business, making money and not providing medical services to the sick....” (G1-P005).

Twenty-nine of the participants were housewives who depended on their husbands for their livelihoods. Most of them lived in rural areas and had to walk several kilometres to access transport in order to get to health care facilities. Transport and treatment costs, as well as lengthy distances travelled, were also cited as challenges they had to overcome. These were made worse by poverty among the participants. The direct costs incurred were highlighted as having influenced their decision in seeking PFM intervention on follow-ups:

“...if I want to have supervised sessions I may be forced to come to Gynocare Fistula Centre which might not be possible for me. This place is far from home and costly to pay for my transport yet I don't have the resources” (SSI-P002).

“I will prefer to come to this place (Gynocare) but again coming all the way is very expensive and I know my husband cannot afford, he is a casual labourer and we have six children to take care of” (G1-P018).

High medical expenses were identified and labelled as being unaffordable and would be better off exempted in order to enable access to physiotherapy management.

“some other private hospital am told offer physiotherapy services but we have to pay 2000 kenya shillings every time you are seen” It is difficult to pay for these treatments for most of us” (SS1-P016).

“At the sub county hospital we can get the services, but we have to pay from our pockets, 300 Kenya shillings per session is very expensive. I can’t afford!” (G1-P004).

Poverty was cited as being a key challenge to delayed obstetric fistula surgery as well as for continued physiotherapy services following discharge. To some participants their year of living with obstetric fistula without taking any initiative to seek treatment was attributed to a lack of financial means:

“I did not have money to pay for any medical services. I only did casual jobs to feed my children.” (SSI-P002).

“I have stayed with this condition for 30 years because I did not have money. How else would have had the money to cater for surgery and physiotherapy?” (G3-P009).

Only one woman was willing to pay for physiotherapy services in the Gynocare if these services were not for free. The rest were reluctant to make payments:

“ I would not have come for exercise ... I did not have money to pay for any medical services”(SSI-P002).

“...I would have stayed at home because I don’t have money to pay for physiotherapy services” (G3-P024).

Thirty women were resistant to seeking physiotherapy services in private and government hospitals but preferred to be treated back at Gynocare Fistula Center, which also seemed to be expensive in terms of distance traveled, bus fare and time spent:

“... if I want to have supervised exercise (sessions) I may be forced to come to Gynocare Fistula Center which might not be possible for me. This place is far from home and costly to pay for my transport” (SSI-P002).

“I will prefer to come to this place (Gynocare) which is expensive, because in Migori hospital no physiotherapy was prescribed for my condition” (G1-P018).

a) Lack of availability of Physiotherapist services

Twenty-four participants had undergone cesarean sections in their previous hospitals and reported that post-operative physiotherapy had not been prescribed in those situations. It was not clear if there were any physiotherapists working with Gynecology and Obstetrics patients’ at the middle level hospitals where these participants were referred from:

“Let the MOH post doctors and exercise doctors to County hospital who are in position of delivering their services as needed. ...” (SSI-P012).

“Mighty be they (physiotherapists) are not posted to serve patients the district hospitals. I don’t know” (G3-P025).

In addition, participants did not know where they could access physiotherapy services two weeks post-discharge at the County and Sub-County hospitals. Most participants said that they would find out where physiotherapy was available:

“.... It is my first time to been treated with exercises. But once discharged I will make sure I get to know more about physiotherapy in the near hospital” (SSI-P020).

“Yes I will go if am assured there are physiotherapy services. When I was admitted there I did not see them” (G2-P015).

b) Difficulty complying with home exercise programme

Physiotherapy services were reported to be inaccessible and unavailable in the lower level health facilities where most of these women were referred from. Others did not imagine physiotherapy might be available in rural or local hospitals as they had not been managed or referred for it:

“It is not easy (to have physiotherapists). They are not there. If they were there I believe people would have informed me about physiotherapy for my condition because I don't hide about my condition” (SSI-P002).

“If there are physiotherapists at Kabernet hospital, I was never referred to them. It is my first time to be prescribed exercises at Gynocare Fistula Center” (G1-P005).

Most participants reported challenges with prior health education and these women did not understand how PFMT worked for their incontinence. Women with this condition needed to understand the importance of post-operative physiotherapy management, which would facilitate compliance. Suggestions for the use of pamphlets were recommended for clear demonstration of PFM training:

“Exercises are not easy. If possible let there be drawn diagrams that can remind us of the exercises shown here in case one forgets. Sister I told you it not possible to have physiotherapist at rural hospital that can make follow-ups with these exercises” (SSI-P002).

“...But let there be physiotherapy pamphlets issued before discharge containing these exercises. In case one forgets you have a point of reference” (GI-P004).

Kenya is a developing country which is still implementing its health services and policies across the country. This means that rehabilitation services that are less developed cannot always implement the guidelines established by the National Institute for Health and Clinical Excellence (NICE, 2006).

Secondly, the physiotherapist to patient ratio should be enough to ensure that there is proper supervision of PFMT/E and follow-up appointments. A well-equipped rehabilitation centre with trained staff and all the necessary physiotherapy modalities can ensure that the appropriate interventions are accessible by all patients. Unfortunately, this has not been the case in obstetric and gynaecological wards, making it difficult to adhere to established treatment methods for managing urinary incontinent patients in rural areas (KDHs, 2004; UNFPA, 2003). Thus, the study findings will enhance the use of pre- and post-operative physiotherapy diagnostic procedures, outcome measurements tools, treatment plans, therapeutic processes, evaluation, and referral to other county hospitals following discharge from the Gynocare Fistula Center. There is a need for emphasising the literature on womens’ perceptions and experiences of post-operative physiotherapy management post-obstetric repair in and out of fistula facilities.

In summary, majority of the participants had positive and mixed experiences with PFMT. Women understanding and delay to initial interdisciplinary referral to

physiotherapy had negative perceptions on the role played by physiotherapists in pre and post-management of VVF and RVF that needed creation of awareness. Pelvic floor exercises were the only mode of treatment that was implemented prior to physical examination. Home exercise programme had no close supervision and follow-ups. Challenges regarding access to physiotherapy services were; majority of the participants lacked awareness and knowledge of physiotherapy management; low socio-economic status; accessibility to physiotherapy services and women did not understand the implementation process of PFMT/E.



CHAPTER FIVE:

DISCUSSION

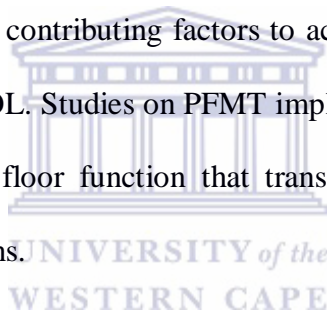
This fifth chapter discusses the findings from Chapter Four of the study in relation to the study objectives and available literature. This study had four (4) objectives; to explore participants' experiences and perceptions of post-operative physiotherapy management at the Gynocare fistula centre, the ways in which the post-operative physiotherapy service was administered, and the perceived challenges regarding accessing physiotherapy services following discharge from the Centre. The challenges of PFMT also arose as a fifth objective during data analysis.

5.0 Demographic characteristics of women admitted to the Gynocare fistula centre

The ages of women who suffered from obstetric fistula ranged from 16 to 49 years. This is consistent with Nour (2009) who reported similar age presentations for women with obstetric fistula in a study done in Sub Saharan Africa. Similarly, a report published by WHO and the British Bulletin in Kenya revealed comparable reports that 15% of girls and young women who conceived between the ages 15-25 years had a higher likelihood of experiencing pregnancy- and childbirth-associated complications (Liambila & Kuria, 2014). The majority of participants in this study had lived with VVF and/ or RVF for more than five (5) years without treatment. Four participants had both recto and vesico-vaginal fistula from prolonged obstructed labour, which was consistent with findings from Kelly (1998). Two participants reported paralysis secondary to obstetric fistula. Only one participant had suffered foot drop.

5.1 Biopsychosocial model and womens' experiences with post-operative physiotherapy

Women with residual urinary incontinence are at high risk of poor quality of life and disability (Donovan et al., 2002). According to the biopsychosocial model, RUI is the most common disability following fistula repair that negatively affects one's QOL, and which is linked with social, emotional and financial costs. The clinical application of the biopsychosocial model suggests that it is important to understand how RUI continues post obstetric fistula repair (Borrell-Carrió, Suchman, & Epstein, 2004; Engel, 1980). At a practical level the researcher tried to understand participants' subjective experiences, perceptions and perceived challenges in accessing post-operative physiotherapy, as contributing factors to accurately understand the impact of the intervention on their QOL. Studies on PFMT implementation have shown a positive health outcome on pelvic floor function that translates to improved emotional and social life of affected persons.



