

Barriers to research utilization as perceived by midwives in Community Health Centres in Gauteng

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DECLARATION

I, Dimakatso Mirriam Sebopa declare that the work of **Barriers to research utilization as perceived by midwives in Community Health Centres in Gauteng** is solely my work and has not being published anywhere before. I further declare that all sources that have been used in this document are duly acknowledged and no intended plagiarism has been done.

A handwritten signature in black ink, appearing to read 'Sebopa.', with a stylized initial 'D'.

Signature

20 November 2017

Date

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Firstly I want to take this opportunity to thank Almighty God for the strength, courage, patience and tenacity he provided me with during this journey.

Jeremiah 29: 11-14

“For I know the plans I have for you, declares the LORD, plans for welfare and not for evil, to give you a future and a hope. Then you will call upon me and come and pray to me, and I will hear you. You will seek me and find me, when you seek me with all your heart. I will be found by you, declares the LORD, and I will restore your fortunes and gather you from all the nations and all the places where I have driven you, declares the LORD, and I will bring you back to the place from which I sent you into exile”

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PLEASE TAKE NOTE

Research 'utilization' as used in the title of the data-collection tool is used in the study title and when referring to the tool while 'utilisation' (as South African English) is used in the rest of the dissertation.

ABSTRACT

BACKGROUND: Research utilisation is important to ensure evidence-based practice and quality care. Investigation of research utilisation has been done in many countries and clinical settings over the past three decades. Although there is a plethora of evidence in this regard, lack of research utilisation continues to be a challenge in clinical settings. Although nurses and midwives are pressurized to provide care that is informed by evidence, in order to yield positive outcomes in terms of patient care, little is known about the barriers midwives perceive that hinder utilisation of research.

PURPOSE: The intention of this study was to identify the barriers impacting on research utilisation as perceived by midwives. Identifying and addressing such barriers could enhance research utilisation and improve the quality of midwifery care.

METHODS: A quantitative, descriptive, cross-sectional design was used to identify barriers to research utilisation as perceived by midwives in practice. The study was conducted in 18 Community Health Centres in the Gauteng Province of South Africa. An all-inclusive sample was employed in this study. The barriers and facilitators to research utilization questionnaire (BARRIERS scale) was used to collect data. Data were analysed using the Statistical Package for Social Sciences (SPSS software version 23).

RESULTS: The total number of participants who responded to the questionnaire was hundred and forty ($n=140$). The results revealed that midwives in community health centres perceived organisational barriers to be the major hindrances to research utilisation. The five top barriers identified were research reports are not published fast enough ($x=3.12$; $sd\ 1.930$), the nurse felt that she did not have the authority to change patients' protocols and procedures ($x=3.07$; $sd\ 1.094$), other staff members do not support the implementation of research results ($x=2.99$; $sd\ 1.031$), nurses do not have sufficient time (on the job) to implement new ideas ($x=2.97$; $sd\ 1.096$) and nurses feel that results cannot be generalised to their own setting ($x=2.95$; 1.026).

CONCLUSION: The most significant barriers to research utilisation identified during the current study, do not differ from the barriers found by other researchers. Organisational barriers were the most influential barriers impacting negatively on midwives' utilisation of research in clinical practice. The findings of this study challenge management and administration to improve the practice environment. Adequate staff, resources, time and support for midwives should be provided to enable them to utilise research results and provide safe and quality care to patients.

Key words: Research utilization barriers, research utilization, community health centres, evidence-based care, midwifery practice in South Africa, utilisation.

OPSOMMING

INLEIDING: Ondersoek na navorsingsbenutting is in die afgelope drie dekades in baie lande en kliniese instellings gedoen. Alhoewel daar 'n oorfloed van bewyse in hierdie verband bestaan, is gebrek aan navorsingsgebruik steeds 'n uitdaging in die kliniese omgewing. Net soos verpleegkundiges word vroedvroue onder druk geplaas om sorg te bied wat deur bewyse ingelig word ten einde positiewe uitkoms op die gebied van pasiëntsorg te lewer, maar min is bekend oor die hindernisse wat vroedvroue ervaar wat die gebruik van navorsing betref.

DOELSTELLING: Die doel van hierdie studie was om hindernisse vir navorsingsbenutting soos deur vroedvroue waargeneem, te identifiseer. Die identifisering en aanspreek van sulke hindernisse kan bydra tot die verbetering van die kwaliteit van verloskundige sorg. Die studie is uitgevoer in 18 Gemeenskapsgesondheidsentrums in Gauteng.

METODES: 'n Kwantitatiewe, beskrywende, deursnee-ontwerp is gebruik om die hindernisse vir navorsingsbenutting soos deur vroedvroue in die praktyk waargeneem, te identifiseer. 'n Alles-insluitende steekproef is in hierdie studie gebruik. Die hindernisse en fasiliteerders vir navorsingsbenutting gebruiksvraelys (BARRIERS-skaal) is gebruik om data mee te versamel. Data is geanaliseer met behulp van die Statistiese Pakket vir Sosiale Wetenskappe (SPSS sagteware weergawe 23).

BEVINDINGE: Die totale aantal deelnemers wat op die vraelys gereageer het, was honderd en veertig ($n = 140$). Die resultate het aan die lig gebring dat vroedvroue in gemeenskapsgesondheidsentrums organisatoriese hindernisse beskou as die vernaamste struikelblokke vir die gebruik van navorsing. Die vyf grootste hindernisse wat geïdentifiseer is, navorsingsartikels word nie vinnig genoeg gepubliseer nie ($x=3.12$; $sd\ 1.930$), die verpleegkundige voel sy het nie gesag om pasiënt se protokolle en prosedures te verander nie ($x=3.07$; $sd\ 1.094$), ander personeel ondersteun nie implementering nie ($x=2.99$; 1.031), die verpleegkundiges het nie genoeg tyd om nuwe idees te implementeer nie ($x=2.97$; $sd\ 1.026$) en verpleegkundiges voel dat navorsingresultate nie veralgemeen kan word na hulle eie omgewing nie ($x=2.95$; 1.026).

GEVOLGTREKKING: Die belangrikste struikelblokke wat navorsingsbenutting te verhoed volgens hierdie studie, verskil nie van die hindernisse wat deur ander navorsers gelede gevind is nie. Die organisatoriese hindernisse wat vroedvroue verhoed om navorsing in die kliniese praktyk te gebruik het die grootste negatiewe invloed gehad. Die bevindings van die studie stel 'n uitdaging aan bestuur en administrasie om die praktykomsing te verbeter. Voldoende

personeel, hulpbronne, tyd en ondersteuning moet aan vroedvroue verskaf word om hulle in staat te stel om navorsingsbevindinge te gebruik en veilige en gehalte sorg aan pasiënte te verskaf.

Sleutelwoorde:

Hindernisse, navorsingbenutting, Gemeenskapgesondheidsentrums, bewys-gebaseerde sorg, vroedvroue.

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
DMIN/DF	Minimum Sample Discrepancy divided by Degrees of Freedom
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CHC	Community Health Centre
CPD	Continuous Professional Development
CURN	Conduct and Utilization of Research in Nursing
DOH	Department of Health
EPB	Evidence-Based Practice
HIV	Human Immunodeficiency Virus
HREC	Health Research Ethics Committee
ICM	International Confederation of Midwives
MDG	Millennium Development Goals
MOU	Midwife Obstetric Unit
NWU	North-West University
PHC	Primary Health Care
RMSEA	Root Mean Square Error of Approximation
SANC	South African Nursing Council
SGB	Sustainable Development Goals
STATSSA	Statistics South Africa
USA	United States of America
WHO	World Health Organization

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CHAPTER 1

OVERVIEW OF THE DISSERTATION

1.1 INTRODUCTION

Patient care is supposed to be informed by evidence in order to yield positive outcomes in terms of patient care (Van der Walt & Minnie, 2008:28). However, research is not optimally used (Estabrooks *et al.*, 2008:31). It is important to utilise research in clinical practice as it improves the quality of care and provides positive and reliable patient outcomes and lead to evidence-based practice. Further, Lungina *et al.* (2002:451) stated that the use of research findings is central to the improvement of any clinical practice. Barriers to research utilisation in clinical practice are complex, and despite investigations, they remain significant in the improvement of patients' clinical outcomes.

Although most nurses in South Africa are also midwives, the focus of this study will be on those primarily practising as midwives. Nurses and midwives are expected to provide care that is informed by evidence, yet little is known about the barriers midwives perceive to hinder the utilisation of research. The majority of studies aimed at research utilisation focus on nurses in general (Breimaier *et al.*, 2011:1747, Funk *et al.*, 1991a:40; Parahoo, 1998:285; Shifaza *et al.*, 2014:3). Few studies have focused exclusively on midwives' utilisation of research (Belowska *et al.*, 2015:36; Veermah, 2004:183).

The intention of this study was to identify the barriers impacting on research utilisation, as perceived by South African midwives. Identifying and addressing these barriers could contribute to the utilisation of research and to the improvement of the quality of midwifery care.

This chapter commences by providing background information and a rationale for the study which gave rise to the research problem. In addition, the purpose of the study and the discussion of paradigmatic perspective of the researcher are presented. The chapter concludes with the proposed methodology and research methods adopted during the current study.

1.2 BACKGROUND OF AND RATIONALE FOR THE STUDY

Barriers to research utilisation have been identified and documented in different countries such as Sweden (Björkström & Hamrin, 2001:706), Northern Ireland (Parahoo, 2000:89), Turkey (Moreno-Casbas *et al.*, 2011:1936), Jordan (Al-Ghabeesh *et al.*, 2012:1) and Nigeria (Adejumo & Guobadia, 2013:46). Although evidence shows that nurses generally have positive attitudes towards research, it also indicates that lack of implementation of research evidence in clinical

settings is a continuous challenge (Austvoll-Dahlgren & Helseth, 2012:271; Royle & Blythe, 1998:72; Uysal *et al.*, 2010:3450).

Despite the increase of available, relevant, accessible clinical research outputs (Wang *et al.*, 2013:1), the non-implementation of research findings in clinical practice persists, leading to suboptimal care. Squires, Estabrooks, *et al.* (2011:2) refer to the difference between research findings and actual practice, as the research-practice gap.

Research utilisation refers to the use of research findings in any aspect of one's work as a registered nurse (or midwife) (Estabrooks, 1998:19). Research utilisation is a complex and multifaceted construct, as is evident from the multiple and diverse conceptualisations in the literature. For instance, while some scholars define research utilisation as a general or omnibus construct, others describe it as the use of specific research findings or practices (Squires, Estabrooks, *et al.*, 2011:2). A Canadian study, describing the conceptual structure of research utilisation using data from randomly selected registered nurses, concluded that research utilisation could be classified as instrumental, conceptual and persuasive (Estabrooks, 1999:203). She argued that there is limited understanding of research utilisation as usually only instrumental use is measured. The situation has not changed significantly, although much research has been published. This weakness has also been identified by Uysal *et al.* (2010:3444).

The complexities of research utilisation in the United Kingdom, United States of America, and Asian countries have been investigated. These studies range from sources of information for research to attitudes and perceptions of research utilisation barriers (Adejumo & Guobadia, 2013:47; Ertug & Önal, 2014:256; McCleary & Brown, 2003:367; Oh, 2008:31; Parahoo & McCaughan, 2001:21; Tsai, 2000:441; Veeramah, 2007:33). Barriers to research utilisation in nursing, identified through research, include a lack of organisational support, lack of time due to work pressure, failure to disseminate research findings to clinical facilities and inadequate knowledge and skills to appraise research. Although studies have investigated the perception of nurses regarding the barriers to research utilisation, there is limited evidence with regard to research utilisation by midwives.

An example of research not being utilised in midwifery practice is seen in that research provides clear evidence that restrictive episiotomy policies are beneficial over policies that prescribe routine practice, yet episiotomies continue to be performed routinely in many low and middle income settings (Althabe *et al.*, 2002:945; Madumo-Butshe *et al.*, 1998:1179;). In South Africa, Smith *et al.* (2004:119) evaluated an evidence-based practice package for obstetric practices (including restrictive episiotomies). They found that although there were some improvements in the behaviour of professionals to use evidence, harmful practices persisted. Similar practices were reported by Brown *et al.* (2007:4) and Thopola (2016:136).

Albers (2007:181) emphasised that midwives are experts in normal child bearing and should be ideal caregivers to help preserve normal pregnancy and labour including health. This implies that midwives must remain up to date with their knowledge and support their practice with evidence. In addition, they should also play a leading role in providing maternity care. Van der Walt and Minnie (2008:28) maintained that the ability to make evidence-based decisions is a required core skill for professional nurses and midwives. When the best available evidence is considered critically and implemented, chances are higher that the nurses will do the right thing at the right time for the right patient. The extent to which midwives will be successful in contributing to the welfare of women and children depends on the use of scientific knowledge (research findings) that underpins midwifery practice.

1.3 PROBLEM STATEMENT

South Africa is struggling to improve maternal and perinatal outcomes, and has failed to achieve Millennium Development Goal (MDG) 5 (replaced by Sustainable Development Goal [SGB] 3) focussing on reducing maternal mortality rates (StatsSA, 2015:20). Staff attitudes and skills have been identified as factors affecting death and adverse maternal outcomes (Schoon & Motlolometsi, 2012:784). Sixty percent of maternal deaths in the Republic of South Africa are considered to be potentially avoidable and due to substandard care and missed opportunities (South Africa, Department of Health [DoH], 2013:15). Utilising the best research evidence available in practice could help to reduce avoidable maternal deaths.

The barriers of research utilisation by South African midwives, working at community health centers (CHCs), have not yet been identified. These centres continue to experience high maternity mortality rates which could potentially be reduced if more midwives used research findings in their practice. It is therefore critical to understand research utilisation by midwives working in this context in order to design interventions to increase research utilisation (Estabrooks *et al.*, 2003:507) and thereby improve the quality of midwifery care. This background set the tone for the study and gave rise to the research question.

1.4 RESEARCH QUESTION

- What are the perceived barriers to research utilisation by registered midwives in CHCs in Gauteng?

1.5 AIM AND OBJECTIVE OF THE STUDY

The aim of this study was to contribute to the improvement of the quality of midwifery care by identifying and describing barriers perceived to be hindering research utilisation.

The objective of this study was to identify and describe the barriers to research utilisation as perceived by registered midwives working in CHCs in Gauteng.

1.6 PARADIMATIC PERSPECTIVE

1.6.1 Meta-theoretical assumptions

Meta-theoretical assumptions refer to the researcher's beliefs (Botes, 2002:2) regarding man and the world in which he lives in. Polit and Beck (2012:14) regarded meta-theoretical assumptions as principles that are believed to be true without verification or proof. In this study the meta-theoretical assumptions of the researcher were based on the researcher's beliefs regarding man/person (in this instance 'person' refers to both men and women) and the world in which he lives as well as his behaviour.

1.6.1.1 Person

The researcher believes that a person is created in the image of God and thus is a semblance of a Higher Power. A person is not only a physical organism but is also spiritual, psychological and social - thus a holistic being. The researcher believes that because a person is a resemblance of a Higher Power, he/she must be treated with kindness, love, respect, dignity and great care.

The researcher believes that God has given a person power, intellect, control and love to care and manoeuvre on earth, such that he/she can make a positive contribution towards his/her fellow person, environment and society in general, despite challenges and circumstances he/she might encounter. I believe that God resides in each and every person and all that are born in this world have God's purpose to serve and a single person can change the world through the will of God.

In this study, a person is represented by registered midwives working in CHCs. The registered midwife is a unique, powerful and intellectual being who is created in the image of God, with a purpose of serving pregnant and postnatal mothers as well as their babies who are created in God's image and thus need extreme care, informed by current scientific knowledge and skill. It is therefore important for midwives to be skilled and knowledgeable in a clinical practice situation like a CHC.

1.6.1.2 Environment

The environment refers to the clinical workplace in which the registered midwife practises. In this environment the midwife interacts with different kinds of people such as colleagues and patients. These people have different personalities, values, beliefs and perceptions of their environment. The researcher believes that the environment in which the registered midwife carries out her

duties should be safe, equipped, supportive, and should provide opportunities to exhibit and execute new ideas that are practical, well researched and reasonable.

1.6.1.3 Health

The researcher believes that health is a state of spiritual, psychological, physical, social wellbeing of an individual and not just the absence of disease (WHO, 2016). The holistic approach to the provision of health care needs to be considered at all times by midwives when rendering care to women and babies at the community level. The emphasis should be on preventive, promotive and rehabilitative care that is patient-centered and comprehensive in nature, which will lead to a healthy society. In the current study health care refers to maternal and child care provided by midwives to women and their babies.

1.6.1.4 Midwifery

Midwifery encompasses care of women during pregnancy, labour, and the postpartum period, as well as care of the new-born baby. It includes measures aimed at preventing health problems that women and new-born babies might encounter, the detection of abnormal conditions, the procurement of medical assistance when necessary, and the execution of emergency measures in the absence of medical help (WHO, 2016). The researcher believes that midwifery is a profession that is founded on the principles of compassion, empathy, respect and caring. It requires a practitioner that is well skilled and well informed in order to prevent harm to the patient. I also believe that midwifery is an area that requires sensitivity and appreciation from those who are rendering midwifery care. Therefore the researcher believes that individuals that are in midwifery practice must be selfless, enquiring, empowering, hardworking and passionate about what they are doing for the wellbeing of mothers and babies. The researcher further believes that midwifery practice should be based on the best available evidence coupled with provider experience and considering patients' needs to deliver quality and efficient care.

1.6.2 Theoretical assumptions

This research is underpinned by Rogers' Diffusion of Innovation Theory. The data collection tool used in this study was developed, based on Rogers's theory (Kajermo *et al.*, 2010:2).

1.6.2.1 Rogers' Diffusion of Innovation Theory

Rogers (2003:10) identified four main elements that influence the methods by which information is adopted: innovation, communication channel, time and social system.

- **Innovation**

Rogers (2003:12) described innovation as an idea, practice or project that is perceived by an individual or other unit of adoption as new. The idea or practice might have been innovated earlier. However, if the unit is perceived as being new it remains an innovation for them. The steps relate to adoption of innovation are knowledge, persuasion, implementation and confirmation which are the innovation-decision process.

Rogers (2003:436) stated that uncertainty poses an obstacle to the adoption of the innovation and an innovation consequence might create uncertainty. Consequences are the changes that happen in an individual or social system as a result of adoption or rejection of an innovation (Rogers, 2003:436). Uncertainty of adopting an innovation could be reduced by informing individuals about the advantages and disadvantages of the specific innovation (Sahin, 2006:14). For instance, midwives could be informed about research utilisation as a way of improving patient care and specifying the potential positive implications thereof.

- **Communication channel**

The second element of diffusion of the innovation process is the communication channel. Rogers (2003:5) defines communication as a process in which respondents establish and share information with one another in order to reach a mutual understanding on innovation. Meaning individual adopters must have knowledge and expertise and these should be communicated or transmitted to others (Dibra, 2015:1458). A channel refers to the means by which the message is transmitted to the receiver of information from the source, like journal clubs where research reports could be discussed, research articles as well as knowledgeable colleagues (Rogers, 2003:204).

A source is an individual or an institution that initiates the message. Diffusion is a social process that involves interpersonal social relationships and communication takes place at the mass media and interpersonal levels. The mass media is effective in creating knowledge about innovations, for instance television commercials, for two and more people. Interpersonal communication is more effective in changing people's attitudes towards favouring the innovation, which has an influence on their decisions to accept or reject the innovation (Orr, 2003). According to Rogers (2003:18), the degree of similarities among the group members where the innovation happens will affect the simplicity and speed with which the diffusion takes place. Rogers (2003:18) further argues that innovation spreads faster within a homophilous group (a group with certain similar attributes such as beliefs, education and social status) than a heterophilous group (a group with different attributes). In this study the midwives could be a homophilous group. For example, midwives are of the same social status and their basic education about midwifery care is the same, making it simple and fast for them to accept or reject an innovation.

- **Time**

The third element is time. For Rogers (2003:20) time is a significant element in the diffusion process. Time is hardly separate from existence with events, but is central to all aspects of activities. According to Rogers (2003:20), including time in the diffusion research shows one of its strengths. Anis (2009: 244) states that the theory of innovation diffusion shows that before an innovation is adopted, it goes through the mental process of an individual's decision making for adoption of an innovation which involves time. The time dimension is involved in diffusion in the innovation decision process by which an individual passes from first knowledge of an innovation through its adoption or rejection process. Rogers (2003:20) states that adoption of innovation is based on earliness or lateness of an individual to adopt the innovation compared to other members of the system.

The adoption of an idea is based on five steps: knowledge, persuasion, decision, implementation and confirmation. The rate of adoption is referred to as the relative speed with which innovation is adopted by members of the social system (Rogers, 2003:23). The rate of adoption is measured by the length of the time required for a certain percentage of members of the system to adopt an innovation. Rogers' emphasised that the speed with which an innovation is adopted, is based on the system and not necessarily on the individual. In the current study, research utilisation as an innovation depends on the organisational systems in place to ensure that midwives adopt the innovation and implement it. For example, midwives could be offered time to engage in research activities as part of their in-service training that could afford them the ability to learn how to utilise research in the execution of their duties.

- **Social system**

The social system is the last element of innovation of the innovation process. The social system refers to organised units or individuals combined for problem solving with the intention of attaining the same goal (Rogers, 2003:23). The diffusion of innovation happens through the social structure and is influenced by the same social structure in the social system. Rogers regards structures as the patterned units in the social system. The members of the units are individuals, informal groups, organisations and/or subsystems. According to Rogers (2003: 37) the opinion leaders who might be innovators and early adopters are key in ensuring that an innovation is adopted. They serve as change agents who influence their peers through networking, role modelling and peer communication. In support of this view (Lien & Jiang, 2017: 259) suggest that decision making approach should focus on the opinion leaders first by using their authority to influence the innovation rate.

Adoption of an innovation happens within the elements of diffusion and through the innovation decision process. Carayon (2010:664) states that adoption of an innovation is accomplished by

individuals while innovations are demonstrated by organisations. The innovation decision process is the process by which individuals learn about innovation, assess it and then use it in practice. For example, for midwives to utilise research they need to be introduced to the idea of research utilisation (innovation) in a social system or organisation through the communication channel which could be colleagues knowledgeable about research or through research clubs. The adoption of the innovation will depend on the time midwives require in the social system or organisation to understand the innovation and how the system supports research utilisation. For instance, if managers encourage the midwives to belong to journal clubs and attend research activities in the system, these activities could enable the midwives to adopt the innovation faster. These elements are illustrated in figure 1.1 and the process of innovation decision process is outlined in the next paragraph.

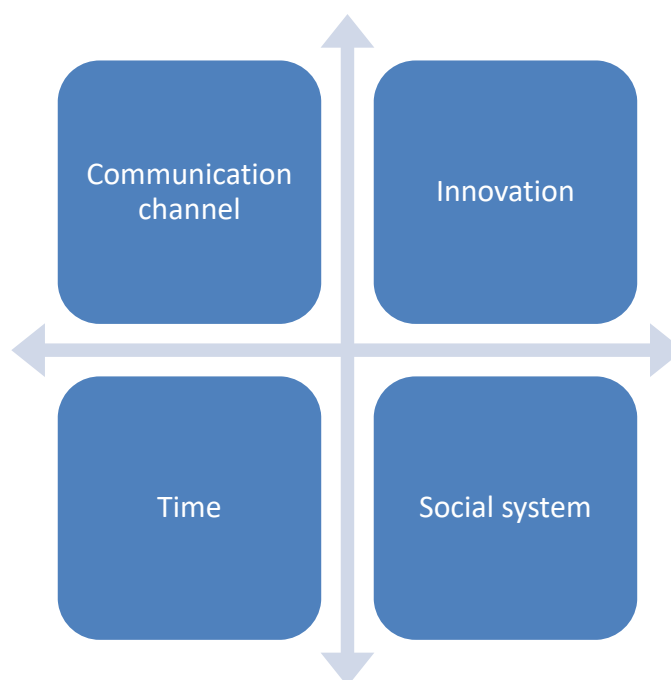


Figure 1.1 Elements of the Diffusion of Innovation Theory (Nguyen, 2008:9)

- **The innovation decision process**

According to Nguyen (2008:9), the innovation-decision process is the process by which an individual learns about and assesses the use of an innovation. Rogers (2003:164) suggested that innovation decision processes happen in five stages. These are knowledge, persuasion, decision, implementation and confirmation as presented in Figure 1.2. The decision to accept or reject the innovation does not happen automatically. Rogers (2003:167) contended that an individual must be exposed to an existing innovation in order to gain some understanding of how it functions, comprising the first stage known as the knowledge stage. Only thereafter could an individual be persuaded to form either a favourable or unfavourable attitude towards the innovation, which is regarded as the persuasion stage (which is the second stage). A decision then occurs as to

whether to accept or reject an innovation and this takes place during the third stage known as the decision stage. Implementation happens when an individual adopts a new behaviour and accepts the innovation and implements it in practice, which is regarded as the fourth stage. Confirmation takes place when an individual supports the learned innovation and might change if new information arises that no longer supports the adopted innovation decision, regarded as the fourth stage. The stage that is relevant to the current study is the fourth stage which is implementation. According to Rogers (2003:174), implementation refers to implementing or applying a new idea. Equally in midwifery, implementation would be to use research findings to implement new practices (Nguyen, 2008:12)

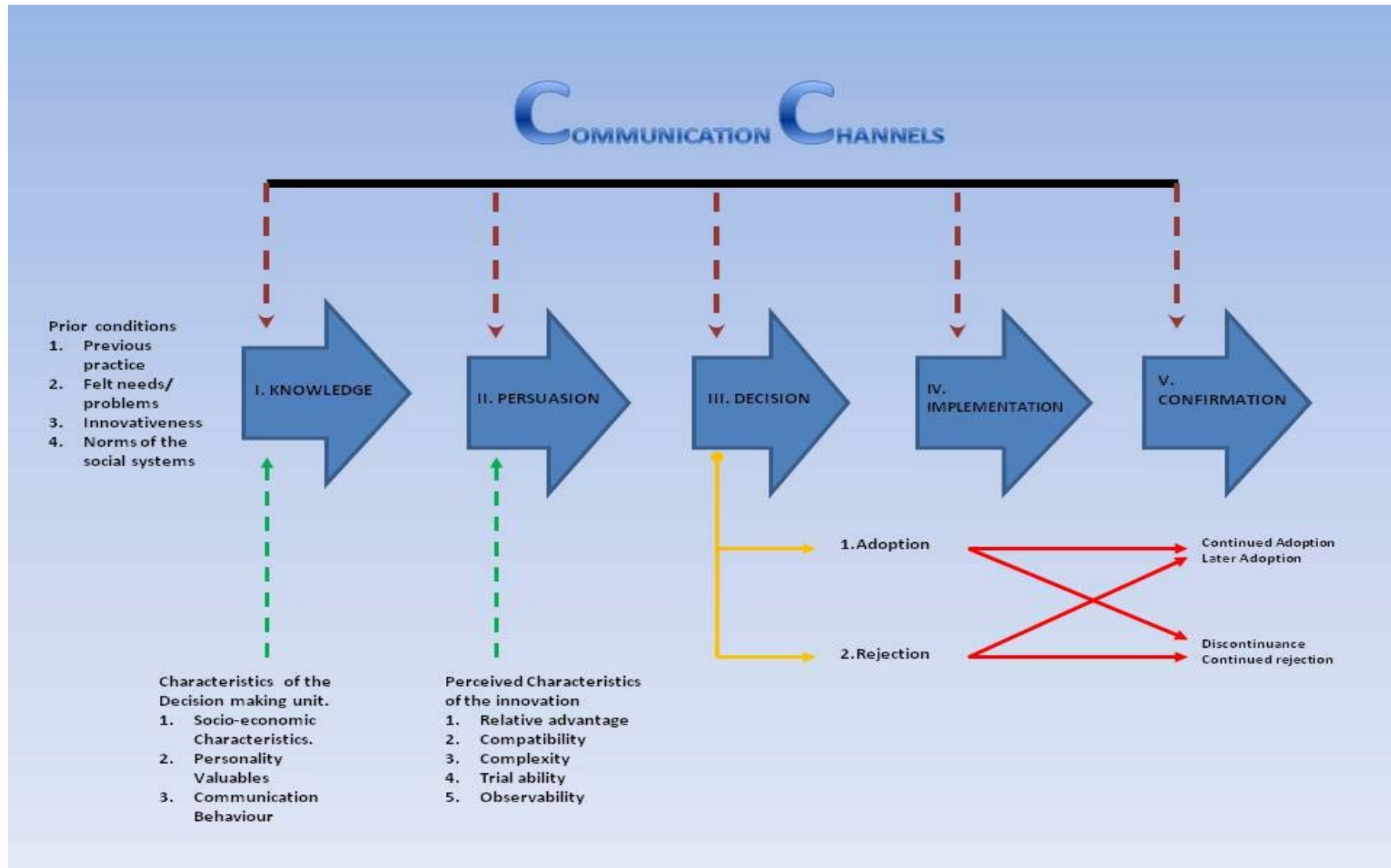


Figure 1.2: Innovation-decision process adapted from Rogers' Theory (Rogers, 2003:164)

- **Dimensions as applied in tool to assess barriers to research utilisation**

Funk and colleagues (1991a:40) developed a research measurement tool to assess the perceptions of nurses regarding the barriers to research utilisation in 1991 which was based on the Diffusion of Innovation Model by Rogers. The instrument identified four dimensions.

The dimensions identified by the instrument correspond with four categories: characteristics of the adopter (reflecting the nurses' research values, skills and awareness), characteristics of the organisation (barriers and limitations of the setting), characteristics of the innovation (qualities of the research) and characteristics of the communication (presentation and accessibility of the research) (Schoonover, 2009:207).

The dimensions are presented in Figure 1.3.

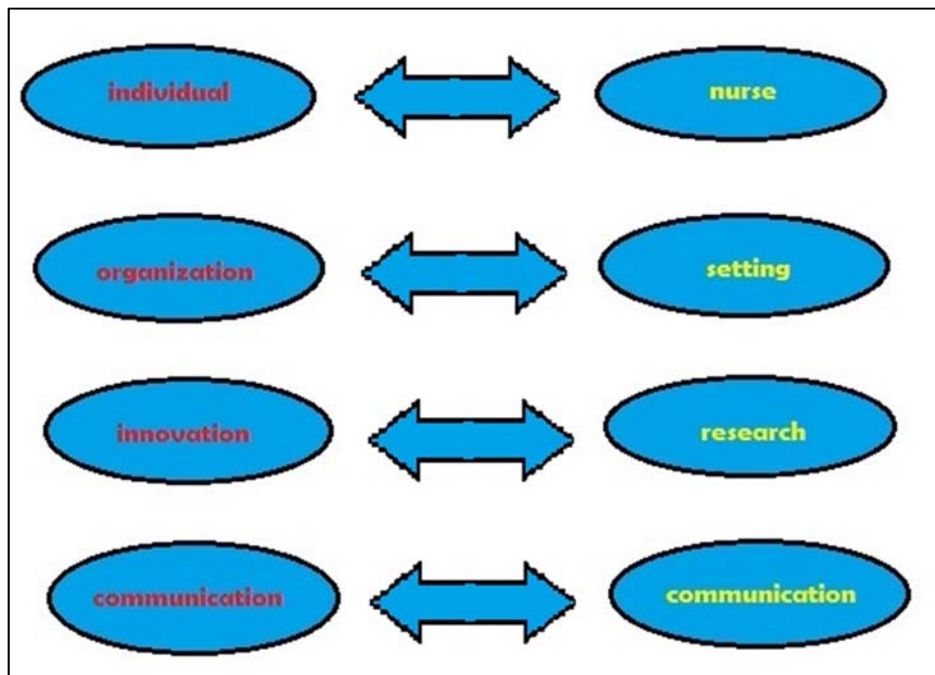


Figure 1.3: Roger's theory elements aligned to the Funk *et al.* study (Nguyen, 2008:12)

1.6.2.2 Definitions of concepts

The definitions of the main concepts are provided in this section.

- **Community Health Centres (CHCs):**

These are primary health care units that deliver 24 hour comprehensive services without the continuous presence of medical practitioners. The maternity section usually operates alongside other

services such as emergency care, minor ailments, chronic diseases and promotive services. Where a maternity section stands alone, it might be called a midwife obstetric unit (MOU). In the current study CHCs refer to primary health care (PHC) units where midwives are rendering maternity care.

- **Evidence-based practice**

Evidence-based practice is the integration of best research evidence with clinical expertise and patient values (Institute of Medicine, 2001:232). In this study evidence-based practice relates to the utilisation of research and clinical expertise by midwives in CHCs.

- **Midwife**

The International Confederation of Midwives (ICM) defines a midwife as someone educated and trained to possess specific proficiencies who has the necessary licensure or registration according to legislation of her country to practise as a midwife (ICM, 2011:10). According to the Nursing Act (No 33 of 2005), "midwifery" refers to a caring profession practised by persons registered under this Act, which supports and assists the health care user and in particular the mother and baby, to achieve and maintain optimum health during pregnancy, all stages of labour and the puerperium; In this study the term refers to registered midwives working in CHCs in the Gauteng Province of South Africa.

- **Research utilisation**

Research utilisation is the use of research findings in any aspects of one's work as a registered nurse (Estabrooks, 1998:19). In the current study the definition is applied to registered midwives' implementation of research results.

- **Barriers**

Barriers are problems, rules or situations that prevent somebody from doing something or that make something impossible. (Oxford Advanced Learner's Dictionary, 2015). In this study the term refers to the barriers to research utilisation, as perceived by midwives in CHCs in the Gauteng Province.

- **Perception**

Perception is the active mental process of selection, organisation and interpretation of sensory stimuli (Ungerer & Ngotha, 2009:93). In this study the term is used for the purpose of identifying and describing barriers to research utilisation, as perceived by midwives working in CHCs in the Gauteng Province.

1.6.3 Methodological assumptions

Botma *et al.* (2010:187) postulated that every research endeavour is based on general underlying assumptions about what constitutes valid and good research and which research methods are appropriate. The researcher views good research as that which is conducted ethically, meaning the researcher is honest at all times and observes all the ethical principles that underpin the process of conducting research. A study must be conducted to acquire information that will be relevant and initiate change and provide a solution to the current situation or challenge (Polit & Beck, 2012:16).

1.7 RESEARCH DESIGN

A quantitative, descriptive, cross-sectional design was selected to identify and describe the barriers to research utilisation, as perceived by midwives working in CHCs in the Gauteng Province. A quantitative design allows the systematic use of a formal instrument to gather numeric information that can be analysed with statistical techniques (Polit & Beck, 2012:60). The BARRIERS scale was used to gather numeric information and data were analysed using descriptive and inferential statistical procedures.

1.8 RESEARCH METHOD

The sampling, data collection and data analysis will be discussed briefly in this section.

1.8.1 Sampling

According to Polit and Beck (2012:738) the population is an aggregate of all the individuals or objects to be studied with some common defining characteristics. The population of the current study comprised midwives working directly with patients in antenatal, intrapartum and postpartum areas in CHCs of the Gauteng Province. This province has 18 CHCs, each employing about 15-20 midwives.

Sampling refers to the process of selecting a sample or a part/fraction of the study population, in order to obtain information regarding the phenomenon under study in the way that represents the

population (Brink *et al.*, 2012:132). In the current study an all-inclusive sample was selected because a limited number of midwives were working in each CHC.

According to Grove *et al.* (2015:511), sample size refers to a number of subjects, events, behaviours or situations examined in a study. A statistician from the North-West University (NWU) was consulted in preparation for the data collection, and recommended an all-inclusive sample of all 270 midwives, working at the CHCs in the Gauteng Province, should be invited to participate in the current study but only midwives willing to participate would do so.

1.8.2 Data collection

Grove *et al.* (2015:47) cited data collection as the precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions, or hypotheses of the study.