The overall expected outcome of post-operative physiotherapy management was a change in the womens' ability to take up their roles in the household, which initially had been compromised due to VVF and/or RVF. This condition had alienated women from cooking in their kitchens, going to the market and taking an active role in their families. This had changed following surgery so that there was improved urethral function associated with exercise. Some participants had modest, little, or no experience of reduced continence levels. For those who had modest experience (n = 14), PFMT had given hope of resuming their home and farm activities, engaging in income generating activities, and planning for their families. They also reported a willingness to participate in active information dissemination in fistula campaigns upon their discharge (Parc & Triemli, 2015).

In the analysis of the lived experiences and quality of life from the perspective of years lived with the disease (Yeakey et al., 2009), five aspects of life were affected by using an impact assessment tool (Nielsen et al., 2009; Kelleher, Cardozo, Khullar & Salvatore, 1997). These impacts were associated with the loss of structural and body control (biological), physical limitations, loss of personal and interpersonal relationships (social), psychological and emotional disruptions, and behavioural loss (Sinclair & Ramsay, 2011). These deep senses of loss were restored following obstetric fistula surgery and physiotherapy management.

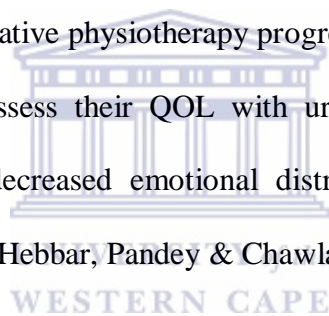
All participants in this study agreed that the impact of having suffered obstetric fistula had altered the structure of their reproductive and urinary system, which they were no longer in control of. The wetness, offensive odour, skin rashes, and sores were part of their daily experiences, which hindered their activities of daily living and limited their movement. These aspects of the condition had also become sources of embarrassment, and led to the loss of identity in the family and community. The results of this study are consistent with Mselle et al. (2011) who revealed that women living with urinary incontinence had reported a loss of body function and of their social lives, including their sense of being women and wives, and negatively affected their dignity and feelings of self-worth.

A better understanding of womens' experiences with obstetric fistula is vital for physiotherapists as it will help in prescribing comprehensive interventions and increase the options available for enhancing women's sense of self-worth, while also maintaining their identities as women, wives, friends and community members who contribute to the economic growth and development in the country (UNDP, 2014).

Disrupted marriages were reported by participants both in the interviews and focus discussions. They described the rejection by their spouses and family members as no one would accommodate to their health status. Twelve (12) were forced to go back to their parents as they had no crucial family roles play anymore. Four (4) participants were divorced and ten (10) lived in separate houses to their husbands. In these cases the husbands chose to marry a second wife as their wives were unable to bear them children or exercise their conjugal responsibilities. Women with obstetric fistula experienced a disrupted social life through the loss of contact with family members, neighbours, friends and church members. The results of this study are consisted with Mselle et al. (2011) who reports an absent sex life due to the inability to control urine, odours, sores and recurrent infections, making it impossible to sexually satisfy their husbands or bear the children. Furthermore, the majority lose contact with their social networks and face family stigma, \making it difficult to participate in community life events which are important in social networks (Gharoro & Agholor, 2009; Bangser, 2006; Chong, 2006).

All 32 participants in this study experienced various degrees of isolation, as they were seen as being dirty and unworthy to be among others. It is through experiences such as these that saw women alienating themselves by keeping their distance from social and community gatherings at churches, parties and funerals. Participants' urinary and faecal incontinence were reported to have severely affected their quality of life causing behavioural changes, as well as physical, social, psychological, and sexual limitations. To restore these negative impacts of fistula, there was a need for comprehensive physiotherapy that aimed to restore pelvic floor function as described by Ashton-Miller, Denise and John (2001).

There was a need for patients at Gynocare to learn why it was necessary to comply with the exercises they were provided with. These exercises should be taught to other patients in other fistula centres in order that they may also have a better understanding of PFM exercise implementation. This will hopefully create positive perceptions and experiences of post-operative physiotherapy for those seeking to learn about improving QOL for women with residual urinary incontinence following discharge. Castille et al. (2013) and NICE (2013) found that health education was essential for long term commitment to HPE and follow-up appointments within the first 6 months after continence surgery. This result is consistent with the NICE guidelines (2006), which suggest that women should be taught how to use incontinence-specific quality of life scales to evaluate post-operative physiotherapy progression after obstetric fistula repair. This enables women to assess their QOL with urinary symptoms, related to their participation in activity, decreased emotional distress, improved self-image, better sleep, and general welfare (Hebbar, Pandey & Chawla, 2015).



5.2 Womens' experiences of post-operative physiotherapy management

The current study explored participants' experience with post-operative physiotherapy management at Gynocare. On initial their encounter with PFMT, participants' described improvements in their urinary continence. Fourteen (14) participants described positive experiences with PFMT. The PFM effects in the current findings is aligned with other researchers who clearly indicate that the efficacy of PFMT can lead to reduced risk of urinary stress incontinence after fistula surgery, improving patients quality of life (Oh et al., 2008). This concurs with a study by Boyle, Hay-Smith, Cody and Mørkved (2014) who showed that early post-operative physiotherapy management with PFMT had high continence level outcomes with improved quality of life.

Pelvic floor muscle training was reported by the majority of the participants to have good outcomes in the management of RUI. These resonate with Hay-Smith, Herderschee, Dumoulin & Herbison (2011) who reported symptomatic improvements of urinary incontinence which translated to improved quality of life. This is further supported by a meta-analysis by Hilton (2008), which found that pelvic floor muscle training was seven (7) times more likely to treat stress and residual urinary incontinence. Likewise, De Bernis (2007) also advocates for PFMT after obstetric fistula surgery, rehabilitation of lower limb paralysis, lower limb contracture, and foot drop.

Four and fourteen participants reported negative and mixed experiences respectively with PFM following obstetric fistula repair. This replicates a study by Browning (2006), and Bo and Hilde (2013), who found that despite obstetric fistula repair some participants reported low to no improvement in their urinary incontinence. It seems that obstetric vesicovaginal fistula closure is for anatomical benefit (reconstruction of fistula) but not necessarily for improving functional capabilities (Browning, 2012), which can only be achieved by retraining of pre- and post-operative PFMs to strengthen the affected muscles (Keyser et al., 2014; De Bernis, 2007).

Reports from studies done in some African countries shows that, a majority (33-55%) of women remain incontinent per urethra even after successful fistula repair (Browning, 2006). Similarly, Wall (2004) noted that obstetric fistula surgery restores the anatomical structure of the pelvis but does not restore function of the PFM, hence the need for post-operative physiotherapy management.

The rate at which incontinence was reported in the current study is similar to other findings of VVF management indicating that 16% to 32% of women will present with

the risk factors of residual urinary incontinence even after a successful fistula repair for the first six (6) months after surgery (Nardos, Browning & Chen, 2009; Browning & Menber, 2008).

The cause of the poor outcome may have been that the two week duration may have been insufficient to achieve a meaningful outcome with the PFMT (Bo, 2007). Furthermore, the physiotherapy management over two (2) weeks was in stark contrast to a prospective study in Benin by Castille et al. (2015) which suggested a longer than one year physiotherapy follow-up and health education to ensure effective management of RUI after surgery. Physiotherapy management for more than one year has shown marked improvement in continence levels and quality of life (Castille et al., 2015). In the current study, a follow up was not possible at the fistula center due to a shortage of physiotherapists. Therefore, there is need to increase the numbers of physiotherapists to provide a more effective service.

Poor health education may have contributed to the perception of the treatment outcome. A few days after urinary catheter removal, 30 women reported a high rate of nocturia and leakage on standing. They received little explanation on how pelvic organs contributed to increased abdominal pressure when gravity acts on a change in position. This in turn opens the bladder (vesical) neck causing urinary leakage despite repair and physiotherapy (Herderschee, Hay-Smith, Herbison, Roovers, & Heineman, 2011).

There is evidence in studies by DeLancey (1997), DeLancey (1994) and Petros and Ulmsten (1990) that an understanding of the Hammock principle aids in the healing of fistula repair. This is performed by controlling the urethral bladder pressure through timely counter-reaction of PFM to decreasing abdominal pressure. This increases the chances of forceful opening of the urethra causing urine leakage if the transversus

abdominal muscles are not co-contracted. This causes the majority of women with obstetric fistula repair and post-PFMT to remain incontinent despite hoping for a normal life again (Mselle et al., 2012).

The residual incontinence would have been reduced in the current study if the physiotherapists were to extend the PFMT regimen for a longer period of time (Dumoulin, Glazener & Jenkinson, 2011), but this was not possible.

Similarly, incontinent could have resulted from the size of the fistula, vaginal stenosis, the degree of urethral involvement, and the presence of other injuries that had not been established by the physiotherapists (Sjøveian, Vangen, Mukwege & Onsrud, 2011). It is these factors that may have contributed to the reports of mixed and negative experiences of participants in this study (Frajzyngier, Ruminjo & Barone, 2012). The results of the current study are also aligned with Nardos et al. (2009) who performed a retrospective analysis of obstetric fistula repair. They found RUI to be common in women who had small bladders, damaged urethral circumference, and serious vaginal scarring (which could not be ruled out in this study). It is therefore suggested that physiotherapists must ensure the assessment of this parameter at baseline.