The Barrier to Research Utilisation Questionnaire (BARRIERS scale) (Funk *et al.*, 1991a:40) was used to collect data. A questionnaire was deemed to be the ideal way to collect data, as it provides a sense of anonymity to the respondents. It is the quickest way of obtaining data from a large sample, fairly inexpensive and not time consuming (Brink *et al.*, 2012:154).

1.8.3 Data analysis

Data collected from the questionnaires (which were coded according to the CHCs) was captured on a Microsoft Excel sheet and analysed using the Statistical Package for Social Science (SPSS version 23, 2016). Descriptive analysis was used to present frequencies, means and standard deviations of the demographic data as well as the data regarding the perceptions of the barriers to research utilisation. Inferential statistics including the T-test, analyses of variance (ANOVAs) and Spearman's rank order correlations were used to determine associations within demographic data as well as between demographic data and clinical characteristics. A confirmatory factor analysis was conducted on the data to verify the factor structure of a set of observed variables of the BARRIERS scale. The study also conducted hierarchical linear modelling to analyse the effect of midwives' qualifications on the subscales of the BARRIERS scale. A statistician of the Statistical Consultation service of the Potchefstroom campus of the NWU assisted with the statistical analyses.

1.9 RIGOUR

Rigour is regarded a meticulous manner and judgment taken to ensure that research steps are set up and followed in a research project with attention to detail, such that the outcome reflects the truth and can thus be trusted (Taylor *et al.*, 2006:400). Rigour makes research transparent and allows

others to evaluate methodological adequacies (Van Wyk, 2015:21). In quantitative research rigour refers to validity and reliability. Validity and reliability will be discussed in chapter 3. In this study, rigour was ensured by conducting a literature review on the selected topic that led to the research problem. The design of the study was selected based on of the research problem (Klopper, 2008:68). A quantitative, descriptive design was considered to be appropriate for the study. The selected population was considered to be most suitable to answer the research question. The BARRIERS scale's reliability was tested to verify its consistency in measuring barriers (Funk *et al.*, 1991a:43; Kajermo *et al.*, 2010:2). Confirmatory factor analyses were done to verify that the observed data fit the existing data (as discussed in more detail in Chapter 3 of this dissertation).

1.10 ETHICAL CONSIDERATIONS

The study identified and described the barriers to research utilisation, as perceived by midwives. The researcher adhered to the fundamental ethical principles as suggested by Brink *et al.* (2012:35).

Ethical approval for conducting the current study was obtained from the following authorities:

- The proposal was approved by the scientific committee of INSINQ research area;
- The Human Research Ethics Committee (HREC) of the NWU;
- The Ethics Committee of the Gauteng Department of Health (DoH);
- The Ethics Committees of the districts involved.

1.10.1 The principle of respect

The principle of respect is based on the researcher's interaction with participants. It include not judging, discrediting and ensuring that their views are faithfully recorded and given due consideration in assessment processes (Vanclay *et al.*, 2013:246).

The respondents in the current study were given an opportunity to choose whether they wanted to participate in the current study, without the risk of penalty or prejudice should they decline. The risks and benefits of the study were explained to the respondents. Personal information of the respondents was kept confidential at all times and the researcher would share the results of the study with respondents at the completion of the study.

1.10.2 The principle of beneficence

The principle of beneficence imposes the responsibility of protection of the respondents on the researcher, meaning that the researcher has the duty to minimize harm and maximize benefits (Polit & Beck, 2012:152). The application of this principle is discussed in sections 1.10.2.1 – 1.10.2.3.

1.10.2.1 Right to beneficence and protection from maleficence

The researcher explained to the respondents that there would no direct benefit for them to participate in the study. It was explained to the respondents, however, that the benefit would be indirect to the managers and policy makers as they would be made aware of the barriers to research utilisation. Interventions could then be developed to promote research utilisation and ultimately to improve care. Secondly it was explained to respondents that there would be an indirect benefit to researchers, and to the research community at large, through the addition of unique information to the body of knowledge about midwives' research utilisation.

A risk of the study was associated with the 40 minutes needed to complete the questionnaire as it was lengthy and the respondents might get bored while completing it. To minimise this risk the respondents were encouraged to complete the questionnaire at a time that would be most suitable for them and to return it within two days.

1.10.2.2 The right to freedom from harm and discomfort

All forms of harm and discomfort were averted in the current study. The researcher emphasised that participation in the study was voluntary and that no person would be coerced to participate. The researcher ensured that the purpose of the study was explained to the respondents. The research was conducted in a safe environment where midwives worked and they could complete the questionnaire at a time suitable to them and return it within two days. The researcher's information was provided to the respondents in case they had any questions regarding the research.

1.10.2.3 The right to protection from exploitation

The researcher allowed the respondents to ask questions about the study before they decided whether or not to participate in the study. Respondents were assured that the information they provided would not be used for any other purpose but solely for the purpose of the study. There was no monetary reward and no promise of payment to respondents.

1.10.3 Informed consent

Informed consent refers to an individual's agreement to participate voluntarily in the study. This consent should be obtained after assimilation of the essential information (Grove *et al.*, 2015:111). The respondents were informed about the study's purpose, aims, objectives and processes before consent forms were handed out. This provided the respondents with knowledge to make informed voluntary decisions as to their participation in the study. The risk of the study, which had been explained to the respondents, involved that the questionnaire was long and had to be completed during the respondents' spare time.

1.10.4 Distributive justice

The principle of distributive justice holds that each respondent should be treated equally and fairly when participating in a study (Brink *et al.*, 2012:36). The researcher should not choose a population because it is easily available and can be easily manipulated (Grove *et al.*, 2015: 124). In the current study, the researcher ensured that this principle was adhered to at all times by ensuring that the mediators understood this principle. The researcher observed the interaction with respondents without interfering.

1.10.5 Privacy and confidentiality

The right to privacy is the right of the respondent to willingly choose with whom they would like to share their information (Grove *et al.*, 2015:105). In this study, the respondents were informed that they did not have to provide their names on the questionnaires. Separate envelopes were provided for the respondents to insert the consent forms and questionnaires to maintain confidentiality. Code names were used instead of the respondents' names and the questionnaires were marked with the code of the CHC and a number allocated for each respondent. The code list was kept by the researcher and only accessible to her and was destroyed immediately upon verifying the questionnaires received.

The right to privacy extends to respondents' rights to be assured that data will remain private (Polit & Beck, 2012:156). The respondents in this study were informed that the researcher, her supervisor and the statistician would be the only people who would have access to their raw information. The other stakeholders will only have access to the analysed data. The signed informed consent forms and completed questionnaires would be kept under lock and key in the supervisor's office at the university premises and would be discarded after five years. The signed consent forms and completed questionnaires were locked up in a cupboard immediately after data collection.

1.10.6 Publication of results

The researcher assured the respondents that the research findings would be published without linking any respondent to individual responses, including not disclosing the specific CHC where they were working. The results would also be disseminated by means of journal articles, presentations in meetings or during in-service training sessions. Reports would be given to relevant officials who had granted permission for the research to be conducted. The respondents of the study would be informed about the results of the study in the form of a booklet which would be delivered by the researcher to the facilities once the study had been completed.

1.11 LAYOUT OF THE DISSERTATION

Chapter 1: Overview of the Study

Chapter 2: Literature review of factors influencing research utilisation

Chapter 3: Research design and method

Chapter 4: Research results and discussion

Chapter 5: Evaluation of the study, limitations and recommendations for district management, practice, research and policy

1.12 SUMMARY

The study investigated barriers to research utilisation as perceived by midwives working in CHCs. The background of the study was provided to explain the rationale behind the topic chosen. The research problem statement, research question and objectives of the study were addressed. The chapter further outlined the research design and method and concluded with discussions on the ethical considerations applied to the current study. In chapter 2 the literature will be reviewed about factors influencing research utilisation.

CHAPTER 2:

LITERATURE REVIEW OF FACTORS INFLUENCING RESEARCH UTILISATION

2.1 INTRODUCTION

This chapter presents a literature review which grants an overview of barriers to research utilisation.

2.2 LITERATURE SEARCH STRATEGY

A multiplicity of data bases were consulted to search for and identify relevant literature. The following data bases were used for the search, EBSCOhost: Academic Search Premier, Health Source: Nursing/ Academic Edition, MEDLINE, CINAHL, PsychINFO, Google Scholar and, Sabinet online. Key words were identified to launch the search (Polit & Beck, 2010:174). The following key words were used: research utilisation barriers, research utilisation, community health centre, evidence based care, midwi*.

More than 20 000 sources were found and the choice of articles was narrowed according to relevancy. Most of the research papers were based on nursing and a very limited number of midwifery papers were found. Most of the papers were internationally based while only a few were nationally based.

2.3 EVIDENCE-BASED MIDWIFERY CARE

Evidence-based maternity care (as a specific type of evidence-based practice [EBP]) uses the best available research on the safety and effectiveness of specific practices to help guide maternity care decisions and to facilitate optimal outcomes in mothers and new-born babies (Sakala & Corry, 2008:21).

Even without intentionally implementing evidence-based practice, midwives may have used their experience or knowledge from specific research articles in their practice. However, EBP requires a rigorous, well-conducted systematic review of original studies which yields the most trustworthy knowledge about beneficial and harmful effects of specific interventions (Sakala & Corry, 2008:21).

According to Van der Walt and Minnie (2008:29), not all research provides good quality evidence. Nurses and midwives need to be able to critically appraise studies in order to decide whether the findings are credible and of practical value to the patients in their care. Van der Walt and Minnie (2008:29) suggested that the best available research often supports current practice, but there are times when it invalidates previously accepted practices, and replaces them with new practices that are more effective, efficacious and safe. A well-known example in midwifery was research changing the previously well accepted practice of performing routine episiotomies to protect the perineum.

2.4 RESEARCH UTILISATION

Research utilisation refers to the use of research findings in any aspect of one's work as a registered nurse or midwife (Estabrooks, 1998:19). Research utilisation is a fundamental part of EBP as it is the process of making clinical decisions based upon the combination of evidence, clinical experience and patients' expectations.

Despite the emphasis given to research utilisation, evidence shows that the gap between theory and practice often cannot be filled because of the occurrence of barriers (Athanasakis, 2013:17). The theory-practice gap relates to the incongruity of knowledge acquired in theory and its application in the practical clinical situation. The gap exists due to several causative factors. For instance, Ajani and Moez (2011:3929) stated that this problem exists at three levels. Firstly the practice does not live up to theory which relates to ensuring that nurses are research-minded and afford them to practise informed by evidence rather than just by performing the skill in a ritualistic manner. The second level is where theory is irrelevant to practice, implying that nurses need to be encouraged to see the value of research for improving patient care. The last level is the relationship that exists between colleges or universities and the hospital or area of clinical placement. The problem on the third level is supported by Bruce (2013:8), who stated that the situation in South Africa is exacerbated by the shift in education systems. She stated that in the previous dispensation the hospital-orientated approach was embraced, which was clinically-based and task-orientated. With the new dispensation a shift occurred towards a more academic, competency-based approach with more simulations and fewer clinically-based experiences, causing both the academic and the practical areas to feel alienated by the current education system.

2.5 BARRIERS TO RESEARCH UTILISATION

Literature reveals that research utilisation by nurses has been explored by various scholars around the world with the intent to identify barriers. Studies have been carried out in diverse settings for

example, paediatric care, acute care, critical care, primary care, orthopaedic care in an army hospital, academic settings, and community hospitals (Berthelsen & Holge-Hazelton, 2015:74; McCaughan, 2002:46; McClearly & Brown, 2003:364, Mohsen *et al.*, 2016:28, Oh, 2008:314; Strokke *et al.*, 2014:2).

Previous research has found that barriers to effective implementation exist at both the institutional and individual levels. They may include time factors, work environment that does not support or value evidence-based nursing, inadequate research resources, lack of confidence in staff's ability to critically evaluate empirical research, limited authority or power to change practice based on research findings, limited access to literature and limited interest in scientific enquiry (Hockenberry *et al.*, 2006:371).

Scholars seem to agree that one of the major challenges in the utilisation of research findings in practice relates to the lack of knowledge and skills about research. A study of Pravikoff *et al.* (2005:48) used a sample of 3000 registered nurses across the United States of America (USA) to assess nurses' perceptions of access to tools to obtain evidence. The largest portion (72%) of respondents ranked the lack of skills to critique and synthesize literature; coupled by a lack of search skills and difficulty in understanding research articles, as the most common barriers. Lungina *et al.* (2002:451) emphasised that, in the African region, midwives lack the necessary skill in research methodology to be able to evaluate and utilise research results in the provision of reproductive health care. The lack of knowledge and skills discloses a serious challenge in that nurses are not only unable to evaluate research but they are also intimidated because of limited knowledge about the research process (Hockenberry *et al.*, 2006:371).

In the next section the literature will be discussed according to the BARRIERS scale format.

The BARRIERS scale was created by Funk, Champagne, Weise and Torques in 1991 as part of the 'Conduct and Utilization of Research in Nursing Project'. The BARRIERS scale has been used extensively all over the world to assess nurses' perceptions with regard to barriers to research utilisation (Kajermo *et al.*, 2010:32; Nguyen, 2008:3; Schoonover, 2009:200; Wang *et al.*, 2013:2).

The scale is based on four factors emanating from the Diffusion Innovation Theory of Rogers (2003:228), namely:

- the characteristics of the adopter or individual which relates to nurses' values, skills and awareness;

- the characteristics of the organisation which relate to the setting of barriers and limitations;
- the characteristics of the innovation which relate to the quality of the research; and
- the characteristics of the communication which represent the presentation and accessibility of the research.

2.5.1 Individual factors

The individual factors that affect research utilization by nurses are varied and will be discussed in the following section. Individual factors are those that relate to the character of the nurse including the value attached to research, skills and awareness (Funk *et al.*, 1991a:42; 1995:45).

2.5.1.1 Isolation of nurses from knowledgeable colleagues

Isolation of nurses from knowledgeable colleagues is mentioned in the literature as a barrier to research utilisation. For instance, Sanjari *et al.* (2015:534) in a systematic review of barriers and facilitators of nursing research utilisation in Iran, found the item about “the nurse is isolated from knowledgeable colleagues with whom to discuss the research” to get high scores.

The study of Uysal *et al.* (2010:3446) cited that 73.6% of the respondents in their study ranked nurses’ isolation from knowledgeable colleagues as one of the top barriers. Evidence about midwives being isolated from knowledgeable colleagues poses a severe threat to the utilisation of research because nurses will continue to base their interventions on tradition, customs and unit culture rather than on sound evidence.

According to Pravikoff *et al.* (2005:48), when decisions must be made quickly, nurses trust a real person - a colleague, clinical specialist or a supervisor more than they do printed and electronic resources. This simply demonstrates that it is essential for nurses to have an expert with research-based knowledge at their side to guide and update them. In support of this notion, Grove *et al.* (2015:17) believed that role-modelling and mentoring are significant to ensure that nurses utilise research in practice. Grove *et al.* (2015:17) advanced that role-modelling enables novice nurses to learn from interacting with an expert nurse or by following his/her example.

2.5.1.2 The nurse is unwilling to change/try new ideas

Some nurses might not see the value of evidence in practice and might therefore be unwilling to change their practice. Umarani (2014:17) in his study about perceived barriers to EBP among

registered nurses, reported that 52% of the respondents perceived nurses to be unwilling to change/try new ideas as posing a moderate to great barrier to research utilisation.

Mohsen *et al.* (2016:29) reported that in their study, comparing nurse educators' and nurse specialists' perceptions and barriers for adoption of EBP in primary care, 54% of the nurse specialists reported preference of traditional methods instead of changing to new approaches. They further found that 65% of the specialist nurses and 62% of the nurse educators reported that their workload was too high to keep up to date with new evidence.

A similar report was tabulated by Shifaza *et al.* (2014:5) supporting that nurses continued doing things in traditional ways rather than using research to inform practice. Resistance to change by nurses could be attributed to a lack of confidence and being unsure what they would be implementing. It could also be linked to a lack of knowledge and skills for utilising research. Although the unwillingness to change is at a personal level, organisational support can help to address it. Nurse administrators and ward managers can instil interest in nurses to utilise research by encouraging, supporting and delivering an environment that promotes active utilisation of research in clinical practice (Moreno-Casbas *et al.*, 2011:1944).

2.5.1.3 The nurse does not feel capable of evaluating the quality of the research

From the literature it is clear that a large number of respondents found understanding statistical analysis in research reports to be a major inhibiting factor that prevented them from making use of research findings (McCleary & Brown, 2003:368; Veeramah, 2004:188). This was because a significant number of nurses felt that they did not have the knowledge to critically appraise research. In addition they felt reluctant to search for research on their own (Austvoll-Dahlgren & Helseth, 2012:274). This is supported by Salsali and Mehrdad (2009:2) who reported that the majority of the respondents in their study recognised that they lacked the skills and knowledge required to use evidence.

The study by Panagiari (2008:43) with a sample size of 87 nurses working in a general hospital in Germany, investigated the barriers that nurses believed hindered their ability to integrate research into practice. Of the respondents in the study, 52% reported that they did not have the capability of evaluating the quality of the research. Not being capable of evaluating research quality was rated as a moderate to great barrier to research utilisation (Chan *et al.*, 2011:29; Moreno-Casbas *et al.*, 2011:1941; Shifaza *et al.*, 2014:4).

Nurses are required to deliver quality care that is informed by evidence, therefore lack of skill and knowledge could make them apprehensive. Knowledge and skill in using research evidence are needed to build nurses' professional portfolios and gain recognition as science-based healthcare providers. If nursing care decisions are to be based on science, infrastructure, skills, and abilities are required for nurses to interpret, use, and conduct research. With this knowledge and these skills come power to change practice to the benefit of the patients (Salsali & Mehrdad, 2009:7).

2.5.1.4 Value of research in practice and benefit for the self

A positive attitudes towards research, does not necessarily indicate that research utilisation in clinical settings is considered valuable. Waters *et al.* (2009:831) conducted a study on the views of midwifery and nursing opinion leaders. Although these leaders generally supported the concept of utilising evidence, EBP was not seen as the universal solution to improve healthcare.

The findings were supported by Mehrdad *et al.* (2008:59) who stated that nurses held strong beliefs that nursing research would improve the clinical nursing practice and empower the nursing profession. However, they did not agree that research is valuable or relevant to day to day work of nursing and they also believed research is not applicable to nursing practice. Pravikoff *et al.* (2005: 48), Melnyk *et al.* (2012:414), as well as Almaze and Emmamally (2015:100), reported that the lack of value of research for practice was the most important barrier to research utilisation in their studies. The recent study by Kousar *et al.* (2017:244) revealed that 48.6% of nurses believed that research is not relevant to practice and do not see benefit for self.

In a study of Umarani (2014:17), assessing perceptions on barriers to utilise research in practice amongst registered nurses, 52% of the nurses agreed to a moderate extent that the research is not relevant to the nurses' practice and that the benefit of changing practice would be minimal. It is therefore important for nurses to be empowered in knowledge and skills about research that will increase their confidence and enable them to see value for clinical practice and for themselves.

Echoing the same view, Gomes (2010:48) considered empowering nurses with knowledge and skills of research evaluation and utilisation as being very important to increase their decision-making abilities in the workplace and to provide patients with the best standard of care possible. This is important because nurses spend most of their time caring for patients, being professionals who have the capacity and capability to perform their duties effectively, not as machines acting on instructions. Nurses can have an active voice in their practice by providing inputs regarding patient care and suggesting improvements in the workplace.

2.5.1 5 Nurses are unaware of research

The literature indicated that a lack of awareness persisted among nurses. Lack of awareness was identified by 75% of respondents as a great/moderate barrier in Funk *et al.*'s (1991b:42) original study, by 67% of nurses in Dunn *et al.*'s (1997:1205) study and by 76.9% of respondents in the study of barriers to research utilisation amongst nurses in Turkey by Uysal *et al.* (2010:3446). In their study on perceived research utilisation barriers among nurses in a rural hospital in Nigeria, Nwozichi and Ojewole (2014:190) reported that nurses' lack of awareness of research was among top ten barriers that impacted on the utilisation of research from a moderate to a great extent. Similar results were observed in China (Chien *et al.*, 2013:101) and in Spain (Moreno-Casbas *et al.*, 2011:1942).

The same issues are relevant to South Africa. A South African study by Mngomezulu (2015:76) investigated nurses' views about what would assist their practice through the utilisation of research findings. That study was done in two public hospitals where nurses were trained in the uMgungundlovu District in the KwaZulu-Natal Province. Of the respondents in that study, 73.4% conceded to not being knowledgeable about research. Another South African study, exploring awareness of EBP among critical care nurses in selected hospitals in the Ethekweni district, reported that nurses' unawareness of research was the greatest barrier impacting on research utilisation (Almaze & Emmamally, 2015:100).

Nonetheless, a study by Chan and colleagues (2011:29) addressing barriers and perceived needs for understanding and using research among emergency care nurses in the USA, depicted a different picture. Those respondents reported using research by participating in journal clubs, sharing information or posting research articles. Strokke *et al.* (2014:5) conducted their study about evidence-based practice beliefs and implementation among nurses in specialist Norwegian hospitals, and found that half of the respondents had discussed a research article informally with a colleague and had critically appraised a research article and communicated evidence from a research study to a patient/relative or a colleague. These studies indicated that some nurses were aware of research and utilised research to some extent in Norway and in the USA.

2.5.1.6 No documented need to change practice

Unless nurses and midwives are convinced that there is a need to change practice, they would probably not utilise research. The lack of documented needs, emphasising changing practice, has been reported by several scholars as one of the main barriers affecting research utilisation (Uysal *et al.*, 2010:3446; Oh, 2008:316). A systematic review by Kajermo and colleagues (2010:14)

ascertained that in 6 out of 10 reviewed studies, nurses perceived the lack of documented needs for changing practice as one of the top 10 barriers that hindered them to utilise research in practice.

Biancofiore *et al.* (2007:130) conducted a study about nurses' knowledge concerning the application of evidence-based guidelines for preventing ventricular-associated pneumonia. These authors reported that one of the reasons, cited by nurses, for not applying the proposed strategies, was that there were no protocols in the units. These findings indicated that if there is no documented need for nurses to utilise research, nurses would not see the need to do so and would continue doing things in the traditional way.

2.5.2 Quality of research

The research character involves the methodological accuracy and the appropriateness of the conclusions derived from the research (Panagiari, 2008:6)

2.5.2.1 Methodological inadequacies

Methodological inadequacies and poor justification of research conclusions are problematic for the novice researcher (Shifaza *et al.*, 2014:2). The quality of information that nurses demand, and how effectively they evaluate and use it for clinical decision making, will influence patient outcomes and, ultimately, the part nurses play in the delivery of health care (Royle & Blythe, 1998:71).

A number of systematic reviews on issues related to individual determinants that influence research utilisation, found that most reviewed studies exhibited methodological inadequacies. In a systematic review by Squires, Estabrooks, *et al.*, (2011:11) of 45 articles, the methodology of one (2%) was rated as being strong, 13 (29%) as moderately strong, 18 (40%) as moderately weak, and 13 (29%) as weak. The same authors (Squires, Estabrooks, *et al.*, 2011:5), found in another review on individual characteristic in the beliefs and attitudes category, that of the 14 articles found, six were rated as revealing weak methodologically, five were rated as moderate-weak, and three were rated as moderate-strong. In a meta-analysis, Kajermo *et al.* (2010:10) reported similar findings where the quality of their 63 reviewed studies was generally weak to moderate (22 weak, 38 moderate, and 3 strong), reflecting trends often reported in systematic reviews.

If there are methodological inadequacies in the individual studies, nurses cannot utilise the research in clinical practice. Findings could often not be generalised to other settings due to either a small sample size or missing data.

There are solutions to inadequate methodological quality. Some of the solutions relate to the need for the research design to be explained/ presented in a robust manner and the focus to be placed on longitudinal research programmes and programmatic research that set the benchmark against which to compare findings of studies (Squires, Hutchinson, *et al.*, 2011:16). Part of the solution in addressing methodological inadequacies can be established through the choice of design of the study addressing the research question (Driessnack *et al.*, 2007:686; Ploeg, 1999:36; Roberts & Disenso, 1999:4).).

1.5.2.2 Belief of research results and replication of studies

More than half of respondents (56.6%) of the study of Shifaza *et al.* (2014:5) were uncertain whether to believe the results of research. Al Khalaileh *et al.*, 2016:54) reported that 55.7 % of the respondents in their study, exploring nurses' perceptions of barriers to implementing research findings into their daily practice, reported they doubted research results. A large number (76%) of respondents in the study of Uysal *et al.* (2010:3445) reported that they did not believe research results. This could be related to conflicting research results (McKenna *et al.*, 2004:376).

Lack of research replication has been reported by several scholars which could be a reason for nurses not to believe research results and thus not to utilise research. In the study of barriers to research utilisation in Turkey by Uysal *et al.* (2010:3445), 63.9% of the respondents indicated a lack of replication of studies as a barrier. The lack of replication of studies was reported by 49.9% of respondents in the study of Wang *et al.* (2013:4) about barriers and facilitators to research utilisation by registered nurses in China. An earlier study by Boström *et al.* (2008:4) also reported that a lack of replication of studies was indicated by 57% of their respondents.

Nurses' disbelief of research results could be averted by creating an enabling environment encouraging research utilisation. Varcoe and Hilton (1995:65) reported a statistically significant relationship between research climate, an environment where research use is encouraged and recognised and research utilisation.

2.5.3 Organisational factors

Organisational factors are those facilitators and limitations perceived in a setting where research will be used (Funk *et al.*, 1991a:42; 1995:45). The majority of the studies that used the BARRIERS scale to identify barriers to research utilisation cited organisational factors as being the most important type of barriers.

2.5.3.1 Time constraints

Traditionally the time factor was a significant barrier that impeded nurses from implementing research findings. For instance, Hutchison and Johnston (2004:313), Oh (2008:316), Veeramah (2004:187) and Kousar *et al.* (2017:245) all found that nurses did not have time to read research and had insufficient time on the job to put new ideas into practice. Furthermore, this challenge seemed not to change as time passed. Shifaza *et al.* (2014:4) recently conducted a study among nurses to identify their perceptions of facilitators and barriers to the implementation of EBP in the Maldives. The study found that 70.7% of respondents reported insufficient time on the job to implement new ideas and 68.7% reported not having time to read research reports. Similar results were reported by Binila *et al.* (2016:25), Melnyk *et al.* (2012:414) and Sanjari *et al.* (2015:535).

Whilst insufficient time appears to be a major barrier to research utilisation, Abrahamson and colleagues (2012:32) revealed that 21% of the respondents in their study indicated that their ability to use guidelines was assisted by having adequate time. The view of adequate time, as a facilitator of research utilisation, was also cited by Shifaza *et al.* (2014:5).

Although literature seems to present dichotomous results on this aspect, available time remains significant when caring for patients. Globally, the nursing shortage impacted negatively on issues such as time allocation for patient care, as well as on education and training (Gomes, 2010:51). Thus it is important that nurses should be granted time to read and implement their new knowledge so that quality of care could improve

2.5.3.2 Authority to change clinical protocols

Some nurses perceived that they did not have the authority to change patient care procedures (Thompson *et al.*, 2006:79). This view was supported by the study of Chien (2010:3585) where 73% of their respondents did not feel that they had the authority to change patients' procedures. Similarly, 72% of respondents in the study conducted by Moreno-Casbas *et al.* (2011:1941) also reported not having power to change care.

Similar results were reported in an earlier study conducted by Kuuppelomäki and Tuomi (2003:598). The same view prevails in recent studies (Sanajri *et al.*, 2015:33; Shifaza *et al.*, 2014:5; Nwozichi & Ojewole, 2014:184). Wang *et al.*, 2013:4). Yoder *et al.* (2014:31) found that 36% of the respondents indicated that they avoided using research findings in direct patient care because they did not believe they had authority to do so. Nurses did not consider themselves to be properly qualified to suggest and implement changes in patient care procedures on their own, even if they had the skill and

knowledge. This attitude might be attributable to the nurses' feelings of disempowerment causing them to rather refer to other health professionals if they considered a decision needed to change. Managers and administrators should afford nurses the privilege of making clinical decisions according to their scope of practice.

2.5.3.3 Administrative and staff support

According to Heydari and Zeydi (2014:272), there is a positive association between perceived organisational support by nurses and their use of research in practice. At the same time the support of nurses from nurse managers correlated with the use of research in their practice situations.

Kuuppelomäki and Tuomi (2003:595) cited that 61% of the nurses in their study felt they received adequate support from their ward managers in the utilisation of research results and 52% thought they also received enough support from their colleagues in the ward. This view was supported by Woodward *et al.* (2007:240) who found that respondents indicated that managers were always perceived to be supportive, especially line managers.

Shifaza *et al.* (2014:5) found that 70.2% of their respondents reported not having administrative support for implementation of research and 69.2% indicated that physicians would not cooperate with such implementation. This view was supported by Umarani (2014:17) who found in her study of perceived barriers to EBP by registered nurses, that 62% of respondents reported lack of physician and administrative support.

The majority of respondents (71.4%) in the study of Oh (2008:316) reported that their managers and hospital administrations did not recommend nor encourage utilisation of research in patient care. Although resistance from colleagues is not a new phenomenon, lack of support from nurse leaders and managers is a relatively newly identified barrier that requires attention as their support is critical for point-of-care staff to implement EBP (Melnik *et al.*, 2012:415).

A review of barriers and facilitators of research utilisation by Sanjari and colleagues (2015:533) found that most reviewed studies indicated that nurses regarded facilities to be inadequate for implementing research-based issues as one of the top ten main barriers. This factor was also identified in previous studies in Sweden (Boström *et al.*, 2008:1), Australia (Hutchison & Johnston 2004:304) and Greece (Patiraki *et al.*, 2004:245).

The study by Wang *et al.* (2013:3), similar to other studies, emphasised the lack of time, inadequate facilities and lack of authority to change patient protocols but differed significantly with regard to

management support. Wang *et al.* (2013:3) found that 33% of their study's respondents reported a lack of management support for implementation as a less significant barrier. They further found managerial support to rank high at 87% as a facilitator. Almaze and Emmamaly (2015:97) also revealed similar results where only 16.3% of their respondents reported a lack of support from management, implying that nurses perceived that they had management support.

2.5.4 Communication factors

Communication factors consider nurses' perceptions of accessibility as well as presentation of the research (Shifaza *et al.*, 2014:5)

2.5.4.1 Availability of research reports

Distribution of research in clinical practice is central to improve its utilisation in the clinical setting. Hodge *et al.* (2003:362) argued that for research to be readily applied in clinical practice, replications of studies are needed. Research findings are generally communicated via research journals rather than via practice journals and might thus not be readily accessible to practitioners.

Özdemir and Akdemir (2009:322) stated that 55% of their study's respondents cited inaccessibility of research findings as the major factor obstructing research utilisation. Further Boström *et al.* (2008:4) indicated that research reports should be user-friendly, written in a language understood by practitioners and relating to experience of the persons at work. Shifaza *et al.* (2014:4) cited that 56.6% of the respondents in their study investigating nurses' perceptions of barriers and facilitators to implement EBP in the Maldives, reported that research reports or articles were not readily available as a moderate barrier to research utilisation.

In an attempt to provide a solution, Thomson *et al.* (2000:164) proposed that clinical guidelines could provide a vital link between theory and practice. At different levels the use of care protocols, clinical pathways and algorithmic guidelines (provided they are rigorously reviewed and evidence-based) could help to promote research utilisation (Shifaza *et al.*, 2014:4). Although Gomes (2010:48) agreed with the previously mentioned strategies, she maintained that availability of research reports or even guidelines was not enough and further proposed that nurses should be involved in the development and crafting of guidelines or protocols since their exclusion could limit implementation. Involving nurses in such processes would allow ownership and thus implementation could happen more readily.

2.5.4.2 Inability to understand statistical analysis

Research methods and results (including statistics) must be communicated in a manner in which the reader will understand.

Shifaza and colleagues (2014:5) revealed that 83.3% of their respondents had difficulty in understanding statistical analyses. Parahoo (2000:89) found that although 48.9% of the nurses in his study had taken university subjects on research, only 14.5% indicated a good or very good understanding of research design while only 10.8% had a good or very good understanding of statistics. These results indicated that university subjects on research were not sufficient to prepare nurses to understand and apply research in everyday clinical practice (Bonner & Sando, 2008:340).

Education and training of nurses in research methodologies, and especially in statistics, could play a major role in averting this barrier. Oh (2008:320), in agreement with this view, advocated that continuing education should include topics on research methodology and research dissemination.

Mehrdad *et al.* (2008:60) cited that respondents in their study indicated that learning about research methods and processes would be of benefit to them. Wangenstein *et al.* (2011:2436) were of the view that encouraging and supporting newly qualified nurses to be critical thinkers and users of research could enhance nurses' understanding of statistical analyses so that they could make sense of research articles.

2.5.4.3 Relevant literature is not compiled in one place

To practise evidence-based nursing, clinical nurses need effective strategies for extracting relevant information from the many available publications. Scattered location of relevant literature appears to be another major barrier that inhibits nurses from utilising research in clinical practice. For example, Strokke *et al.* (2014: 5) maintained that access to literature was seen as an important initiative for implementing EBP.

Gale and Schaffer (2009:96) confirmed that nurses need easy access to computers with links to important information, journal articles, and text books that provide information which could help to answer questions related to the practical change.

Evidence reveals that nurses require literature to inform everyday decisions about changes in practice. However, nurses reported that relevant literature was often not available in one place. For instance 80.3% of the respondents in the study of Shifaza *et al.* (2014:4) reported that relevant research was not available in one location. Binala *et al.* (2016:25) revealed that 71.5% of the

respondents in their study aimed at determining the personal and organisational factors that hindered the implementation of EBP in a health setting, to have limited access to literature in working units. Similar results were recorded in earlier studies in Sweden (Kajermo *et al.*, 1998:798) and in the USA (Schoonover, 2009:200).

2.5.5 Language barriers

Language has been cited by scholars as a barrier that prevented nurses from utilising research findings in the practice setting, especially for those from non-English speaking countries. For instance, Patiraki *et al.* (2004:245) stated that nurses were not familiar with scientific terminology and English generally, making it difficult for them to understand research findings in a foreign language.

Two thirds of the registered nurses in the study of Boström *et al.* (2008:7) from Sweden reported that English was a barrier to research use. In another Swedish study of Kajermo (2004:56) almost half of the registered nurses working at a university hospital reported English and the lack of knowledgeable colleagues as barriers.

Research has its own language and having to use the research findings from studies in a foreign language, could exacerbate fear, anxiety and limit nurses' utilisation of research in their daily practice. It is important for researchers to translate the articles in a language that would be comprehensible to the nurses having to use the relevant research findings of a specific study.

2.6 SUMMARY

Many studies identified barriers to research utilisation in nursing practice and some focused on specific settings in specialised areas of nursing. These specialisation areas excluded midwifery practice, especially midwifery practised in CHCs.

The barriers to research utilisation are multifaceted and to a certain extent contextual in nature, even though there are similarities among some research findings. The most cited barriers in this literature review included the lack of capacity to evaluate research, lack of support from management, research not valued and perceived to be of no benefit to the self, the perception that nurses do not have power to change patients' protocols, time constraints, inadequate research methodologies adopted by researchers and the non-availability of research reports.

This chapter has provided an overview on evidence-based midwifery care, and research on barriers impacting on research utilisation according to the BARRIERS scale. The next chapter will focus on the research methodology adopted by the current study.

CHAPTER 3:

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research methodology used in the study. It includes the research setting, the research design, research method, data collection and data analysis. It further reports on the validity and reliability measures employed to ensure that the aim of the study was achieved by the researcher.