The findings of this study were in contrast to a prospective study by Browning and Menber (2008) in Ethiopia, showing that PFMT improved continence by 80-95%, as well as increasing quality of life. De Bernis (2007) recommended early physical rehabilitation to optimise the outcomes of VVF repair.

This is in support of a study by Dumoulin et al. (2016) who recommended women's health education and referrals for conservative physiotherapy management of UI before obstetric fistula surgery. In the current study, the majority of the participants reported that they had received no such interventions. This would have been possible if

awareness of pre-operative physiotherapy management of UI were emphasised by the interdisciplinary team.

5.3 Womens' perceptions of post-operative physiotherapy management

All 32 participants reported starting PFMT without any form of physical examination or assessment. Two of the participants remained sceptical of vaginal digital examination, although the others were positive about this. There was a need for participants to understand the physiotherapy assessment and management before commencement of pelvic floor muscles training.

Literature reveals the importance of routine digital vaginal examination (NICE, 2006). This determines a woman's ability to initiate PFM contraction, its strength, endurance and coordination prior to and after individual and group exercise sessions. The results of this study are in contrast to Hung, Hsiao, Chih, Lin and Tsauo (2010), who suggest preoperative physiotherapy examination and treatment to determine the mobility of abdominal and perineal tissue, and the strength and endurance of pelvic floor muscles (Laycock & Jerwood, 2001).

Participants reported not understanding the role of physiotherapy. The majority of participants had misconceptions about exercise as a form of treatment. They believed that exercises were for school going pupils as part of physical education but were not appropriate as a form of treatment. Only four participants had prior knowledge and awareness of physiotherapy services. The results show that in these participants, there was a lack of awareness with respect to the role that physiotherapists play in the prevention, promotion and rehabilitation services (WCPT, 2008), particularly in patients with obstetric fistula (NICE, 2013).

Most County and Sub-County hospitals that offer physiotherapy services were reported by the participants to have poor referrals for patients with obstetric fistula. This may have contributed to the poor perceptions of the role of the physiotherapist in managing incontinence. There is therefore a need to improve awareness among health care providers with respect to the role of physiotherapists in the management of residual urinary incontinence following fistula repair.

Literature on the training of health personnel to handle the high prevalence of obstetric fistula by UNFPA and MOH (2004) doesn't clearly describe the special skills required by a physiotherapist to handle womens' health issues, especially the RUI experienced after fistula repair. For example, the Action Campaign to End fistula in Africa, emphasises special training for fistula surgeons in selected fistula facilities (Serour, 2012), and nothing is suggested with respect to physiotherapy training (Lewis & de Bernis, 2006). These findings are in contrast to Miller et al. (2005) who suggested manual guidelines for fistula training of surgeons and psychological counsellors, leaving out physiotherapy training in the pre- and post-operative management of residual urinary incontinence associated with obstetric fistula. The findings would be of use if the MOH in Kenya, in partnership with UNFPA, made recommendations for physiotherapists to specialise in womens' health in order to improve service delivery.

Furthermore, participants in this study felt that physiotherapists were absent in many health care facilities. As a result of this, participants were unaware of the role played by physiotherapists in the management of their conditions. Participants suggested that physiotherapists should be posted to all health facilities and they should be in the forefront of service delivery. Likewise, capacity building and special training for the few physiotherapists working with these women was recommended for effective handling of patients with obstetrics and gynaecological conditions.

5.4 Delivery of post-operative physiotherapy management

Women in this study reported using exercises for strengthening of the pelvic floor muscles, bladder training, a nocturia behavior, but little use of electrical stimulation in re-educating the urethral closure mechanism for those who could not initiate lavetor Ani. The findings are concerning, especially since Amaro, Gameiro and Padovani (2013) reported a 72% improvement of PFM with 49% cure of destrusor instability via the use of intravaginal electrical stimulation and pelvic floor physiotherapy in patients with urinary incontinence.

The use of PFMT in the current study is supported by literature showing that pelvic floor muscle training can be used to conservatively manage all types of urinary incontinence (Boyle, Hay-Smith, Cody & Mørkved, 2014), especially when compared to no treatment (Dumoulin, Hay-Smith & Mac Habée-Séguin, 2014). Since the introduction of Kegel exercises in 1948, several studies have shown good results with 50% to 69% restoration of urinary continence regardless of cause, if PFM parameters were considered in the implementation (Dumoulin, Hay-Smith, Habée-Séguin & Mercier, 2015; Brook, 2013).

The current study findings did not report any other form of RUI treatment except for the use of TENS in those participants who were treated for foot drop in other facilities. Herbison and Dean (2013), and Herderschee et al. (2011) provide evidence on how the use of TENS and vaginal cone therapy can aid the initiation of PFM contraction. This is more for women with extensive birth injury to the urethra by activating the pudendal and sciatic nerves, thus improving urethral closure pressure and improving PFM strength (NICE, 2013). In the current study findings, prior physical examination were not done hence little was indicated of which participants could not initiate PFM contraction, and how they would have benefitted from electrical stimulation.

In addition, current clinical practice guidelines advocate the use of a swiss ball, as it provides readiness recruitment for an action for a muscle or group of pelvic floor muscles, improving its strength, endurance, coordination and function (Laycock, 2008). This intervention to aid PFM performance and progression of PFM function was lacking in the current fistula centre (Berghmans, Hendricks, Bernards, & de Bie, 2014).

These results were in contrast to other interventions used in failed levator Ani contractions that are aimed at improving PFM strength. One of the main reasons for combining interventions is the ability to contract PFM in patients with extensive vaginal scarring. In these cases there is little contractile muscle fiber with involvement of the urethral closure mechanism (Goh & Krause, 2016; Goh et al., 2008). These presentations could not be ruled in participants out as no physiotherapy examinations were done prior to the study commencement. Assessment requires vaginal digital examination for prescription and evaluation of the effectiveness of PFM (Tsai & Liu, 2009; Brink, Wells, Sampsel, Taillie & Mayer, 1994). Physiotherapists at fistula centres therefore need to be conversant with PFM examination in order to ensure that there is a baseline measurement when choosing a mode of intervention and progression while monitoring recovery.

5.5 Womens' perceived challenges regarding access to physiotherapy services following discharge from the Gynocare

i) Lack of knowledge and awareness of physiotherapy services among patients and healthcare providers

Difficulties in accessing quality obstetric emergency care were pointed out by participants, due to a lack of knowledge and awareness with regard to accessing physiotherapy. Reports revealed difficult terrains, lack of transport, poverty, and delays in referral, which all influenced timely service delivery (Jacobs, Bigdeli, Annear & Van Damme, 2012). Twenty eight participants had no idea where they would be referred to for further management and follow-up. Four knew how they to access physiotherapy services at the middle level hospitals but were reluctant to do so. Women lacked the knowledge of what services were to be used in the low resource health settings to which they were discharged (Bellows, Bach, Baker & Warren, 2014). Womens' lack of knowledge of where to seek physiotherapy services could be an indication of an inadequate distribution of health care services in the rural areas.

Findings by Jacobs et al. (2011), and Thiede, Akweongo and McIntyre (2007), found that inadequate information provision by health care professionals were key factors that lead to womens' failure to access, recognise and make use of available health care services. This is supported by Chidozie (2015), who reported that low awareness of services was a barrier to seek physiotherapy services. While those who were aware of services lacked referral to a physiotherapist who would have had an opportunity to prescribe PFMT/E to such patients as well as lack of interdisciplinary referrals among other health care professionals who did not identify role played by physiotherapists in managing RUI.

A WCPT study in Africa (2003) found that there were no physiotherapy services in rural areas compared to the number of nurses and doctors. There were only 14 physiotherapists in Ethiopia to serve 60 million people (Frantz, 2007). The low numbers of physiotherapists in the health care system were linked to limited fundings for physiotherapy education and career development that could adequately cater for patients' needs (Frantz, 2007). Ogilvie, Mill, Astle, Fanning and Opare (2007), and Liese and Dussault (2004), link inadequate health care services in sub-Saharan Africa to a limited number of medical training institutions, as well as “push factors” that motivated professionals to work in Western countries where working conditions and remuneration were better compared to their home country. To resolve this situation, additional training could aim to increase this number significantly in order to cater for patients with obstetric fistula. Community-based rehabilitation services should also be considered (Khasnabis et al., 2010) bearing in mind the high cost of travelling on poor roads in Kenyan rural settings where the majority of these patients are reported to come from (Bellows et al., 2015).

Studies by WHO (2010), and Anyangwe and Mtonga (2007), reported that Sub-Saharan Africa has 25% of the global disease burden with only 3% of the health work force. The promotive, preventive, curative and rehabilitative services were also reported to be more accessible in urban than rural areas due to improved infrastructure, leading to a poor geographical distribution of health care providers. In Kenya the general perception is that there no clear understanding of what level physiotherapy services are needed. Only urban hospitals - especially National, Referral and County hospitals - employ a significant number of physiotherapists, even though rural hospitals need their services.