3.2 RESEARCH DESIGN

The research design is a blue print for conducting a study that maximises control over aspects that could interfere with the validity of the findings (Grove *et al.*, 2015:511). The researcher plans and designs a study to guide her in generating and analysing data so as to be confident about the results (Van Wyk, 2010:45). A quantitative, descriptive and cross-sectional survey design was adopted to identify and describe the barriers that midwives perceive to be hindering them from utilising research in the execution of their duties. The following sections will discuss the characteristics of the research design.

3.2.1 Quantitative research

A quantitative research design can optimise a researcher's ability to remain objective when collecting data. In this study a systematic process was used to obtain information, identify and describe the variables (Polit & Beck, 2012:16). Data were then analysed and described by using descriptive and inferential statistics (Creswell, 2009:233).

3.2.2 Descriptive research

Descriptive designs are used to describe variables to answer the research question (Brink *et al.*, 2012:112). The purpose of a descriptive design is to provide an account of the situation as it naturally happens. Descriptive designs may be used to develop knowledge, identify problems in current practice situations, determine what others are doing in similar situations (Mngomezulu, 2015:41). This study used a structured questionnaire to obtain information from midwives working in CHCs in

Gauteng with the purpose of identifying and describing their perceptions about barriers that hinder them to utilise research in practice.

3.2.3 Cross-sectional research

A cross-sectional design was chosen for this study as data were to be collected in multiple CHC's on a single occasion and not repeatedly on several occasions over time.

3.3 RESEARCH METHOD

Research methods are used to structure a study and to gather and analyse information in a systematic fashion (Polit & Beck, 2012:765). The researcher defines a problem and then decides which approach to follow. Appropriate research methods are then applied in relation to the population and sample to gather and finally to analyse the relevant data.

3.3.1 Sampling

The population, sampling procedure, sample size, research setting and context are discussed.

3.3.1.1 Population

A population is an aggregate of all the individuals or objects to be studied with some common defining characteristics (Polit & Beck, 2012:738). The population of this study comprised of midwives working directly with patients in antenatal, intrapartum and postpartum areas in 18 CHCs of the Gauteng Province. The 18 CHCs were selected based on their size as they were the largest CHCs, providing all the maternity services and representing of all of the sub-districts. The estimated population comprised 270-324 midwives based on there being 15-20 midwives per CHC. According to the implementation guidelines of the health workforce normative guides and standards for fixed PHC facilities (South Africa, Department of Health [DoH], 2015:9), the number of registered midwives supposed to be working in the midwifery and obstetric units (MOU's) in a CHC should be at a minimum 18 to a maximum 21 inclusive of midwives with an advanced midwifery qualifications.

3.3.1.2 Sampling procedure

An all-inclusive sampling strategy was applied in this study. Grove *et al.* (2015:251) refer to an all-inclusive sample as the entire population having the same characteristics and meeting the same criteria. The sample comprised midwives who met the inclusive criteria, namely that all respondents should:

- be registered as a midwives by the South African Nursing Council (SANC);
- be permanently employed by the Gauteng DoH;
- be working as a midwife in a CHC in the antenatal, intrapartum or post-natal areas; and
- has had at least two years of experience as midwife.

The all-inclusive sample was used in the study as advised by the statistician of the Statistical Consultation Services of the NWU in order to combat the effects of a possible low response rate.

3.3.1.3 Sample size

The targeted sample size was the 270 registered midwives working in the 18 CHCs in antenatal, intrapartum and postnatal areas (15-20 midwives per CHC). Eventually only 224 questionnaires were distributed as the actual number of midwives working in the CHCs was less than the estimated population because of vacant posts and 16 midwives who did not meet the inclusion criteria. Out of the available 224 possible respondents 140 (n=140) respondents completed and returned the questionnaire - a response rate of 62.5%.

3.3.1.4 Research setting and context

The research setting is the physical location and conditions under which data are collected for a study (Polit & Beck, 2012:57). The setting of the study is selected by the researcher based on the research question (Polit & Beck, 2012:57). The context for the current study was CHCs (n=18) in the Gauteng Province, the smallest province geographically in the Republic of South Africa with an estimated population of 13,5 million (StatsSA, 2015:20). Gauteng Province has 35 CHCs of which 28 render 24-hours services (South Africa, DoH, 2016:44).

3.3.2 Data collection

Data collection involves obtaining information from the respondents by asking them to respond to the questions posed by the researcher (Polit & Beck, 2012:369). Grove *et al.* (2015:47) cite data collection as a precise, systematic gathering of information relevant to the research purpose or the specific objective, question, or hypothesis of the study.

3.3.2.1 Data collection procedure

After obtaining ethical clearance from Health Research Ethics Committee of the NWU (Appendix A), the researcher requested permission from the Gauteng Department of Health's (DoH's) Ethics Committee (Appendix B) as well as from the managers of the districts where the participating CHC's were located (Appendix C).

Once permission had been granted by the district managers, the researcher approached the facility managers of the CHCs, where the study was to be conducted, to obtain access to the facilities and midwives. In one district the researcher had to first obtain permission from facility managers to conduct the study before the district management would grant permission.

The researcher, with the assistance of the facility managers, planned and asked one professional nurse in each CHC who was not working in the areas where the midwives were working (antenatal, intrapartum and postnatal) to be mediators to recruit respondents for the study. Most professional nurses were unwilling to be mediators citing workloads and staff shortages as reasons for being unwilling to assist with the study. In the 18 CHCs only five professional nurses agreed to be mediators for the study. The researcher asked two independent nurses, who were not part of the study, to be mediators in the facilities where no other mediators had been appointed.

The researcher trained the mediators about the purpose of the study, the objective, recruitment of respondents, and the explanation of the consent forms emphasising that midwives should not be pressured to participate. This happened during face-to-face meetings with the mediators. She also provided an explanation on the conduct of the mediators during the process of recruitment in the CHCs, before the study could commence, and how the questionnaire should be distributed, completed and returned.

The mediators arranged information sessions with potential respondents and explained the purpose of the study. Potential respondents were briefed about the objective of the study and were informed that participation was voluntary and that they were free to withdraw from the study at any time without fear of being discriminated against. The mediators also explained the risks and benefits of the study and that the researcher was available to answer questions telephonically or personally.

The potential respondents were provided with consent forms (Appendix D) and requested to return it within two days. Most questionnaires were only returned after five days, mainly because of the manner in which duty rosters were being implemented due to shortages of staff. The researcher and mediators had to spend time in the CHCs to ensure the highest possible response rate by clarifying

questions for respondents, and explaining why it was important for respondents to participate in the current study by completing questionnaires, without pressuring them and respecting their right not to participate if they did not want to do so. Informed consent forms were signed by the respondent, mediator (the person who provided the information) and the researcher.

Upon returning the informed consent forms, respondents were provided with a coded questionnaire and a sealable envelope. Codes were used to protect the anonymity of the respondents. Each questionnaire was provided with a code of the CHC and a number corresponding with the list of codes used instead of names. This list was created to check the questionnaires received by the mediators and the researcher. The list of the codes and numbers was kept by the researcher after the mediators had checked the returned questionnaires. The researcher then destroyed the lists once she verified that she had received all completed questionnaires as indicated on the list.

To protect confidentiality, the signed informed consent forms were placed in a sealed box in each CHC and kept separately from another box for the completed questionnaires. Both boxes were kept in the manager's office and were collected by the mediator on a weekly basis although respondents were requested to return the questionnaires within two days. Even though the procedure of keeping consent forms and questionnaires separately was explained in detail, some respondents reported that they were not comfortable writing their names and surnames on the consent form. The researcher advised that they could either use their first names only or place a signature in the required space.

Although the researcher anticipated that the questionnaire would take 40 minutes for each respondent to complete, based on the length of the questionnaire, most respondents reported that they took only 15-20 minutes to complete it.

3.3.2.2 Data collection instrument

The barriers to research utilisation questionnaire (BARRIERS scale) (Appendix E) was used to collect data. Data collection by questionnaire was suitable for this study as it provided a sense of anonymity to respondents, and was considered to be the quickest way to obtain data from a large sample and it is relatively inexpensive and not time consuming (Brink *et al.*, 2012:154).

The BARRIERS scale was developed by Funk *et al.* in 1991 and based on Roger's (2003:10) Diffusion of Innovation Theory. The aim of Funk *et al.* (1991a:39) was to identify a framework for a measurement instrument which led to the development of a questionnaire and was tested on nurses. An instrument that consisted of 29 items with a 5 point Likert Scale resulted, which was randomly

ordered to comprise the utilisation scale to measure barriers to research utilisation, regarded as the BARRIERS scale. The BARRIERS scale was first distributed as a survey to a large stratified random sample of 5000 nurses from the 1987 American Nurses Association membership roster. The response rate was 40%. The sample size was analysed by factor analysis. Four factors were identified as the dimensions/ subscales of the instrument (Schoonover, 2009:207; Kajermo et al. 2010: 2).

The subscales of the BARRIERS scale are:

- (a) Characteristics of the adopter: the nurses' research values, skills and awareness
- (b) Characteristics of the organisation: setting barriers and limitations
- (c) Characteristics of innovation: qualities of the research and
- (d) Communication: presentation and accessibility of the research.

The BARRIERS scale has been used widely. In their systematic review Kajermo *et al.* (2010:32), found 63 studies published between 1990 and 2009 that used the scale. In South Africa, the scale has been used with critical care nurses (Almaze & Emmamally, 2015:89), but not yet with midwives.

The questionnaire used in this study, comprised two sections. The first part required respondents to provide demographic information, namely age, highest qualifications, midwifery experience and workplace by either selecting the relative provided alternative answer or by supplying the requested information. The second part of the questionnaire focused on perceived barriers to research utilisation and consisted of the validated 'Barrier to research utilisation scale' (BARRIERS scale).

The BARRIERS scale uses 29 items with a 5 point Likert scale to rate items indicating to which extent the factor was a barrier in preventing the use of research findings in practice.

The rating labels for the 5 points are:

- 1. to no extent
- 2. to a limited extent
- 3. to a moderate extent
- 4. to a great extent and
- 5. no opinion.

The 'no opinion' option was removed during data-analysis.

In addition, the scale has three open-ended questions. The open-ended questions included an item where respondents were asked to identify their own barriers to research utilisation. It further asked them to rank the items as the greatest, the second greatest and the third greatest barrier. The last open-ended question required the respondents to state what they considered could facilitate research utilisation.

3.3.3 Data analysis

Data collected from the questionnaires were captured on a Microsoft Excel sheet and analysed using an SPSS version 23 (2016). Descriptive and inferential statistics were calculated during data analysis. Descriptive statistics are useful for describing and summarising data in an organised and meaningful way in order to assist the reader to make sense of the findings (Brink *et al.*, 2012:179). Descriptive statistics were suitable as they could be used to describe various characteristics of data and to summarise the data so that it would be manageable (Brink *et al.*, 2012:179; Creswell, 2009:151). Frequencies, means and standard deviations were used to report the demographics as well as the barriers to research utilisation. Although the BARRIERS scale consists of a 5 point Likert scale, the 'no opinion' option was removed as soon as the means of the responses to the questions had been determined, resulting in 4 options.

Confirmatory factor analysis was used to observe whether the data fits the suggested theoretical framework. Measures of goodness of fit were used to establish the fit if the data to the theoretical framework. Three measures of fit were used. The first was the Minimum Sample Discrepancy divided by Degrees of Freedom (CMIN/DF). Mueller, (1996:83) suggest that there values should be less than 3. The second measure of fit was the Comparative Fit Index (CFI) where values of above 0.95 indicate a good model fit (Blunch, 2011:115) and the third the Root Mean Square Error of Approximation (RMSEA) with a confidence interval value of 90% and for which the value must not be more than 0.10 (Blunch, 2011:116). Following the confirmatory factor analysis, the reliability of the scales were calculated using Cronbach's Alpha coefficients.

Inferential statistics are concerned with drawing conclusions about the characteristics of the population. It uses the sample data to infer to the population and it includes measures of statistical significance (Brink *et al.*, 2012:190). Using the validated scores, the t-test, analysis of variance (ANOVA) and Spearman's rank order correlation coefficients were used to determine associations between demographical data and clinical characteristics. Spearman's correlation coefficients were also used to examine the relationship between the subscales of the BARRIERS scale. Finally

hierarchical linear modelling was used to statistically analyse the effects of independent variables (in this case qualifications of respondents) on the subscales of the BARRIERS scale. For all inferential analyses, the alpha level was set at 0.05.

3.4 VALIDITY AND RELIABILITY OF THE INSTRUMENT

Validity concerns the ability of an instrument to measure what it is supposed to measure and perform as it is designed to perform (Welman *et al.*, 2005:145-148). Reliability refers to the consistency and accuracy of the instrument every time it is applied (Polit & Beck, 2012:175).

3.4.1 Validity

There are two types of validity, external and internal validity. The external validity relates to whether the findings of the study can be generalised to the population whereas internal validity refers to the degree to how well an instrument measures the concept under investigation (Grove *et al.*, 2015:291). According to Jackson (2009:204) a research instrument is valid if it reflects the concepts it claims to measure. The types of instrument validity are content validity, criterion-related validity, face validity and construct validity.

Content validity examines the extent to which the measurement method or scale includes all major elements or items relevant to the construct being measured (Grove *et al.*, 2015:291). The BARRIERS scale's content validity was attained through literature on research utilisation and the items were assessed by experts. The items that demonstrated face and content validity were retained, then pre-tested, which led to substituting some words with more easily understood terms, additional items were included in the scale (Kajermo *et al.*, 2010:2).

Criterion-related validity is concerned with establishing a relationship between scores on the instrument and some external criterion (Polit & Beck, 2012:459). A predictor that was used in the current study was experience of midwives working in CHC that participated in the study. .

Face validity refers to the manner in which the instrument appears to the respondents and whether it measures what it intends to measure (Polit & Beck, 2012:728). The BARRIERS scale was tested in 1991 by Funk and Colleagues among administrators, clinicians and academics. It was extended to nurses with the Conduct and Utilization of Research in Nursing (CURN) project questionnaire. A group of experts assessed the potential items of the scale. The potential items were piloted. Certain items were reworded and two items were added which led to a 29 item Likert scale. The BARRIERS scale was further used by Parahoo and McCaughan (2001:21); Bryar *et al.* (2003:76); Uysal *et*

al.(2010:3445) and Oh (2008:316) indicating that the BARRIERS scale has been consistent on how it appears to the respondents.

Grove *et al.* (2015:291) refers to construct validity of the research instrument as the ability of the instrument to measure the theoretical constructs it intends to measure. Construct validity of the BARRIERS scale was determined through exploratory factor analysis. The factor analytic procedures identified 29 items within four factors or subscales that supported the Rogers' model (Funk *et al.*, 1991a:46), namely (a) characteristics of the adopter: the nurse's research values, skills and awareness, (b) characteristics of the organisation: setting, barriers and limitations (c) characteristics of the innovation: qualities of the research and (d) communication: presentation and accessibility of the research.

3.4.2 Reliability

Reliability of the instrument refers to the ability of the instrument to produce the same results when applied under comparable conditions (Brink *et al.*, 2012:129; De Vos *et al.*, 2005:162). The reliability of the BARRIERS scale was reported by Funk *et al.* (1991a: 43). They used factor analytic procedures to establish the reliability of the instrument. In this study the researcher used the same questionnaire for all respondents and to ensure consistency, the conditions under which data were collected were the same for all respondents (Polit & Beck, 2012:159).

The reliability of the BARRIERS scale was determined by Funk *et al.* (1991a) to ascertain whether the reliability of the four factors contained in it are adequate. Oh (2008:318) also established reliability of the scale, while Uysal *et al.* (2010:345) reported Cronbach's alpha ranging from 0.73 to 0.80 for the four factors of the BARRIERS scale.

The Cronbach alpha coefficient scores of each factor as found by previous authors are presented in table 3.1 below. According to Maree (2007:216) reliability estimates of .80 values are highly acceptable. However, according to Fields (2005:668), reliability estimates between 0.60 and 0.70 are also acceptable due to the due to the variability of the constructs measured.

Table 3.1: Cronbach's Alpha Coefficient in previous studies

Factor	Construct that is being measured	No of items on the scale	Funk <i>et al.</i>, 1991	Oh, 2008
Nurse (Adopter)	The nurse values, skills and awareness	8	.80	0.75
Organisation (Setting)	The barriers and limitation of the setting	8	.80	0.84
Innovation (Research)	The quality of the research	6	.72	0.71
Communication (Presentation)	The presentation and accessibility of the research	6	.65	0.72

Reliability was established in this study by calculating Cronbach's Alpha coefficient. Furthermore, the researcher used the same questionnaire for all respondents to ensure consistency, the conditions under which data were collected were the same for all respondents (Polit & Beck, 2012:159). This ensured that the study was reliable as well, and not only the instrument.

3.5 SUMMARY

In this chapter the research design and method, data collection, data analysis, validity and reliability have been described. The following chapter will focus on the presentation and discussion of the results of the study.

CHAPTER 4:

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

This chapter presents and describes the research findings of the current study. The Statistical Consultation Services of the NWU assisted with the statistical analysis of the research data. The statistical package SPSS (version 23 Armonk, NY, IBM) was used to process the data.

4.2 RESPONSE RATE

The survey was conducted in 18 CHCs in the Gauteng Province in order to identify and describe barriers to research utilisation as perceived by midwives. An all-inclusive sample targeted 270 midwives, working permanently in CHCs with at least two years' midwifery experience. Out of 224 questionnaires that were distributed, 140 were returned. Fewer questionnaires than originally envisioned were distributed because some of the midwives' posts were vacant and some midwives did not meet the inclusion criteria. This yielded a response rate of 62.5%. According to Ficharm (2008:1) a response rate of 62% is reasonable for surveys. The number of responses from each CHC is presented in Table 4.1.

Table 4.1: Responses from each Community Health Center (n=140)

Codes of CHC	Total number of questionnaires distributed	Total number of questionnaires returned	Percentage (%) of questionnaires returned per CHC
A	12	8	66,67
B	13	11	84.62
D	11	6	54.55
E	11	9	81.82
ET	12	9	75.00
H	10	5	50.00
J	12	4	33.33
K	14	7	50.00
KH	10	7	70.00
L	14	10	71.42
LN	20	10	50.00

Codes of CHC	Total number of questionnaires distributed	Total number of questionnaires returned	Percentage (%) of questionnaires returned per CHC
LV	15	9	60.00
M	10	6	60.00
N	15	13	86.67
P	11	10	90.90
R	10	5	50.00
S	10	7	70.00
SH	14	4	28.57
Total Response	224	140	62.50

4.3 DEMOGRAPHIC PROFILE

The demographic data of the respondents pertained to age, qualifications, experience and workplace. These were analysed to provide background information about the respondents. The demographic data of the respondents are presented in Tables 4.2 and 4.3.

4.3.1 Midwives' ages

The respondents' ages varied from 23 to 63 years of age with a mean age of 44.17 years, and a standard deviation of 9.43. The age distribution is presented in figure 4.1.

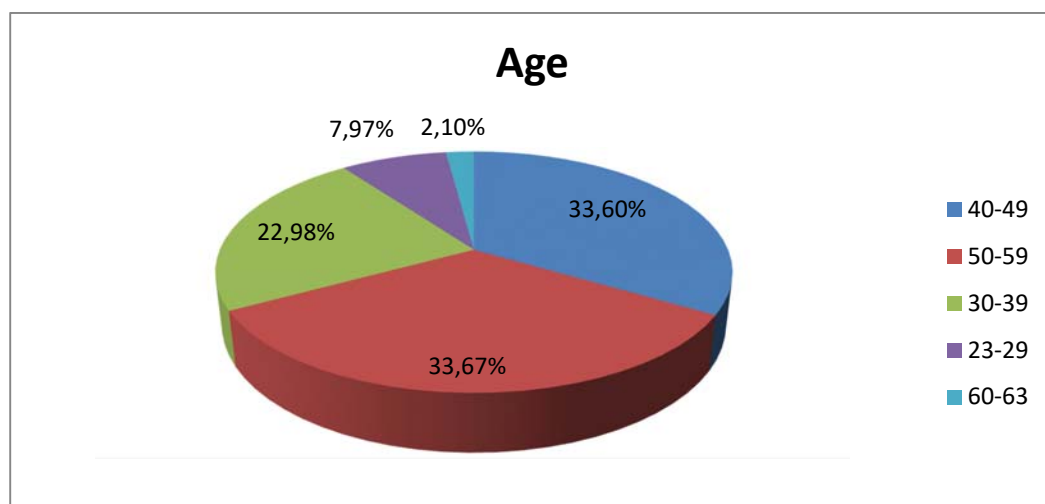


Figure 4.1 Midwives' ages (n=140)

In comparison with the SANC age distribution statistics of midwives, the ages of the participating midwives were slightly higher than those reported by the SANC (2015). The ages are reported in Table 4.2 below.

Table 4.2: Respondents' age distribution percentages compared to the SANC's age distribution percentages of midwives (2015)

Current study's respondents		South African Nursing Council	
Age Distribution	Percentage	Age Distribution	Percentage
23-29	7.97%	<30	5%
30-39	22.98%	30-39	19%
40-49	33.6%	40-49	27%
50-59	33.67%	50-59	31%
60-63	2.10%	60-69	15%

4.3.2 Midwives' qualifications

Of the respondents, 99.3% (n=139) indicated their qualifications on the questionnaires while 0.7% (n=1) did not do so. Table 4.3 illustrates the qualifications of the midwives.

Table 4.3: Midwives' qualifications (n=139)

Qualification	Frequency	Percentage
Diploma in General Nursing	1	0.72%
Separate diplomas in General Nursing and Midwifery	34	24.46%
Four year integrated diploma (including midwifery)	48	34.53%
Four year integrated Bachelor's degree (including midwifery)	12	8.63%
3 year Post Basic Degree in Administration and Education	25	17.98%
Post basic Diploma in Advanced Midwifery	17	12.23%
Post Basic Diploma in Administration and Education	2	1.43%

Of the midwives (n=139) who indicated their qualifications on the questionnaires, 34.53% (n=48) had obtained the four year integrated diploma (general nursing, community nursing, psychiatric nursing and midwifery), followed by 24.46% (n=34) who had obtained separate diplomas in general nursing

and midwifery and 8.63% (n=12) who completed the four year integrated degree course (general nursing, community nursing, psychiatric nursing and midwifery). The following post basic qualifications were obtained: 17.98% (n=25) had post basic degrees in administration and education, 12.23% (n=17) had obtained post basic diploma in advanced midwifery and 1.43% (n=2) had obtained diplomas in education and administration. This means that the majority of the respondents were clinical practitioners with an integrated diploma in nursing and midwifery and a substantial number of them had post basic qualifications in administration and education.

4.3.3 Midwives' experience

Of the respondents 98.6% (n=138) responded to the question about their experience and 1.4% (n=2) did not respond. Of those who responded 50.72% (n=70) reportedly had 10 or more years of experience in clinical practice, 26.81% (n=37) had 5-9 years of experience, while 21.74% (n=30) had 0-4 years of midwifery experience. The majority of the midwives (82.9%, n=116) had no management experience, while 10.86% (n=15) had 0-4 years,' 2.89% (n=4) had 5-9 years' management experience and 3.6% (n=5) had 10 and more years of experience in management.

In terms of education experience, 4.3% (n=6) reported that they had 0-4 years of experience and 3.62 (n=5) stated that they had 10 and more years' experience. A total of 92.1% (n=129) of the participating midwives did not indicate any education experience.

The questionnaire further required respondents to indicate their total number of years of experience: 78.6 % (n=110) indicated their total years of experience while 21.4% (n=30) did not state their years of experience. This result revealed the years of experience ranged from 2 to 37 years, with a mean of 11.61 and a standard deviation of 8.40. The experience of midwives is presented in Table 4.4.

Table 4.4 Midwives' experience (n=138)

Work experience	Frequency (f)	%
Experience in midwifery practice		
0-4 years	30	21.74%
5-9 years	37	26.81%
10 years and more	70	50.72%
Experience in Management		
0-4 years	15	10.86%
5-9 years	4	2.89%
10 years and more	5	3.62%

Experience in Education	Frequency (f)	%
0-4	6	4.35%
5-9	0	0
10 and more years	5	3.62%

4.3.4 Midwives' Workplace

The findings revealed that 99.27% (n=137) of the respondents were working in clinical situations, one (0.73%) worked in administration (and clinical) while 1.46% (n=2) did not provide the information (see Table 4.5).

Table: 4.5: Midwives' workplace (n = 138)

Workplace	Frequency	%
Clinical	137	99.27%
Administration	1	0.73%

4.4 DESCRIPTIVE STATISTICS OF INDIVIDUAL ITEMS OF THE BARRIER SCALE

The research question of the current study was to identify and describe the barriers that midwives perceived that hinder the utilisation of research during their daily practice. This section presents the descriptive statistics related to the individual items of the subscales of the BARRIERS scale. The BARRIERS scale is divided into four subscales, the adaptor, organisational, innovation and communication factors.

All 140 (100.0%) midwives responded to this section of the questionnaire, although not all respondents replied to every item in the questionnaire. The means and standard deviations of the responses were calculated. The mean refers to an average of a group of numbers or data points. The standard deviation gives an indication of the spread of the values of a data set around the mean. The larger the standard deviation, the more spread out the scores are around the mean (Brink *et al.*, 2012:186). Thus the standard deviation can be regarded as the "average" difference (deviation) score which indicates the degree of error that would be made if the mean was used by itself to interpret the data (Van Wyk, 2010:68). The higher the standard deviation, the larger the variation or spread of the answers is. A low standard deviation indicates that most respondents' answers were the same (Grove *et al.*, 2015:566).

In all sub scales option 5 referred to the “no opinion” option, implying that the mean was calculated for responses on a 4-point Likert scale. If the mean was closer to 2 on the 4-point Likert scale (where option 5 was “no opinion”), then, on average, respondents perceived the research-related issue to be hindering the utilisation research to a limited extent. However, if the mean was closer to 3 or 4, then respondents perceived this issue, on average, to be hindering the utilisation of research ranging from a moderate to a great extent. As these interpretations apply to the discussion of all results portrayed in Tables 4.6-4.10, these statements will not be repeated in such discussions when the implications of the findings are stated.

4.4.1 Description of barriers according to the subscales

Respondents were asked to indicate to which extent each item could be considered to pose a barrier to research utilisation. Tables 4.6-4.10 present the descriptions as well as the frequencies and percentages of each item of every scale divided according to the four subscales: the adopter, organisational, innovation and communication factors.

4.4.1.1 Adopter factors as barriers

Eight items of the BARRIERS scale’s questionnaire form part of the subscale related to adopter factors.

Table 4.6: Responses related to adaptor factors as barriers

Adaptor Factors									
Item No	BARRIERS scale Items	Mean	Standard deviation	N	To no extent	To limited extent	To moderate extent	To great extent	No opinion
20	The nurse does not see the value of research for practice	2.22	1.086	138	33.3 46	24.6% 34	23.9% 33	15.2% 21	2.9% 4
16	The nurse sees little benefit for self	2.69	1.223	140	25% 35	15.7% 22	19.3% 27	35.7% 50	4.3% 6
26	The nurse is unwilling to change/ try new ideas	2.56	1.167	139	25.9% 36	16.5% 23	25.9% 36	26.6% 37	5.0% 7
21	There is not a documented need to change practice	2.44	1.146	139	26.6% 37	18.0% 25	24.5% 34	20.9% 29	10.1% 14
9	The nurse feels the benefits of changing practice will be minimal	2.53	1.065	139	20.9% 29	22.2% 31	30.2% 42	20.1% 28	6.5% 9

28	The nurse does not feel capable of evaluating the quality of the research	2.72	1.100	138	178.1% 25	18.8% 26	28.3% 39	29.0% 40	5.8% 8
15	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	2.76	1.141	138	20.3% 28	16.7% 23	26.1% 36	31.2% 43	5.8% 8
5	The nurse is unaware of the research	2.69	1.137	137	19.7% 27	21.9% 30	22.6% 31	31.4% 43	4.4% 6

Isolation from knowledgeable colleagues with whom to discuss research was regarded as the greatest barrier by 31.2% (n=43) of the respondents, 26.1% (n=36) regarded it as being a moderate barrier and 5.8% (n=8) had no opinion ($\bar{x}$ =2.72; sd 1.14). The mean score was closer to 3 on the 4-point Likert scale. These results meant that most respondents perceived being isolated from knowledgeable colleagues with whom to discuss research to be a moderate barrier that impeded them from utilising research.

The second greatest barrier is that the respondents' incapability of evaluating the quality of research. Most respondents (29.0 %, n=40) stated that this is a barrier to a great extent, 28.3% (n=39) reported it to be a moderate barrier while 5.8% (n=8) did not indicate their opinion ($\bar{x}$ =2.72; sd 1.10). The mean score was closer to 3 on the 4-point Likert scale indicating that being incapable of evaluating the quality of research was perceived by the majority of the respondents to be a barrier to research utilisation to a moderate extent.

The next greatest barrier was the perceived limited benefits for the self. A total of 35.7% (n=50) saw it as a great as a great barrier, 25% (n=35) perceived it as no barrier and 4.3% (n=6) had no opinion ($\bar{x}$ =2.69; sd 1.22). As the mean was closer to 3 on the 4-point Likert scale, perceived limited benefits for the self to be a moderate barrier to research utilisation.

A barrier which had the same mean as the one above was that respondents, reported being unaware of research as a fairly great barrier. A total of 31.4% (n = 43) regarded it as a great barrier, followed by 22.9% (n=30) who regarded it as a moderate barrier and 4.4 % (n=6) who had no opinion ($\bar{x}$ =2.69; sd 1.13). The mean score was closer to 3 on the 4-point Likert scale, indicating that not being aware of research was perceived to be a barrier that hindered midwives from utilising research in practice to moderate extent.

4.4.1.2 Organisational factors as barriers

Eight of the items of the BARRIERS scale Questionnaire comprised part of the organisational factors. The results in Table 4.7 present the findings of the organisational factors, including the frequency and percentage for every item on the scale.

Table 4.7: Responses related to organisational factors as barriers

Organisational factors									
Item No	BARRIERS scale Item	Mean	Standard deviation	N	To no extent	To limited extent	To moderate extent	To great extent	No opinion
19	Administration will not allow implementation	2.70	1.086	137	16.8% 23	19.7% 27	26.7% 37	26.3% 36	10.2% 14
18	Physicians will not cooperate with implementation	2.93	1.022	137	9.5% 13	20.4% 28	24.8% 34	32.8% 45	12.4% 17
29	There is insufficient time on the job to implement new ideas	2.97	1.096	137	13.9% 19	16.1% 22	23.4% 32	40.9% 56	5.8% 8
25	Other staff are not supportive of implementation	2.99	1.031	135	11.9% 16	14.1% 19	30.4% 41	37.0% 50	6.7% 9
6	The facilities are inadequate for implementation	2.90	0.983	138	7.2% 10	28.9% 40	24.6% 34	34.1% 47	5.1% 7
13	The nurse does not feel she has authority to change patient care procedures	3.07	1.094	139	13.7% 19	12.9% 18	22.3% 31	47.5% 66	3.6% 5
7	The nurse does not have time to read research	2.94	1.092	139	13.7% 19	18.7% 26	23.0% 32	40.3% 56	4.3% 6
14	The nurse feels results are not generalizable to own setting	2.95	1.026	140	10% 14	20% 28	25.7% 36	35.7% 50	8.6% 12

The strongest barrier was not having authority to change patient care procedures. As many as 47.5% (n=66) of the respondents reported this as a barrier to a great extent, 22.3% (n=31), to a moderate extent, while 3.6 % (n=5) stated no opinion (x= 3.07; sd 1.09). The mean score was above 3 on the 4-point Likert scale, implying that most respondents perceived not having authority to change patients' procedures as being a moderate to strong barrier to utilising research.

The second greatest barrier was rated the lack of staff members' support for utilising research. Of the respondents, 37.0% (n=50) saw this as a barrier to a great extent, whilst 30.4% (n=41) rated it as a barrier to a moderate extent and 6.7% (n=9) did not state an opinion ($x=2.99$; $sd\ 1.03$). The mean score was almost 3 on the 4-point Likert scale. Thus respondents perceived the lack of staff members' support to be a moderate barrier that prevented them from utilising research in practice.

As many as 40.9% (n=56) of the respondents indicated that insufficient time on the job to implement new ideas was a barrier to a great extent, 23.4% (n=32) indicated it to be a barrier to a moderate extent whilst 5.8% (n=8) had no opinion ($x=2.97$; $sd\ 1.09$). The mean was almost 3 on the 4-point Likert scale, indicating more than half of the respondents perceived insufficient time to implement new ideas as a barrier that hindered them from utilising research in practice to a moderate extent.

4.4.1.3 Innovation/quality of research factors as barriers

Six of the items of the BARRIERS scale Questionnaire fall within the innovation or quality of research factors. Table 4.8 presents the description as well as the frequency and percentage per item of the scale.

Table 4.8: Responses related to quality of research factor as a barrier

Innovation factors									
Item no	BARRIERS Scale Item	Mean	Standard deviation	N	To no extent	To limited extent	To moderate extent	To great extent	No opinion
11	The research has methodological inadequacies	2.69	1.021	138	15.2% 21	18.1% 25	34.1% 47	21.0% 29	11.6% 16
22	The conclusions drawn from the research are not justified	2.59	1.040	139	15.8% 22	25.9% 36	25.9% 36	20.9% 29	11.5% 16
8	The research has not been replicated	2.60	1.122	136	18.4% 25	19.9% 27	21.3% 29	23.5% 32	16.9% 23

23	Literature reports contain conflicting results	2.62	1.040	140	14.3% 20	22.9% 32	27.1% 38	19.3% 27	16.3% 23
10	The nurse is uncertain whether to believe the results of the research	2.59	1.185	139	23.0% 32	19.4% 27	18.7% 26	28.8% 40	10.1% 14
17	Research reports/articles are not published fast enough	3.12	1.930	138	5.8% 8	16.7% 23	29.0% 40	39.1% 54	9.4% 13

The strongest barrier on this scale was that research reports were not published fast enough. A total of 39.1 %; n=54) of respondents stated that this was a barrier to a great extent, 29.0% (n=40) to moderate extent and 9.4% (n=13) reported no opinion ($x=3.12$; sd 1.93). The mean score was above 3 on the 4-point Likert scale. An inference was thus drawn that the majority of respondents perceived the delayed publication of research results as a moderate to high barrier impacting negatively on research utilisation.

The second greatest barrier pertained to methodological inadequacies. This was perceived to be a barrier to a moderate extent by 34.1% (n=47) of the respondents, to a great extent by 21.0% (n=29) while 11.6% (n=16) had no opinion ($x=2.69$; sd 1.02). The mean 2.69 and closer to 3 on the 4-point Likert scale. These results meant respondents perceived research methodological inadequacies to be a moderate barrier impacting negatively on the utilisation of research.

With regard to 'literature reports' conflicting results', 27.1% of respondents (n=38) indicated that such conflicting results comprised a barrier to a moderate extent, 22.9% (n=32) to a limited extent and 16.3% (n=23) had no opinion ($x=2.62$; sd 1.04) The mean score was 2.62 which is close to 3 on the 4-point Likert scale. These results meant that most respondents perceived conflicting results to be a moderate barrier that hindered them from utilising research in their clinical situations.

4.4.1.4 Communication factors as barriers

Six of the items of the BARRIERS scale fall within the subscale about communication factors as barriers to research utilisation. Table 4.9 presents the description as well as the frequency and percentage per item of the scale.