This is in line with study findings by Kurowski, Wyss, Abdulla and Mills (2007) who reported that gross shortages of the health workforce were less by 40% and 20% of

health care requirements in Tanzania and Chad respectively to achieve MDGs come 2015. These pose a challenge for the achievement of the MDG and the overall improvement of health in the general population (UNDP, 2014).

ii) Socio-economic challenges

Women reported that the main obstacles in accessing physiotherapy services were the financial costs associated with treatment services and transport. Literature shows that the cost of obstetric fistula were high and unaffordable for most women, who had often been divorced or separated from their spouses and were living in low socio-economic contexts (UNFPA, 2012; Balabanova, Parkhurst, McKee & McPake, 2006).

The UNFPA (2003) has maintained that these barriers were both known and preventable but had still remained as challenges in maintaining fistula interventions. In this study, twenty participants reported that physiotherapy services were sparsely distributed, making them inaccessible and unaffordable in terms of direct and indirect costs. These findings are in contrast to the calls from the Fistula Foundation report and Campaign to End fistula (2014), which suggest that all obstetric fistula treatments be accessible and affordable for all (Capes et al., 2011).

In Kenya, health care services for women health with obstetric fistula were free at Gynocare fistula centre but not when accessed at other private and government hospitals. The majority of women were housewives and were not able to get financial aid for accessing and paying for physiotherapy services following their discharge from Gynocare. It is noted that free medical services had made it possible for these women to access health services which did not continue after their discharge. The 32 participants reported that government could have opted for an exemption of the fee for physiotherapy services in all other hospitals. Other participants were still sceptical as

accessing those services would still require them to spend one day travelling, which translated to a high cost of transport.

Studies from Sub-Saharan Africa, countries, including Benin, Congo, Tanzania, Ethiopia, Uganda, and Nigeria have all established physiotherapy fistula programmes for over four (4) months following surgery. To some extent the findings from the current study highlights that the physiotherapy fistula programme could only be incorporated into the community-based rehabilitation approaches if close monitoring were maintained. This could mitigate the challenges that participants encountered with inadequate physiotherapy services, issues of compliance, access to health care facilities and transport costs (Jadin, Agbogbe & Barrima, 2008).

In addition, the lack of knowledge and awareness of the available physiotherapy services at some County hospitals does not imply absence of these services. The use of and access to physiotherapy services for women admitted to Gynocare, was only possible because the cost of services and transport-related expenses were catered for (Bangser, 2011).

The findings of this study is in contrast to the targets set by Kenyan Health policy 2014 to 2030 that aims to provide basic institutional frameworks for efficient, cost effective and equitable health care service delivery to the general population (UNDP, 2014). For example, in Kenya the cost of obstetrics fistula can be 30,000 Kenya shillings (US\$375) in Teaching and National hospitals (UNFPA, 2012). While the cost of physiotherapy services can range between 300-1,500 Kenyan Shillings both in government and private hospitals, which is not affordable for most people. To cater for medical expenses most fistula Centers waive these medical bills but this does not happen in other hospitals.

There is a need for the MOH and UNFPA to recognize that many of these women are housewives and therefore financially dependent on their husbands, which means that they lack the funds to pay for any medical services that also includes a high cost of travel to access physiotherapy services. In response to this the MOH has introduced an exemption policy for medical costs related to VVF and RVF, despite various barriers to its implementation (Ofori-Adjei, 2007). In Kenya and Tanzania, money phone transfer services (MPESA) have been introduced, enabling women to receive money that enables them pay for their transport to the Fistula centre for treatment (Bangser, 2011). Unfortunately little is known about how this policy and the MPESA strategies can be applied to physiotherapy referrals and six (6) month follow-ups to ensure all women remained continent.

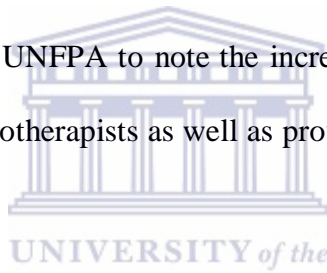
There was a need to have continued MPESA strategies and or possible exemption fees for all pre- and post-operative physiotherapy at Gynocare and other hospitals. The poverty status reported by all 32 women may have created a barrier to access fistula treatment and referrals to other hospitals. In this study, all participants reported knowing that Gynocare had two physiotherapists but they all nonetheless reported that they lacked the money to pay for transport for other appointments.

iii) Access to physiotherapy services

Four participants who reported that they did have access to physiotherapy services were uncertain if the distance travelled, cost of transport, and services would enhance treatment accessibility and affordability. The remaining participants promised to find out if physiotherapy services existed in the county level hospitals and were in use. Physiotherapists needed to facilitate referrals for a 6 month follow-up to optimise continence levels. Alternatively, there was also a need for women to receive

appointments to the Gynocare Centre or to be referred for return visits so that the vaginal symptoms would be reassessed. At this point the home exercise programme would be re-formulated according to the woman's changing level of incontinence and QOL (Browning & Menber, 2008). However, physiotherapy services, especially for women with post obstetric fistula repair, were reported to be inaccessible at government and private hospitals.

Kenya is reported to have a physiotherapist to patient ratio of 1:20,000 (WHO, 2011, WHO, 2001), compared to developed countries like Europe and USA with ratios of 1:1,400. The management of obstetric fistula patients in Kenya could therefore have been affected by the number of physiotherapist available for patients. Therefore, it is upon the Kenya MOH and UNFPA to note the increasing demand and to create more employment posts for physiotherapists as well as provide training to cater for the needs of patients.



d) Challenges with the PFMT Implementation process

There were several difficult challenges with the implementation process.

i) Recruitment for group exercise sessions

All 32 women reported to have joined group exercise sessions based on self-reported symptoms of their urinary and faecal incontinence. The two physiotherapists were reported not to have done assessment prior to and after commencement of PFMT in the group exercise sessions. There was also a lack of baseline data and evaluations of recovery progress were also apparently omitted.

This is in contrast to evidence by Hay-Smith et al. (2008), and Mørkved, Bø and Fjørtoft (2002), who advocates for individualised instruction and supervision in order to

ensure correct contraction of PFM before group recruitment and initiation of the next exercise sessions. This is aligned with evidence by Herderschee, Hay-Smith, Herbison, Roovers & Heineman (2013) identifying the importance of biofeedback on PFMT for women with SUI. There is a need to evaluate PFM function by use of vaginal squeeze pressure and vaginal surface electromyography, which is used to gauge the level of improvement in residual urinary incontinence after PFMT. Therefore, there was a need for physiotherapists at Gynocare to conduct appropriate patient assessments before and after group exercise sessions in order to ensure documentation that aids in monitoring of interventions as well as recovery progress.

ii) Pelvic floor muscle training rationale

Women knowing the detail of the exercise programme, including the number of PFM repetitions, frequency, sets, and duration of contraction. However, there were discrepancies when evaluated against standards set by the NICE (2013) guidelines that are necessary for attaining sustainable PFM effects. Patient-reported continence cure has been identified to be 17% to 84% effective with correct PFM implementation. While those with long-term intensive PFM supervision had shown 60-61% improvement compared to less supervision, with 20% improved continence levels (Bo, Kvarstein & Nygaard, 2005).

It is clear that women in the current study did not understand the implementation process of PFME. Prior health education to improve women knowledge in the correct execution of PFM contracting and grading of their PFM function would be of importance. Thorough individualised instructions than the group instructions and close follow-ups to ensure short and long-term adherence. This corroborates with De Oliveira Camargo et al. (2009) who found that women who had been taught proper PFM

contractions reported 98% reduction in episodes of urinary leakage after fistula surgery. In addition, the PFM prescription in the current findings were slightly different to findings by Hilde, Stær-Jensen, Siafarikas, Ellström Engh and Bø (2013), who reported statistically significant changes in sustaining PFM effects over long periods of time.

Women did not know that long-term effects in the management of SUI were possible if PFM exercises were adhered to (Bø & Hilde, 2013; Bø et al., 2005). The study findings maintained that correct PFM rationale with weekly or monthly follow-up were statistically viable for 3-6 months. However, failure to comply will result in reversed effects of RUI to high continence levels and poor quality of life (Ghaderi & Oskouel, 2014). Reported early discharge and lack of long term PFMT pose challenges to its efficacy. Therefore, the achieved PFM effects over a two week hospital stay may not be sustainable, especially if additional treatment options are not be offered after discharge. It is up to physiotherapists at Gynocare to make prior referrals and follow-ups appointments for these women in order to ensure that there is adherence of treatment to achieve the set goals (Dumoulin et al., 2015; Bo et al., 2005).

Women did not report any kind PFM progression with activities of daily living. This is in contrast to study findings by Bernardes et al. (2014) which showed that sequential exercise programmes during daily life activities and patient awareness of the initiation of pelvic floor muscle contraction during exertion, can aid in clamping of the urethra. Furthermore, explanation of how muscle contraction aimed at reducing abdominal pressure and also reducing episodes of leakage were lacking (Bø, Mørkved, Frawley & Sherburn, 2009).

iii) Health education

Five out of 32 women demonstrated high levels of PFM performance and showed no need for further educational materials to be provided to them at discharge. The rest reported tendencies to forget the exercises. Twenty nine women reported that PFM performance would have been more understandable if accompanied with written pamphlets or diagrams with a clear demonstration other than the verbal instructions in the ward and at discharge. A pilot study by Castille et al. (2015) in Nigeria revealed that the use of educational brochures and posters with understandable written information and verbal instructions, improved women understanding of their reproductive problems, as well as the PFM rationale in relation to their birth complications and aided patients with goal setting in their recovery process.

This is aligned with findings by Keyser et al. (2014) in Benin, indicating that health education and a four (4) month pelvic floor physiotherapy programmes were significant for optimising fistula surgery outcomes with recovery rates of 71.4% compared to 63.4% without pre- and post-operative pelvic floor physiotherapy and health education. Unfortunately, the current study did not use any measurement form to assess recovery level.

iv) Compliance with the home exercise programme

Twenty three women reported that the self-administered home exercise programmes were viable but nine of them found it hard to comply. Home chores were reported to be the main cause of these disruptions. Findings from this study were in contrast to Castille et al. (2014), and Bø et al. (2005), who reported that a post-operative physiotherapy fistula programme for one year follow-up was necessary for reducing rates of RUI. These programmes have shown improved PFM adherence, where close monitoring of incontinence recovery is linked to improved rates of socio-economic

re-integration (Pope, Bangser & Requejo, 2011) and better quality of life (Umoiyoho, et al., 2012).

The findings from the current study highlighted that even when participant compliance was verbally articulated there were no established strategies for reinforcement. Measurements such as daily dairies and mobile clinics were not provided. Bo (2004) found that a supervised exercise programme for more than 5 months was able to achieve maximum urinary continence.

Wall et al. (2005) points out that unsupervised long-term PFMT might contribute to 11% - 27% of persistent residual urinary incontinence in 92% of successful obstetric fistula repair surgeries (Kayondo et al., 2011). This is similar to the findings that unsupervised home programmes were less successful in reducing urinary incontinence for women on follow-up (Felicissimo et al., 2010; Kegel, 1948).

Several studies in Benin, Ethiopia and Tanzania have indicated that a structured fistula programme with health education, nursing care and pelvic floor physiotherapy for over a period of four (4). The results were 2.72 times more effective in reducing residual incontinence and improving quality of life than in women who had no follow-up appointments (Castille et al., 2015; Keyser et al., 2014). Study findings in Burundi by Bishinga et al. (2013) found that dropout from the programme occurred over time leading to progressive loss of gains following fistula surgery, and was a barrier to monitoring PFM progress in obstetric fistula programmes. This is similar to findings by Bø and Talseth (1996) who found that the long-term effects of pelvic floor muscle exercise diminished five (5) years after stopping the organised training that would be relevant for these participants who have been discharged with home exercise programmes and follow-up appointments.

5.6 Summary of the discussion

It was evident that the majority of women had achieved good results after PFMT group exercise sessions in the period of two (2) weeks. During this time they were under the supervision of two part-time physiotherapists who would only spend one hour with the participants and who could not follow-up or refer these women.

Physical examinations by the physiotherapists were dependent on patient-reported symptoms prior to and after PFMT. For objectivity, perionelogy or abdominal pelvic assessment could have been used to grade manual muscle testing prior to and post-PFMT in order to evaluate of the quality of levator ani contraction. The severity of the participants' condition before joining the group exercise sessions and mode of treatment selection should be indicated. This could aid in monitoring of treatment progress and for determining prognosis. The omission of outcome measurement tools was shown to interfere with participants' perceptions of their satisfaction with PFM interventions. It is the assessment of a condition that guides the mode of intervention and the intensity, frequency and duration of exercises. Without this assessment, the therapist over or under dose are likely when prescribing the exercise.

Physiotherapists in the Gynocare fistula centre lacked specialisation training in obstetrics and gynaecological conditions. These skills would equip them with standardised procedures and established protocols. In the current study there was no use of outcome measurement tools to either monitor or evaluate PFM progression.

Health education is key to patient management, and womens' understanding of the role of physiotherapy services in health care lead them to have different perceptions. This would perhaps facilitate their understanding of their condition, as well as being part of

treatment plan that would facilitate adherence to and completion of treatment interventions.

Inter-disciplinary patient referral systems should be up to date. Most of these patients had undergone caesarean sections and none were referred for pre- or post-operative physiotherapy. Those who were incontinent at discharge were neither advised about pre-operative physiotherapy nor obstetric fistula surgery. This showed that there is under-utilization of physiotherapy services in government and private sectors among health professionals. This was made worse by the fact that there is little or no knowledge and awareness of what physiotherapy interventions are available to optimise the outcomes of obstetric fistula repair.

Follow-up visits and home based rehabilitation were impractical in the view of the current participants, possibly related to the limited awareness of physiotherapy services in the other hospitals. Environmental circumstances that arose were associated with lengthy distances travelled and cost involved in accessing the available physiotherapy services. The Gynocare practice of paying all medical expenses and transport costs may have acted as an incentive. This should be extended to other health facilities in order to ensure that women can access physiotherapy services following discharge.

Nevertheless, it should be noted that physiotherapy follow-ups rate at the study setting was non-existent. As already shown there were only two part-time physiotherapists who did not have quality time to ensure individual supervision. Those women presenting with residual urinary incontinence at the time of discharge were more likely to report a high rate urinary symptoms despite the high rate of successful obstetric fistula closure.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

This fifth chapter will present the summary and conclusion of the study findings. Recommendations will be made based on the themes that emerged from the study findings. The strength and limitations faced during this study will be highlighted.

6.0 Summary of the study

The aim of the study was to explore womens' perceptions and experiences of post-operative physiotherapy management at the Gynocare fistula center, Eldoret, Kenya. There were four study objectives that emerged during data analysis.

In appropriate fistula facilities and other hospitals, there is a need for an adequate patient to physiotherapist ratio. Referral systems and follow-ups should be clearly defined. There are indications that women who are discharged when incontinent can improve with close PFM supervision and monitoring when they are at home, unless they suffered from a severe condition which included RUI symptoms even after anatomical closure.

Further research is needed into what pre- and post-operative physiotherapy management is required in order to have a baseline understanding of womens' experiences and perceptions, before and after obstetric fistula repair. Furthermore, this study contributed to understanding the risk factors that may occur due to a failure in following up following discharge.

Participant quality of life was reported to improve with pre- and post-operative physiotherapy interventions, although it was not possible to qualify the prognosis for successful restoration of continence level and activity orientation back to normal life.

However, a two (2) week intervention programme is inadequate to evaluate the impact of pre- and post-operative physiotherapy management compared to long-term follow-ups that can measure and evaluate QOL more systematically.

6.1 Conclusion

The aims and study objectives were achieved. The findings revealed that there were varied experiences of post-operative physiotherapy management among study participants. Residual stress incontinence can lead to long-term functional impairment and activity restriction despite successful anatomical closure of obstetric fistula, if not properly managed. Physiotherapy management is faced with various challenges such as a lack of specialised skills to examine patients, a lack of electrotherapeutic modalities, failure to educate patients on their condition, a lack of knowledge and awareness, inaccessibility of physiotherapy services, financial costs, and a lack of follow-up management to monitor recovery progress following discharge. This is consistent with literature from developing countries that also have an inadequate physiotherapist to patient ratio. The lack of knowledge and understanding of the role played by the physiotherapist had an adverse effect on its importance and perception in managing RUI. Furthermore, providing patients with information at inter-disciplinary levels would increase their awareness of who treats what in improving perceptions on health care services. This would also increase women's adherence to referral and follow-up management after discharge. In addition, providing relevant information about the patient's condition at initial contact may lead to pre-operative physiotherapy referrals. Furthermore, the cost implications for those with persistent incontinence after physiotherapy would be better understood.

6.2 Significance of the study

The mission statement of health in Kenya is to provide equitable and affordable health care at the highest standards to her citizens in accordance with the country's vision (2030) (Go, 2007). This is in line with the Alma-Ata declaration that ensures primary health care is implemented as a way of ensuring all services were universally comprehensive, accessible, and equitable, of a high quality and affordable, through capacity building and institutional frameworks (Hall & Taylor, 2003). Equal access to physiotherapy services may not be attainable as most government and private hospitals do not have an exemption policy in place.