Table 4.9: Responses related to communication factors as barriers

Communication factors									
Item No	BARRIERS scale item	Mean	Standard deviation	N	To no extent	To limited extent	To moderate extent	To great extent	No opinion
2	Implications for practice are not made clear	2.72	0.982	139	12.2% 17	27.3% 38	33.1% 46	24.5% 34	2.9% 4
24	The research is not reported clearly and readably	2.67	1.088	140	16.4% 23	24.3% 34	23.6% 33	27.1% 38	8.6% 12
1	Research reports/articles are not readily available	2.85	1.053	138	123.0% 18	23.9% 33	26.8% 37	34.8% 48	1.4% 2
3	Statistical analyses are not understandable	2.86	1.110	139	15.1% 21	18.76% 26	24.5% 34	36.0% 50	5.8% 8
12	Relevant literature is not compiled in one place	2.78	0.994	140	9.3% 13	23.6% 33	25.7% 36	24.3% 34	17.1% 24
4	The research is not relevant to nursing practice	2.44	1.110	139	24.5% 34	27.3% 38	21.6% 30	22.3% 31	4.3% 6

The strongest barrier on this scale was that statistical analyses were not understandable. Some respondents (36.0%; n=50) stated that this is t a barrier to a great extent, 24.5% (n=24) to a moderate extent and 5.8% (n=8) did not state their views ($\bar{x}$ =2.86; sd 1.11). The mean score was closer to 3 on the 4-point Likert scale. These results meant that most respondents perceived not understanding statistical analyses to be a moderate barrier that prevented midwives from utilising research in practice.

Item 1, namely that research reports/articles are not readily available were the second largest barrier on this scale. A total of 34.8% (n=48) of respondents indicated this as a barrier to a great extent, 26.8 (37) to a moderate extent and 1.4% (n=2) had no opinion ($\bar{x}$ =2.85; sd 1.05). The mean was 2.85 and closer to 3 on the 4-point Likert scale which indicates that respondents perceived 'research reports or articles not being readily available' to be a moderate barrier that prevented them from utilising research.

Relevant literature not being compiled in one place was rated by 25.7% (n=36) as a barrier of moderate extent, 24.3% (n=34) a great extent and 17.1% (n=24) had no opinion ($\bar{x}$ =2.78; sd 0.99). As the mean was above 2 and closer to 3 on the 4- point Likert scale there can be concluded that

most respondents perceived relevant literature not compiled in one place as a moderate barrier that hindered them from utilising research.

4.4.1.6 Additional item as a barrier

In addition to the 26 items of the BARRIERS scale, a 27th item (that the amount of research was overwhelming) was added. This item was added after experts established the face validity and content validity of the scale during the CURN project in 1991. Table 4.8 presents the description as well as the frequency and percentage of responses to this additional item.

Table 4.10: Responses related to the additional item (overwhelming amount of research) as a barrier

Additional item on the scale									
Item No	BARRIERS scale item	Mean	Standard deviation	N	To no extent	To limited extent	To moderate extent	To great extent	No opinion
27	The amount of research is overwhelming	2.56	1.16	136	14.0% 19	25.0% 34	28.7% 39	23.5% 32	8.8% 12

Of the respondents, 23.5% (n=32) rated the overwhelming amount of research information to be a barrier to a great extent, 28.7% (n=39) to a moderate extent, 24.3% (n=34) while 8.8% (n=12) had no opinion ($\bar{x}$ =2.56; sd 1.16). Although 39% perceived the overwhelming amount of research to not to be a barrier (14,0% or only to a limited extend, more than half of the respondents (52.2%) believed it to be a barrier to a moderate (28.7%) or great extent (23,5%). The mean of 2.56 was closer to 3 on the 4-point Likert scale. The results meant that the respondents in the current study perceived the overwhelming amount of research results to be a moderate barrier hindering research utilisation in the clinical situations.

4.4.1.6 “No opinion” responses on the BARRIERS scale

Respondents of the current study also used the “no opinion” response in all subscales of the BARRIERS scale. In response to the questions about the innovation factors the “no opinion” option selections ranged from 9.4% to 16.3%, in the case of organisational factors it ranged from 3.6% to 12.4.%, with regard to the questions about the adopter subscale these responses ranged from 2.9% to 10.1% and for communication factors it ranged from 1.4%-17.1%. Similar responses were observed in a study of Shifaza *et al.* (2014:4). No reasons could be identified as to why respondents chose this option.

4.4.2 The top five perceived barriers impacting on research to a moderate or a great extent

Some of the items were perceived to be greater barriers than others (the top barriers). The mean score per item was calculated and the five items with the highest mean scores in the whole scale are indicated in Table 4.11.

Table 4.11: The five items most commonly perceived to be barriers to research utilisation to a moderate or great extent

Item number	BARRIERS scale items	Mean
17	Research reports/articles not published fast enough	3.12
13	The nurse feels she does not have authority to change patient care procedure	3.07
25	Other staff are not supportive of implementation	2.99
29	There is insufficient time on the job to implement new ideas	2.97
14	The nurse feels the results are not generalizable to own setting	2.95

Midwives felt that the delayed publication of research reports/articles, was the biggest barrier with a mean of 3.12. This result is supported by Ozdemir and Akdemir (2009:322) who reported that 55% of the respondents in their study cited inaccessibility of research findings to be a major factor obstructing research utilisation. According to the results in Table 4.11, respondents also perceived that they had no authority to change patients' care procedures ($x=3.07$). Similar results were reported by Funk *et al.* (1995:45), Chien, (2010:3585), Moreno-Casbas *et al.* (2011:1941) and Yoder *et al.* (2014:31).

Lack of support for research implementation by other staff members was reported as a barrier ($x=2.99$) by the current study's respondents. A similar phenomenon was observed by Panagiari (2008:18) in his study on barriers and facilitators for implementing evidence among German nurses working in a general hospital.

Midwives, who participated in the current study further reported insufficient time to implement new ideas ($x=2.97$) as well as not having time to read research as major barriers ($x=2.94$). These findings are similar to those reported by Funk *et al.* (1991b:91), Hutchison and Johnston (2004:313), Veermah (2004:187), Oh (2008:316) and Thompson *et al.* (2006:79).

4.5 GREATEST BARRIERS AS RANKED BY RESPONDENTS

The BARRIERS scale also required respondents to indicate which barriers they perceived to be the most important or “greatest” and categorised them into 1st greatest, 2nd greatest and 3rd greatest barriers. The items which were most frequently selected were interpreted as being the “greatest barriers”. Table 4.12 illustrates the description, percentages as well as the frequency of the respondents’ replies to questions in this regard.

Table 4.12: Barriers reported to be greatest, 2nd greatest and 3rd greatest

1st Greatest Barriers			
Item no	Item	Frequency	Percentage
1	Research reports/articles are not readily available	6	4.3%
29	There is insufficient time on the job to implement new ideas	6	4.3%
32	Shortage of staff	6	4.3%
35	Lack of Resources	5	3.6%
2nd Greatest Barriers			
Item no	Item	Frequency	Percentage
13	The nurse does not feel she /he has enough authority to change patient care procedures	7	5.0%
29	There is insufficient time on the job to implement new ideas	7	5.0%
25	Other staff members are not supportive of implementation	6	4.3%
35	Lack of resources	5	3.6%
3rd Greatest Barriers			
Item no	Item	Frequency	Percentage
29	There is insufficient time on the job to implement new ideas	11	7.9%
25	Other staff are not supportive of implementation	5	3.6%
26	The nurse is unwilling to try new ideas	5	3.6%

The findings above confirm the barriers identified in the questions previously reported. Items 13, 25 and 29 were also in the top five barriers across the whole scale (see table 4.12). Furthermore, item 1 was also in the top three barriers of the communication scale. Item 26 was the only item mentioned with the greatest barriers which was not in the top 3 barriers of the scale it belonged to. Only 3.6% (n=5) of respondents indicated this as the third important barrier. New aspects which were mentioned

by respondents in this question, which was not part of the original scale, was a lack of resources (3.6% of respondents indicated that this was the greatest or the second greatest barriers), and a shortage of staff, mentioned by 4.3% (n=6) of respondents as the most important barrier.

In the next section the data from the section with open-ended questions where respondents had to indicate which barriers they considered to be the greatest, 2nd greatest and 3rd greatest barriers have been combined to indicate which barriers they considered to be the overall greatest barriers.

4.5.1 Combination of the barriers identified as greatest, 2nd greatest and 3rd greatest barriers (overall greatest barriers)

The overall greatest barriers were identified by calculating and combining the percentages of the items regarded as being the 1st, 2nd and 3rd greatest barriers. The results of the greatest barriers in rank order are shown in table 4.13.

Table: 4.13: The overall greatest barriers

Item No	Item	Percentage
29	There is insufficient time on the job to implement new ideas	17.2%
25	Other staff members are not supportive of implementation	7.9%
35	Lack of resources	7.2%
13	The nurse does not feel she/he has enough authority to change patient care procedures	5.0%
6	Research reports/articles are not readily available	4.3%
32	Shortage of staff	4.3%

Insufficient time on the job to implement new ideas was ranked as the overall greatest barrier at 17.2%, other staff members not being supportive of research implementation was ranked the 2nd overall greatest barrier at 7.9% and lack of resources 7.2% was ranked the 3rd overall greatest barrier. The nurse's feeling that she does not have enough authority to change patient care procedures was ranked at 5% and both research reports/articles not being readily available and shortage of staff followed at 4.3% respectively.

4.6 COMBINATION OF THE TOP AND OVERALL GREATEST BARRIERS

The top barriers were determined by responses to the question pertaining to the extent to which each factor was perceived to be a barrier to research utilisation. These responses were largely consistent

with the overall greatest barriers which were based on a combination of answers to open-ended questions where respondents had to indicate which factors they perceived to be the greatest, 2nd greatest and 3rd greatest barriers. The five overall greatest barriers were all organisational barriers with one barrier from the communication subscale. The top four barriers, ranked according to the extent to which they were considered to be barriers, were also organisational factors.

The combination of the top and the overall greatest barriers is shown in table 4.14 which indicates that the organisational barriers were perceived to be most prominent in hindering midwives' utilisation of research in clinical practice. For instance there is insufficient time on the job to implement new ideas, the nurse feels she does not have authority to change patients' protocols and other staff members not being supportive of implementation were cited as top moderate to great and the greatest barriers. The only difference on the organisational barriers is that the overall greatest barriers included shortage of staff and lack of resources while the top barriers included that the nurses felt that research results are not published fast enough which is a research barrier. .

Shortage of staff has been reported by Tsai (2000:439) where 50% of respondents reported it to be a major barrier. Chan *et al.* (2011:11) also identified the unavailability of resources as a barrier to research utilisation. The dominance of organisational barriers could be an indication that organisational barriers have a significant impact in terms of deterring midwives from utilising research in clinical practice.

The other similarity between the two ways of indicating the impact of barriers is that communication barriers appear on both scales, but the individual barriers are not the same. The top barriers featured statistical analyses not being understood while reports were not readily available were reported as one of the greatest barriers. The delayed publication of research reports or articles and the doubtful quality of research were cited as top barriers while these items did not feature on the list of greatest barriers.

Table: 4.14 The comparison between top moderate to great barriers (Top) and greatest barriers

O=Organizational barrier, R=Research barrier, C =Communication barrier

Item no	Greatest Barriers	Item no	Top Barriers
29 O	There is insufficient time on the job to implement new ideas	17 R	Research reports/ articles are not published fast enough.
25 O	Other staff are not supportive for implementation	13 O	The nurse feels she does not have authority to change patient care protocol
35 O	Lack of resources	25 O	Other staff are not supportive of implementation
13 O	The nurse does not feel she/he has enough authority to change patient care procedures	29 O	There is insufficient time on the job to implement new ideas
1 C	Research reports/articles are not readily available	14 O	The nurse feels that results are not generalized in own setting
32 O	Shortage of staff		

4.7 FACTOR ANALYSIS

Grove *et al.* (2015:343) stated that factor analysis examines the interrelationship among large numbers of variables and unravels those relationships to identify the clusters of variables that are most closely linked or associated.

4.7.1 Confirmatory factor analysis

Confirmatory factor analysis (CFA) is a quantitative data analysis method that belongs to the family of structural equation modelling techniques. The CFA measures whether the observed data fit into the already existing data or theory about factors that one expects to find. .

AMOS 23.0 was used for confirmatory factor analysis to determine if the fit of the factors of the BARRIERS scale corresponded to theoretical expectations. The results of confirmatory factor analysis are presented in Figure 4.2.

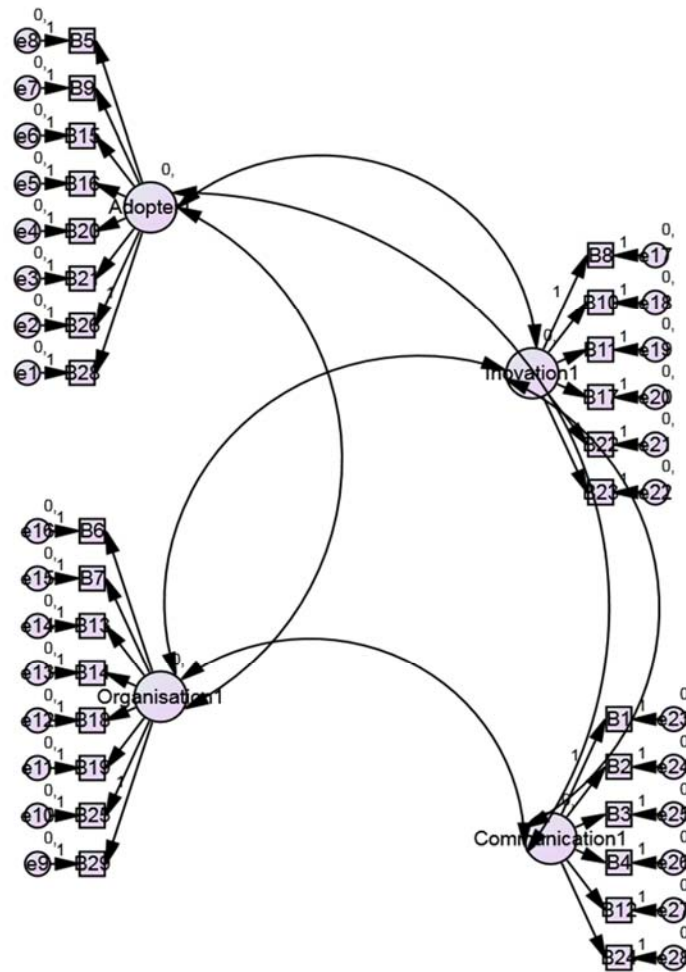


Figure 4.2: Confirmatory factor analysis of the BARRIERS scale

The standard regression weights in CFA indicates the strength between the items of the BARRIERS scale and latent variables or constructs. Standard regression weights were found to be acceptable as the majority of them were at 5% level. Statistical significance of these weights were set at $p < 0.05$. The regression weights and p values are reported below and shows that the items fitted well with the subscales and there were no deviations from it. The standard regression weights are presented in table 4.15.

Table 4.15 **Standard regression weights indicating the fit with subscales**

		BARRIERS SCALE ITEMS	Standard regression weights	p-values
B28	Adopter	The nurse does not feel capable of evaluating the quality of the research	.406	***
B26	Adopter	The nurse is unwilling to change/ try new ideas	.486	***
B21	Adopter	There is not a documented need to change practice	.523	***
B20	Adopter	The nurse does not see the value of research for practice	.575	***
B16	Adopter	The nurse sees little benefit for the self	.676	***
B15	Adopter	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	.471	***
B9	Adopter	The nurse feels the benefits of changing practice will be minimal	.356	0.003
B5	Adopter	The nurse is unaware of the research	.413	0.001
B29	Organisational	There is insufficient time on the job to implement new ideas	.523	***
B25	Organisational	Other staff members are not supportive of implementation	.491	***
B19	Organisational	Administration will not allow implementation	.608	***
B18	Organisational	Physicians will not cooperate with implementation	.602	***
B14	Organisational	The nurse feels results are not generalizable to her own setting	.668	***
B13	Organisational	The nurse does not feel she has authority to change patient care procedures	.609	***
B7	Organisational	The nurse does not have time to read research	.480	***
B6	Organisational	The facilities are inadequate for implementation	.523	***
B8	Innovation	Research has not been replicated	.604	***
B10	Innovation	The nurse is uncertain whether to believe the results of the research	.593	***
B11	Innovation	The research has methodological inadequacies	.636	***
B17	Innovation	Research reports/articles are not published fast enough	.434	***
B22	Innovation	The conclusion drawn from the research are not justified	.667	***
B23	Innovation	Literature reports contain conflicting results	.623	***

		BARRIERS SCALE ITEMS	Standard regression weights	p-values
B1	Communication	Research reports/articles are not readily available	.443	***
B2	Communication	Implications for practice are not made clear	.584	***
B3	Communication	Statistical analyses are not understandable	.558	***
B4	Communication	Research is not relevant to nursing practice	.488	***
B12	Communication	Relevant literature is not compiled in one place	.477	***
B24	Communication	Research is not reported clearly and readably	.501	***

With regard to the **adapter subscale**, item 16 'the nurse sees little benefit for self' contributed the most to the scales with a regression weight of .676 in explaining the adopter barriers whereas item 9 'the nurse feels benefits for practice will be minimal' contributed with a weight of .356. In terms of **organisational barriers**, item 14 'The nurse feels results are not generalizable to own setting' contributed most at .668 and item 7 'the nurse does not have time to read research' contributed least at .480. With regard to the **innovation subscale**, the 'conclusions drawn from the research are not justified' contributed the most at .667 and item 17 'the research has methodological inadequacies' contributed the least weight at .434. With regard to the **communication subscale**, item 2 'implication for practice not made clear' contributed most weight at .584 while item 1 'research reports are not readily available' contributed the least weight at .360.

4.7.2 Measures of goodness of fit

According to Hancock and Mueller (2010:432) the chi-square test has power to detect trivial deviations from the proposed model. It is viewed as a strict indicator of fit and should be divided by the degree of freedom. According to Hancock and Mueller (2010:432) it is good to report multiple fit indices, typically from three broad classes.

The multiple fit incidences that were calculated included:

- Minimum Sample Discrepancy divided by Degrees of Freedom (CMIN/DF) which should be between 2 - 5 (Mueller, 1996:83), preferably less than 3.
- Comparative Fit Index (CFI) where values of above 0.95 indicate a good model fit (Blunch, 2011:115) and

- Root Mean Square Error of Approximation (RMSEA) with a confidence interval value of 90% and for which the value must not be more than 0.10 (Blunch, 2011:116).