The findings from this study will be used to inform women of the role played by the physiotherapist in managing residual urinary incontinence pre- and post-surgery. In addition, this will inform physiotherapists of the challenges faced by implementing PFMT as an appropriate intervention option. It will shed light on the challenges faced by patients with fistula when seeking physiotherapy services and may result in the government putting strategies in place to mitigate those challenges. Likewise these results may facilitate further training and specialisation of physiotherapists to comprehensively and adequately manage women with RUI in the fistula facilities. Furthermore, the financial constraints could lead to policy makers' formulating and implementing an exemption fees policy for all women with RUI secondary to child birth injury. The study will form a baseline body of evidence related to the experience and perceptions of women who received post-operative physiotherapy management. Lastly, the study results could be of value to the existing literature and physiotherapy training institutions.

6.3 Strength

The Gynocare Fistula Center provides a service to patients with fistula. These women come from different parts of the country beyond the Western regions, bringing together different insights concerning the experience, perceptions and perceived challenges around accessing physiotherapy service following discharge from Gynocare.

6.4 Limitations

There were no previous studies in Kenya that focused on womens' perceptions and experiences of post-operative physiotherapy management to form part of the literature review. Secondly, physiotherapists at Gynocare had no quality contact time with their patients in which to carry out assessment to quantify the perceived QOL of these women. Not all post-operative physiotherapy interventions were carried out due to a lack of electrotherapeutic modalities, which would have contributed to the study findings. More so, the researcher did not have time to follow-up on the experiences of those women who were discharged within the same County, in order to evaluate the effectiveness of unsupervised PFMT, as the treatment period of two weeks was too short.

6.5 Recommendations

The following are recommendations based on the study findings:

- 1. Understanding of womens' perceptions on the role of physiotherapy management in restoring their urinary continence.**
 - This could be by providing information at the interdisciplinary team by referring women post caesarean section and for those with symptoms of RUI, with or without obstetric fistula surgery.

- Furthermore, understanding and increasing awareness of the physiotherapists' tasks would change perceptions on the role that the physiotherapist plays in managing the health problems of patients and other healthcare providers. This can be achieved through continuous medical education among medical staff.

2. Patient assessment

Physiotherapists should be able to assess, and record findings based on outcome measurement tools before and after PFMT to evaluate its efficacy as it relates to womens' reported experiences. Participants' reported experiences on post-operative physiotherapy management should not only be based on patient-reported outcomes but also on the physiotherapists' progressive physical examination alongside its delivery. It is this physical examination that will inform the therapists of the extent of the pelvic floor dysfunction and how this has affected the patient's biological, emotional and social life. This is important for the therapist to prescribe PFME or other methods of post-operative physiotherapy. For instance, physiotherapists who prescribe and supervise PFME/T should have enough space to ensure that vaginal digital assessments are performed and evaluated prior to and after physiotherapy management as well as for electrotherapeutic modalities. This is to monitor progress of the continence levels of the patients with respect to the intervention.

3. Improving access to physiotherapy services

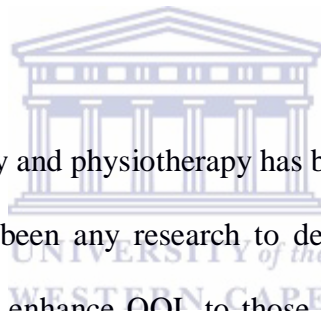
- Physiotherapists at fistula facilities should be working on a full time basis. In addition, patient should be provided with educational materials such as pamphlets following discharge to ensure there is a point of reference to enhance PFMT compliance and correctness of performance. The Ministry of Health should consider providing special training for physiotherapists in womens'

reproductive health. This would improve staff establishments, as well as knowledge and skills for efficient service delivery at the Gynocare Fistula centre and other hospitals.

- The establishment of physiotherapy community-based services in partnerships with UNFPA to ensure compliance with home exercise programme and follow-up appointments following discharge to cater for socio-economic challenges.
- The Action to End fistula in Kenya partnership with UNFPA should consider incorporating physiotherapists in the campaigns and programmes in order to provide and create awareness of physiotherapy services for women suffering from RUI for pre-operative services to enhance accessibility.

4. Further research

Free obstetric fistula surgery and physiotherapy has been in place since 2002 in Eldoret. One wonders if there has been any research to determine the efficacy of PFMT to improve RUI recovery and enhance QOL to those patients who had been discharged home without referral or follow-up.



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APPENDICES

Appendix A: Permission letter from the Senate, Research Committee of the Western Cape



**OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH DEVELOPMENT**

11 June 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:
Ms CM Muia (Physiotherapy)

Research Project:	Physiotherapy management for women with obstetrics fistula after surgery as one of the birth complications, Eldoret, Kenya.
Registration no:	15/4/60

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

A handwritten signature in black ink, appearing to read 'P. Josias'.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

A place of quality,
a place to grow, from hope
to action through knowledge

Appendix B: Institutional Research and Ethics Committee (IREC)



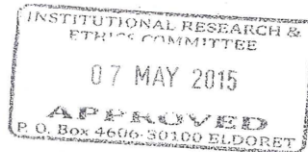
MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 334711/2/3
Reference: IREC/2015/33
Approval Number: 0001405

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)



MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORET
7th May, 2015

Catherine Muia,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.



Dear Ms. Muia

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has reviewed your research proposal titled:-

"Physiotherapy Management for Women with Obstetrics Fistula after Surgery as one of the Birth Complications, Eldoret, Kenya."

Your proposal has been granted a Formal Approval Number: **FAN: IREC 1405** on 7th May, 2015. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 6th May, 2016. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc	Director	-	MTRH	Dean	-	SOP	Dean	-	SOM
	Principal	-	CHS	Dean	-	SON	Dean	-	SOD

Appendix C: Gynocare Fistula Center and Maternity Home



GYNO CARE FISTULA CENTER & MATERNITY HOME

Makasembo Road, Next to Eldoret Hospital

P.O Box 2326-30100
ELDORET, Kenya
Tel : 053-2062764
Mobile : 0718-54 70 00

Email: gynocarecenter@yahoo.com.
hmmabeya@yahoo.com
mabeya4@gmail.com
Website: www.gynocare.co.ke

Dear Sir/Madam,

RE: RESEARCH AUTHORISATION

Following your application for authorization to carry out research on "*Physiotherapy management for women with obstetrics fistula after surgery as one of the birth complications*". I am pleased to inform you that your application was accepted to undertake research in *Gynocare Fistula Center Foundation, Eldoret, Kenya for a period ending 30th June 2015.*

You are advised to report to the Administrator and officer in-charge of Gynecological and Obstetrics Unit before commencing on the research project.

On completion of the research, you are expected to submit a hard copy and soft copy of the research findings to our office. For any further clarification please feel free to contact us.

Dr. Hillary Mabeya
Director, Gynocare Center.



C.C. Head of Department:

Dr. Nondwe Mlenzana
University of the Western
Cape, Private Bag X17
Bellville 7535,
mlezana@myuwc.ac.za

Appendix D: Information Sheet



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2542, Fax: 27 21-959 1217

E-mail: nmlenzana@uwc.ac.za

Project Title: Women's perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Center in Eldoret, Kenya.

What is this study about?

This is a research project being conducted by Catherine Mwikali Muia at the University of the Western Cape. **We are inviting you to participate** in this research project because you are being have had obstetric fistula surgery and who have been managed for urinary incontinence with physiotherapy afterwards. The purpose of this research project is to explore experience women with obstetric fistula after surgery encounter, with physiotherapy management as one of the birth complications, Eldoret, Kenya. This study will be carried out at Gynocare Fistula Center, Eldoret are among the International Federation for Gynaecology and Obstetrics and the Partners of the Fistula Foundation on the Action to End Fistula in Kenya. The information of this study is needed to explore ways in which physiotherapy management obstetric fistula after surgery is administered in the hospital and other fistula health facilities in the country at large.

What will I be asked to do if I agree to participate?

You will be asked to voluntarily to take part in this study by signing a consent form and a binding form. To participate in in-depth interview and focus group discussions with the researcher you are asked to sign an informed written consent. Participant appointment will be made, and the interview scheduled at a time and place that is convenient for you. The researcher will use a research assistant for note taking and researcher will use a tape recorder for recording the interviews sessions. Each interview will take approximately 45-60 minutes for each participant. The focus group discussions will constitute 6-8 participants interviewed after every 2-3 weeks having similar health condition and will take approximately 60-90 minutes. Your participation in this study will be kept confidential.

Would my participation in this study be kept confidential?

We will do our best to keep your personal information confidential. To help protect your confidentiality the following steps will be taken: The researcher and research assistant will do their best to keep your personal information confidential and anonymous by using codes and synonyms during the interview process and data analysis. After the interview, data will be kept in a safe place under key and locker cabinet and only identification codes will be labelled on data forms. Computer files will be under password-protection only known to the researcher. Research findings of this research project will be first brought back to the participants before handed in for the publication authorities. All participants' contribution identity will be under maximum protection where synonyms will be used.

What are the risks of this research?

There are no known risks associated with taking part in this research project.

What are the benefits of this research?

This research is not designed to help you personally, but the research findings may be used for documentary facts for women experience with physiotherapy management of obstetric fistula after surgery in challenges faced with while undergoing physiotherapy management. Finally, the findings may be of value in carrying out further research.

Do I have to be in this research and may I stop participating any time?

Your participation in this research study is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by Catherine Mwikali Muia, department of physiotherapy, college of health science at the University of the Western Cape. If you have any questions about the research study itself, please contact.

Catherine Mwikali Muia,

Moi University, School of Medicine

P.o Box 4606, Eldoret, Kenya.

mwikalicatherine@yahoo.com

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Department:

Dr.Nondwe Mlenzana

University of the Western Cape

Private Bag X17

Bellville 7535

nmlenzana@myuwc.ac.za

Dean of the Faculty of Community and Health Sciences:

Prof Jose Frantz

University of the Western Cape

Private Bag X17

Bellville 7535

Chs-deansoffice@myuwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.

Appendix D (i): Karatasi ya Habari



CHUO KIKUU CHA WESTERN CAPE

S.L.P X 17, Bellville 7535, South Africa

Nambari ya simu: +27 21-959 2542, Fax: 27 21-959 1217

Barua pepe: nmlenzana@uwc.ac.za

Mada ya Warsha: Mapendeleo ya wanawake na ushuhuda kutokana na mazoezi ya viungo baada ya upasuaji katika Zahanati ya Nasuri Center, Eldoret, Kenya.

Udadisi huu unahusu nini?

Huu ni uchunguzi kuhusu warsha uliofanywa na Catherine Mwikali Muia katika Chuo Kikuu cha Western Cape. Tunawakaribisha kujiunga na uchunguzi wa warsha hii kwa kuwa ulifanyiwa upasuaji wa nasuri na matibabu ya mazoezi ya viungo hizo baadaye. Lengo la warsha hii ni kuangazia ushuunda ya wanawake baada ya kufanyiwa upasuaji wa nyumba ya uzazi pamoja na mazoezi ya viungo baadaye. Pia inaangazia kutabawali kwa wanawake waliofanyiwa upasuaji, pamoja na mazoezi kama mojawapo ya hatari katika uzazi, Eldoret, Kenya. Udadisi huu utaendelea katika hospitali ya Gynocare Fistula Center, Eldoret iliyo miongoni mwa muungano mkuu wa kimataifa ya uzazi na marafiki wengine kumaliza kutabawali kwa wamama baada ya uzazi njini Kenya. Habari kuhusu udadisi huu inafaa kuangazia njia ambazo mazoezi baada ya upasuaji inatekelezwa kuzuia kutabawali ovyo hospitalini pamoja na vyuo vingi vya afya nchini.

Nitahitajika kufanya nini nikikubali kujiunga?

Utatakikana kwa kujitolea kufanya udadisi kwa kuweka sahihi fomu ya kukubali kujihusisha na Fomu ya Kikundi cha Kisiri ili kujiunga na mahojiano ya ana kwa ana unaulizwa utie sahihi sahihi fomu ya kukubali kujihusisha na Fomu ya Kikundi cha Kisiri. Mkutano utafanywa kwa waliojitokeza na mahojiano kuwekwa katika mazingira na wakati mwafaka kwako. Anayesimamia udadisi huu atakuwa na msaidizi ili kuandika watakayo pata na msimamizi ata rekodi mahojiano kutumia sahani ya santuri au kinasasauti. Kila mahojiano itachukua takriban dakika 45-60 kwa kila aliyejiunga. Mazungumzo katika vikundi vitakuwa na wahusika 6-8 watakaohojiwa kila baada ya majuma 2-3, wakiwa na shida sawa ya afya na itachukua takriban dakika 60-90. Uchangiaji katika udadisi huu utakuwa wa kisiri.

Je, uchangiaji wangu katika udadisi huu utakuwa wa kisiri?

Tutafanya kila iwezekanavyo kuweka habari zako kisiri. Ili kufanya hivyo mikakati ifuatayo itazingatiwa: mdadisi na msaidizi wake watafanya juu chini kufanya habari zako ziwe siri na isiyoweza kujulikana kwa kutumia nambari na visawe katika mahojiano na uchunguzi wa data. Baada ya mahojiano, data itawekwa vizuri katika kabati zinazofungika kwa ufunguo na nambari za usajili pekee yake ndizo zitakazopachikwa kwenye faili. Faili katika kompyuta vitalindwa chini ya nambari zinazojulikana na mdadisi pekee yake. Matokeo ya udadisi yatawasilishwa kwanza kwa waliochangia kabla ya mamlaka ya wachapishaji.

Ni hatari gani zinazotokana na upelelezi huu?

Hakuna hatari zinazojulikana zinazohusiana na kujihusisha na waksha hii.

Mazuri ya udadisi huu ni yapi?

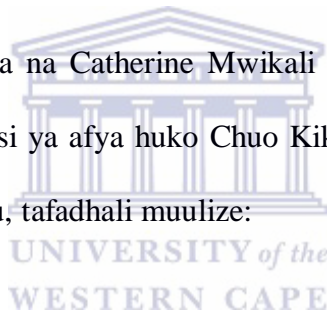
Upelelezi huu si wa kukusaidia pweke ilhali yale yanayotokana nayo yaweza tumika katika matibabu ya maradhi ya viungo vya mwili. Mwisho matokeo yanaweza kuwa dhamani katika udadisi mpana.

Ni lazima niwe katika upelelezi huu na naweza kuacha kujihusisha wakati wowote?

Kujihusisha kwako ni wa kujitolea. Basi waeza kuamua kutochangia kabisa. Pia ukiamua kujihusisha, unaweza acha kwa wakati wowote na kwa hivyo hautapoteza manufaa yoyote unayostahili.

Na kama nina maswali?

Upelelezi huu unatekelezwa na Catherine Mwikali Muia, katika kituo cha meozi ya viungo vya mwili na sayansi ya afya huko Chuo Kikuu cha Western Cape. Kama una maswali kuhusu udadisi huu, tafadhali muulize:



Catherine Mwikali Muia,

Chuo Kikuu cha Moi, Shule ya Udaktari.

S.L.P 4606, Eldoret, Kenya.

Barua pepe: mwikalicatherine@yahoo.com

Ukiwa na swali lolote kuhusu udadisi huu na haki zako kama mhusika au ungependa kuripoti shida yoyote utakayopata kupitia udadisi huu, tafadhali muelezee:

Mkubwa wa Kituo:

Dr. Nondwe Mlenzana

Chuo Kikuu cha Western Cape

S.L.Kipekee x17

Bellville 7535

Barua pepe: nmlenzana@myuwc.ac.za

Mkuu wa Kituo cha Jamii na Sayasi ya Afya.

Prof Jose Frantz

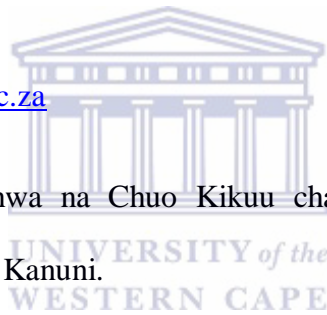
Chuo Kikuu cha Western Cape

S.L Kipekee X17

Bellville 7535

Chs-deansoffice@myuwc.ac.za

Upelelezi huu umeidhinishwa na Chuo Kikuu cha Useneta wa Western Cape ya Muungano wa Upelelezi na Kanuni.



Appendix E. Consent Form



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2542, Fax: 27 21-959 1217

E-mail: nmlenzana@uwc.ac.za

Title of Research Project: Women's perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Center in Eldoret, Kenya.

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name.....

Participant's signature.....

Date.....

Appendix E (i). Fomu la kukubali kujihusisha



CHUO KIKUU CHA WESTERN CAPE

S.L Kipekee X 17, Bellville 7535, South Africa

Nambari ya simu: +27 21-959 2542, Fax: 27 21-959 1217

Barua pepe: nmlenzana@uwc.ac.za

Mada ya Warsha: Mapendeleo ya wanawake na ushuhuda kutokana na mazoezi ya viungo baada ya upasuaji katika Zahanati ya Nasuri Center, Eldoret, Kenya.

Udadisi huu umeandikwa katika lugha ninayo fahamu. Maswali yangu kuhusu udadisi yamejibiwa. Naelewa kujihusisha kwangu ni kwa kupenda kwangu. Naelewa kuwa habari zangu hazitanjulikana. Naelewa kuwa naweza kuacha kujihusisha na udadisi huu kwa wakati wowote bila kupeana sababu wala kuogopa matokeo mabaya au kupoteza manufaa.

Jina la mhusika.....

Sahihi ya mhusika.....

Tarehe.....

Appendix F: Focus Group Confidentiality Binding Form



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2542, Fax: 27 21-959 1217

E-mail: nmlenzana@uwc.ac.za

Title of Research Project: **Women's perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Center in Eldoret, Kenya.**

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits. I understand that confidentiality is dependent on participants' in the Focus Group maintaining confidentiality. I hereby agree to the following:

I agree to uphold the confidentiality of the discussions in the focus group by not disclosing the identity of other participants or any aspects of their contributions to members outside of the group. Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Participant's name.....

Participant's signature..... Date.....

Appendix F (i): Fomu ya Kikundi cha Kisiri



CHUO KIKUU CHA WESTERN CAPE

S.L Kipekee X 17, Bellville 7535, South Africa

Nambari ya simu: +27 21-959 2542, Fax: 27 21-959 1217

Barua pepe: nmlenzana@uwc.ac.za

Mada ya Warsha: Mapendeleo ya wanawake na ushuhuda kutokana na mazoezi ya viungo baada ya upasuaji katika Zahanati ya Nasuri Center, Eldoret, Kenya.

Udadisi huu umeandikwa katika lugha ninayo fahamu. Maswali yangu kuhusu udadisi yamejibiwa. Naelewa kujihusisha kwangu ni kwa kupenda kwangu. Naelewa kuwa habari zangu hazitanjulikana. Naelewa kuwa naweza kuacha kujihusisha na udadisi huu kwa wakati wowote bila kupeana sababu wala kuogopa matokeo mabaya au kupoteza manufaa. Naelewa kuwa kusiri unatengemea mhusika katika kikundi inayowezesha usiri. Kwa hivyo nakubali ya fuatayo: Nakubali kuidhinisha usiri wa mazugumzo katika kikundi kwa kutotambulisha wahusika wengine au sera zao kwa jamii ya nje. Tafadhali muulize mkuu wa udadisi.

Jina la mhusika.....

Sahihi ya mhusika.....

Tarehe.....

Appendix G: Audiotaping



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2542, Fax: 27 21-959 1217

E-mail: nmlenzana@uwc.ac.za

UNIVERSITY OF THE WESTERN CAPE

INFORMATION SHEET TEMPLATE

ADDITIONAL GUIDANCE FOR SPECIFIC ISSUES

WESTERN CAPE

Informed Consent

Audio taping

This research project involves making audiotapes of you. This is because the research assistant may not be able to write everything as said during the interview and focus group discussions. After the interview and focus group discussions, data collected will be kept in a safe place under key and locker cabinets. Participants' identification codes will only be labelled on data forms, while computer files will be under password-protection.

___ I agree to be audiotaped during my participation in this study.

___ I do not agree to be audiotaped during my participation in this study.

Appendix H: Interview Guide

My name is Catherine M. Muia. I am a student of University of the Western Cape pursuing a Master's Degree in Physiotherapy. I am currently working on my research project where I would like to **Women's perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Center in Eldoret, Kenya**. You have been identified as one of the respondents in this study and therefore, kindly requested to read through the information sheet, provide informed written consent then respond to the following questions. The information provided will only be used for the purpose of this study and confidentiality and anonymity is highly assured. Responding to this interview guide is voluntary on your part. The questions in this interview guide will take about 40 - 60 minutes of your time to answer. Thank you for agreeing to participate.

Q1. Please can you tell me more about obstetric fistula?

Q2. Please can you tell me how long have you presented with this condition?

Q3. What do you think contribute to the condition you are presenting with?

Q4. Initially how were you managed for this condition? Describe.

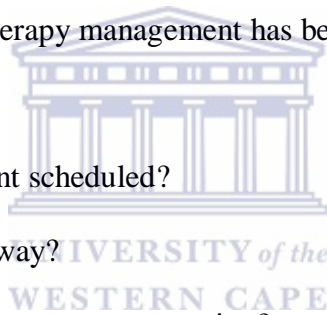
Q5. What do you understand by physiotherapy management? Explain.

Q6. In what ways was physiotherapy management administered to you?

Q7. How can you describe your general health since the beginning of physiotherapy management?

Q8. Can you explain which programmes have been demonstrated to you for self-management of your condition at home?

- Q9. Are you satisfied with the outcome of these programmes? Why?
- Q10. Do you still need further physiotherapy management for your condition? Explain.
- Q11. In what ways can you recommend women with similar conditions like yours to be managed by physiotherapy? Why?
- Q12. Specifically what does physiotherapy management entail for obstetric fistula after surgery?
- Q13. Do you remember any treatment method that managed your ailment?
- Q14. How can you describe various treatment methods used for the ailment you are presenting with?
- Q15. Describe how these treatments changed your condition?
- Q16. Do you think physiotherapy management has been of any help?
- Q17. If Yes! How?
- Q18. How was your treatment scheduled?
- Q19. Was it necessary that way?
- Q20. How many were you in a treatment session?
- Q21. Since the beginning of physiotherapy management, how would you describe your condition?
- Q22. Broadly explain which aspects of your life have been improved?
- Q23. How satisfied were you with physiotherapy management?
- Q24. What is your recommendation to others presenting with the same condition?
- Q25. Please can you tell me about the challenges you face while attending physiotherapy management?
- Q26. Describe how you manage these challenges?



Q27. I am aware you are currently undergoing physiotherapy management for your health condition; please can you explain what hinders you from complying with the treatment programmes?

Q28. How do different approaches in physiotherapy affect your treatment programme? Please explain.

Q29. How do you get along with selected physiotherapy methods in managing your condition? Describe.

Q30. Please tell me at what stage of your health management did you find it tasking most?

Q31. How easy was it to know what physiotherapy management entails for women with obstetric fistula surgery?

Q32. Please describe how easy is it to get to physiotherapy management at your rural home?

Q33. I am sure not all medical bills and other costs are paid for, can you please describe how costly it is to get all the required medical help for your condition?

Q34. In your own opinion, what is the future for physiotherapy management for women with obstetric fistula in this health institution?

Q35. What do you think is associated with urinary residual disability, despite surgical repair and physiotherapy management? Why?

Q36. Are you satisfied with the Health Care System in handling your condition? Explain

Q37. What is your recommendation in preventing and managing such condition in this region and in general in Kenya? Explain.



WESTERN CAPE

Appendix I: Focus Group Discussion

My name is Catherine M. Muia. I am a student of University of the Western Cape pursuing a Master's Degree in Physiotherapy. I am currently working on my research project where I would like to **Women's perceptions and experiences of post-operative physiotherapy management at an obstetric fistula Center in Eldoret, Kenya.** You have been identified as one of the respondents in this study and therefore, you are kindly requested to respond to the following questions. The information provided will only be used for the purpose of this study and confidentiality and anonymity is highly assured. Participating in this Focus Group Discussion is voluntary on your part. The questions will take about 45-90 minutes of your time to answer. Thank you for agreeing to participate.

Remind participants you want to hear about their experiences, ways and challenges faced while undergoing physiotherapy management in this hospital or any other obstetric fistula health facilities.

WARM-UP QUESTION

Good morning/ afternoon, my name is Catherine M. Muia. I love helping mothers who have obstetric and gynaecological challenges in restoring their health issues back to normal. I would like to know more about your health issues you are faced with in your daily lives with regards to physiotherapy management, ways in which physiotherapy is administered to you and any challenges encountered while undergoing physiotherapy management. I work in Moi University school of Medicine in the department of Rehabilitation and Orthopaedics and have worked with mothers with obstetric fistula repair for the last four years. I would like to know something brief about each of you as we start (What is your name, residence, what do you do for a living, what do you enjoy

doing etc).

Brief introduction,

I understand giving birth is one of natural woman's roles which sometimes are accompanied with various complications. Urinary incontinence has been indicated as one of the distressing and disabling health condition related to child birth. Those who are affected may have limitations to their social, emotional, work, domestic, physical and sexual lives across women of all ages. Majority give up in many aspects of their normal life with noticeable loss to their social interactions, interpersonal and sexual relationship, careers and psychological wellbeing. Different management brings back function of their urinary continence, role taking and community participation. Please feel free to bring out your views to facilitate its management in years to come.

Q1. I am aware that you have suffered a birth complication due to child birth, please tell me how has this affected your general health?

Q2. In what ways do you think your bladder problem have affected your life?

Q3. In what ways is the problem you are presenting with been managed?

Q4. Describe ways in which physiotherapy was done to you?

Q5. In what ways do you think physiotherapy helped in managing your condition?

Symptoms severity assessment

Life domains

Management plan

Q4. When at home what do you usually do in managing your condition?Q5.How

challenging do you find it to access physiotherapy management both in hospital set up and at health centres?

Q6. How can you describe physiotherapy management benefits to others who have the same condition like yours in the community?

WRAP-UP QUESTION

Before we finish, are there any other issues or areas we haven't discussed that you want to raise?



Appendix J: Proof of Editing

14 March 2017

**RE: Editing of MSc thesis
Catherine Muia (3419753)**

To whom it may concern:

This is to confirm that the MSc thesis of Ms Catherine Muia, the title of which is:
WOMEN'S PERCEPTIONS AND EXPERIENCES OF POST-OPERATIVE
PHYSIOTHERAPY MANAGEMENT AT AN OBSTETRIC FISTULA CENTER IN
ELDORET, KENYA, has been proofread and edited for submission to the University of the
Western Cape.

Kind regards



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