These results are presented in Table 4.16.

Table 4.16: Measures of goodness fit for the BARRIERS scale

	Acceptable values	BARRIERS scale
CMIN/DF	<3	1.605
CFI	>0.9	0.763
RMSEA with CI of 90%	<0.10	0.066 [0.056 -0.076]

The four factor model yielded minimum Sample Discrepancy divided by Degrees of Freedom (CMIN/DF) to a value of 1.605 indicating a good fit model because the value is below the acceptable value of 2. The Comparative Fit Index (CFI) was found to be 0.763 which is lower than 0.95 which therefore not indicate a good fit (Hu & Bentler, 1991:1). The Root Mean Square Error of Approximation value (RMSEA) value of 0.066 was less than 0.10 and indicates a good fit. As 2 of the 3 indices indicate a good fit, the validity of the instrument in the current sample can be assumed.

Reliability was established in this study by calculating the Cronbach's Alpha coefficient. According to Maree (2007:216) reliability estimates of .80 values are highly acceptable. However, according to Fields (2005:668), reliability estimates between 0.60 and 0.70 are also acceptable due to the due to the variability of the constructs measured. The Cronbach's Alpha coefficient of the study are tabulated in Table 4.17 below.

Table 4.17: Cronbach's Alpha Coefficient in current study

Factor	Construct that is being measured	No of items on the scale	Cronbach's Alpha Coefficient
Nurse (Adopter)	The nurse values, skills and awareness	8	.741
Organisation (Setting)	The barriers and limitation of the setting	8	.771
Innovation (Research)	The quality of the research	6	.724
Communication (Presentation)	The presentation and accessibility of the research	6	.677

4.7.3 Descriptive statistics of the subscales

The Barrier scale that midwives highly rated were organisational (mean=2.92 and sd 0.67) It was followed by communication subscale which reported ($\bar{x}$ =2.73; sd 0.67 The innovation subscale reported ($\bar{x}$ =2.72; 0.76). The adopter subscale was lower rated (mean 2.58; sd 0.66). The mean and standard deviation are tabulated in Table 4.18 below

Table: 4.18 Mean and Standardisation deviation of Subscales

Subscales	N	Mean	Standard deviation
Adopter	140	2.58	0.663
Organisational	139	2.94	0.677
Innovation	139	2.73	0.767
Communication	140	2.72	0.673

4.7.3.1 Correlations between barriers

There are several ways of measuring the strength and direction of relationships between variables. The most commonly used correlation method is Pearson's correlation coefficient which determines how strong a relationship is between two continuous variables. However, Pearson's correlation coefficient could not be applied to the current study as the normal distribution of specific variables could not be assumed. To measure the strength of the relationship of the subscales, the non-parametric Spearman's rank correlation coefficient (ρ) could be used (Jackson, 2009:417). Therefore in this study the Spearman correlation coefficient, r (referred to as ρ) was used to examine the relationship between the subscales of the current study.

The correlation coefficient refers to a measure of the degree of the relationship and direction between sets of scores (Jackson, 2009:417) that varies from -1.00 (perfect negative correlation) through 0 (no correlation whatsoever) to +1.00 (perfect positive correlation). Grove et al. (2015:341) stated that an r value of 0.1-0.29 indicates a weak correlation; a value between 0.3-0.5 a moderate correlation and a value above 0.5 as a strong correlation.

The statistical significance was used to indicate the presence of a statistically significant relationship between two variables (Jackson, 2009:423). A p-value smaller than 0.05 was seen to indicate a significant correlation between two variables.

The correlational analysis indicated a strong positive correlation between adopter and organisational subscales ($r=.554$; $p<0.001$) and between adopter and innovation subscales ($r=.600$; $p<0.001$). A moderate positive correlation was obtained between adopter and communication subscale ($r=.420$; $p<0.001$).

The correlation coefficient between organisational and other subscales demonstrated a strong positive correlation. The correlation between organisational and adopter was ($r=.554$; $p<0.001$), organisational and innovation was ($r=.569$; $p<0.001$) and organisational and communication was ($r=.510$; $p<0.001$).

The correlation coefficient between innovation and other subscales demonstrated a positive correlation. Innovation and adopter ($r=.600$; $p<0.001$), innovation and organisational ($r=.569$; $p<0.001$) and innovation and communication ($r=.560$; $p<0.001$).

A moderate positive correlation between communication and adopter ($r=.420$; $p<0.001$) was demonstrated. The strong positive relationships between communication and organisational ($r=.510$; $p<0.001$) and communication and innovation ($r=.560$; $p<0.001$) were also statistically significant.

All the correlation coefficients had a p-value of smaller than 0.001 which signifies that there is a statistical relationship between the subscales. There are positive correlation coefficients amongst the subscales as shown in Table 4.19.

Table 4.19: Correlations between barriers

	Correlation	Adopter	Organizational	Innovation	Communication
Adopter	Correlation-coefficient		0.554	0.600	0.420
	Sig/2 tailed		<0.001	<0.001	<0.001
	N		139	140	140
Organisational	Correlation-coefficient	0.554		0.569	0.510
	Sig/2 tailed	<0.001		<0.001	<0.001
	N	139		139	139

	Correlation	Adopter	Organizational	Innovation	Communication
Innovation	Correlation-coefficient	0.600	0.569		0.560
	Sig/2 tailed	<0.001	<0.001		<0.001
	N	139	139		140
Communication	Correlation-coefficient	0.420	0.510	0.560	
	Sig/2tailed	<0.001	<.0001	<0.001	
	N	140	139	139	

4.7.4 Correlation between age and experience on the BARRIERS subscales

The Spearman's rank correlation indicates that there is no significant relationship between age and adopter barriers as the p-value is $p=.340$ as well as between age and organisational barriers with $p=.330$. There was also no significant relationship between age or experience with other barriers as the p-value between all of them is higher than .05. The results indicate that the respondents from different ages did not have divergent views on adopter and organisational barriers. With experience the groups also did not differ significantly in their perceptions about barriers to research utilisation. The correlations between experience and age with barriers are presented in Table 4.20.

Table 4.20: Correlation between age and experience on the BARRIERS subscale

Type of barrier	Correlation	Age	Experience
Adopter	Correlation coefficient	0.081	-0.050
	Significance	0.340	0.559
	N	140	138
Organisation	Correlation coefficient	0.083	-0.015
	Significance	0.330	0.861
	N	139	137
Innovation	Correlation coefficient	0.016	-.120
	Significance	0.851	0.161
	N	139	137
Communication	Correlation coefficient	0.016	-0.099
	Significance	0.852	0.249
	N	140	138

4.7.5 The Hierarchical Linear Modelling with regard to respondents' qualifications

McCoach (2010:123) explains that hierarchical linear modelling is used to analyse variance in the outcomes variables, when the predicted variables are at varying hierarchical levels. It was a suitable technique to determine whether any correlations existed between the subscales and the respondents' qualifications.

The hierarchical linear modelling was used to statistically analyse the effects of the independent variable (qualifications) on adopter, organisational, innovation as well as the communication barriers. The p-values of the relationship between qualifications and barriers were higher than .05 in all cases, an indication that the independent variable, qualifications, did not have an influence on perception of barriers. The results are tabulated in Table 4.21.

Table 4.21: The results of hierarchical linear modelling with regard to qualifications

Subscales	Separate diplomas in general nursing and midwifery	Four year integrated diploma including midwifery	Four year integrated bachelor's degree including midwifery	Three year post basic degree in administration and education	Post basic diploma in advanced midwifery
Adopter	2.644	2.615	2.549	2.648	2.407
Organisational	2.938	3.006	2.629	3.029	2.905
Innovation	2.788	2.803	2.718	2.669	2.509
Communication	2.738	2.757	2.718	2.796	2.596

4.8 FACILITATORS OF RESEARCH UTILISATION

The questionnaire provided participants with an open-ended question that required to suggest what could facilitate to research utilisation. Fifty four comma twenty eight % (N=76) of the participants in the study provide their response. The suggested facilitators of research utilisation are presented in Table 4. 22

Table: 4.22 Facilitators of research utilisation

ITEMS (N=76)	Frequency	Percentage
Provide resources for implementation (material, equipment's, technology including the internet)	16	21.05 %
Provide adequate staffing to ease workload	13	17.10 %
Involve midwives in research activities and motivate them to conduct research	12	15.78 %
The researchers must present and discuss the outcomes of the research including displaying the results in practice	12	15.78 %
Provide access to information about research by making available research reports or journals	10	13.15 %
Allocate time for midwives to read research, participate in research activities and implement recommendations	9	11.84 %
Train midwives in research utilisation through in-service trainings, workshops and seminars.	9	11.84 %
Management and administration must be supportive and committed in ensuring that implementation of research utilisation happens.	7	9.21 %

4.9 DISCUSSION OF MAJOR FINDINGS

The barriers to research utilisation did not change since Funk and colleagues reported their results in 1991 (Funk *et al.*, 1991a:42). The organisational barriers continue to be dominating in this study, four of the top barriers and five of the overall greatest barriers are organisational barriers.

The top barriers were identified by calculating the mean scores. The greatest barriers were identified by calculating and combining the means of the items regarded as the first to third greatest barriers. Although there are similarities between them, the items identified differed in the order the respondents ranked them as barriers from a moderate extent to a great extent barriers or as the top three barriers. For instance, 'the nurse does not feel she has authority to change patients' protocols is ranked as the top barrier whereas in the group of greatest barriers it is ranked as the fourth greatest barrier. The other difference relates to ranking of the item 'there is insufficient time on the job to implement new ideas'. It was ranked as being third important top barrier but ranked the highest as the greatest barrier. The top barrier 'nurse feels that she does not have time to read research', did not feature as one of the greatest barriers.

The 'shortage of staff' and 'lack of resources' were not included as options on the subscales but were added with the open-questions where respondents were required to add any other item they regarded as the greatest barrier.

In the following section the individual items that were ranked high as top or greatest barriers are discussed.

4.9.1 Research results are not published fast enough

The study further revealed a mean score of 3.12 and a standard deviation of 1.930 which means that the respondents perceived delays in publication of research results as a major barrier, which was also reported as one of the greatest barriers (Parahoo, 2000:89; Shifaza, 2014:5). Delays in publishing research results can have a significant negative effect on research utilisation. Therefore it is important for researchers to publish the results of their studies as soon as possible. The results should also be available in the practice setting for midwives to access and interrogate for utilisation. In order to promote research utilisation, the participants suggested that availability and accessibility of research report including feedback on the research studies in the practice could enhance research utilisation.

4.9.2 The midwife does not have authority to change patients' protocols

Midwives indicated that they did not have authority to change patient care procedures as the most cited ('top') barrier and the item was also regarded as the greatest barrier. This barrier also ranked first in the studies of Parahoo (2000:89) and Funk *et al.* (1991b:91). Midwives' belief that they have no authority to change patients' protocols, could have a serious impact on providing quality patient care. It could be an indication that individual midwives might lack confidence to initiate measures that are scientifically and clinically proven to be effective in improving patient care. The participants suggested that training on research utilisation as well as involving midwives in the research activities could facilitate research utilisation. The implication of this could be that as more midwives are involved in research, they will be more confident to assess and propose changes to patient protocols.

4.9.3 Other staff are not supportive of implementation

Other staff members who are not supportive of research implementation were ranked amongst the top five and one of the greatest barriers in the study. Melnyk *et al.* (2012: 415) obtained similar results. The lack of support from other staff members could pose a huge challenge for individual midwives in clinical practice. Midwifery care requires good team work and good relations for positive patient

outcomes, in their absence miscommunication and lack of consultation and working in silos would be more likely to happen which could lead to detrimental outcomes (Guise & Segel, 2008:937). Boström *et al.* (2008:7) reported that respondents in their study frequently stated that support from unit managers would enhance research utilization. Respondents in this study suggested more support of management and administration in ensuring implementation. Staff members could only adhere and be supportive if management take a lead. Rogers (2003:319) stated that change agents have a significant role to play in ensuring that an innovation is adopted by components of the unit.

4.9.4 There is insufficient time on the job to implement new ideas

The results of the study showed that the current study's respondents perceived insufficient time to implement new ideas on the job as a top barrier and one of the greatest barriers to research utilisation. This barrier ranked second in the findings of Funk *et al.* (1991b:92). The finding fits well with the anecdotal reports often heard from nurses that they are short staffed and therefore lack time for activities which are not directed to patient care (Closs *et al.*, 2000:8).

Mismanagement of time could also be a significant factor impacting on non-utilisation of research by midwives. It is therefore important for managers to devote time for promotion of utilisation of research and as well as integrate it in the key performance areas of the midwives (Panagiari, 2008:23). Allocation of time to implementation research findings was echoed by participants as a facilitator that could improve research utilisation. According to Rogers (2003:18) time is a significant factor that determines the adoption or rejection by components of the social unit. The allocation of specific time provides an opportunity for midwives to learn about research utilisation and be willing implement new ideas.

4.9.5 The nurse feels that research results are not generalised in own setting

The study further revealed that respondents perceived that research results are not generalised in their own setting. Although this barrier is perceived as one of the major barriers, it was not perceived as one of the greatest barriers. Similar results were reported by Kousar *et al.* (2017:245) In contrast Almaze and Emmamaly (2015:97) found in their study of exploring awareness of evidence based practice and research utilization in critical care nurses in KwaZuluNatal, that participants did not perceive generalisation of research results as a barrier. It could mean that midwives perceived this barrier as a unique barrier applicable to the midwifery context. Hence it could be possible to mitigate it by researchers presenting and discussing results of the studies related to their practice applied to the midwifery context and setting.

4.9.6 Lack of resources

The current study's findings revealed that midwives' perceived lack of resources to be one of the greatest barriers for research utilisation. Bryar *et al.* (2003:80) reported similar findings. Lack of resources could be multifaceted; it might be related to lack of equipment, inadequate dispensary materials and medications that midwives need to perform their daily duties. It could also refer to a lack of libraries and computers for accessing published research articles. The lack of resources could also refer to the lack of protocols and procedures that should be updated regularly based on evidence. Management has a large role to play in ensuring that patient care is informed by evidence and for midwives to use research in delivering that care (Parand *et al.*, 2014:1). It is important for the management of a facility to ensure the availability of adequate resources for midwives to perform their duties effectively and safely. The study participants confirmed this view by suggesting that provision of resources will enhance the use of research findings in clinical practice.

4.9.7 Shortage of staff

Shortage of staff was also reported as one of the greatest barriers in this study as part of the open-ended questions. This finding is supported by Gomes (2010:124) who reported shortage of staff as one of the main barriers to research utilisation in her study. Shortage of staff could be attributed to many factors such as poor working conditions, broader professional issues, remuneration, and burden of diseases especially HIV and AIDS (Wildschut & Mqolozana, 2008:4). Shortage of staff could adversely affect patient outcomes. Hugonnet and colleagues (2007:79) indicated that evidence showed that high working loads and low staffing levels increased the risk of harmful patient outcomes. Shortage of staff could be a factor influencing non-utilisation of research because with fewer staff members, the overall workload remains the same – implying a heavier workload for each individual midwife. Adequate staffing to ease workload was also suggested by participants in this study to facilitate research utilisation.

Although the government produced occupational-specific dispensation to advance salaries of midwives, it seems not to be serving the purpose and it therefore need to be reviewed so that midwives are retained in the service. Management also needs to improve the working conditions of midwives by providing more conducive and safer environments with resources and time to use research in their practice (George & Rhodes, 2012:7).

4.9.8 Research reports are not readily available

The current study revealed that respondents perceived the lack of availability of research reports as one of the greatest barriers. Özdemir and Akdemir (2009:322) stated that 55% of their study's respondents cited inaccessibility of research findings as the major factor obstructing research utilisation. Further Shifaza *et al.* (2014:4) cited that 56.6% of the respondents in their study reported that research reports or articles were not readily available as a moderate barrier to research utilisation. The fact that research reports is not available in practice could influence midwives to continue working according to routine. Thus it important that researchers ensure that they avail research reports as soon as possible.

4.10 SUMMARY

The research results were presented and discussed. The following chapter will outline the evaluation of the study, limitations, recommendations and conclusions for practice, education, policy and research.

CHAPTER 5:

EVALUATION OF THE STUDY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents the evaluation of the study by providing a summary and conclusions based on its findings. The limitations of the study and recommendations for district management, midwifery practice, education, research and policy will also be addressed.

5.2 EVALUATION OF THE STUDY

The purpose of the study was to contribute to the improvement of the quality of midwifery care by addressing barriers perceived to hinder research utilisation in the clinical area. In order to attain the purpose of the study the objective formulated was to identify and describe the barriers to research utilisation as perceived by registered midwives working in CHCs in the Gauteng Province of South Africa.

5.2.1 Research design and method

A quantitative, descriptive and cross-sectional design was employed to reach the objectives of the study. The statistician recommended an all-inclusive sample of all 270 midwives who gave informed consent but 140 completed questionnaires were received, implying a response rate of 62.5%. Data collection took place from April until October 2016. After data had been collected, a statistician assisted in compiling descriptive and inferential statistics.

5.2.2 Major findings of the study

The results of the study, as discussed in chapter 4, indicated that some barriers to research utilisation existed in midwifery practice in CHCs in the Gauteng Province as perceived by the participating midwives. Organisational barriers, as a sub-category, was the most important type of barriers that inhibited midwives from utilising research in practice.

The following were the major findings of the study:

- Most midwives were between 40-59 years old.

- Out of the participating midwives, 34.5% (n=48) completed a comprehensive nursing diploma of four years, some had post basic diplomas or degrees in nursing education and administration (1.4%; n=2.) (18%; =25) and 12.2% (n=17) had obtained diplomas in advanced midwifery.
- As many as 50.0% (n=70) had acquired more than 10 years' clinical practice. However, 98.6% (n=138) had no management experience and 92.1% (n=129) had no education experience.
- There was no correlation between age and experience with any of the barriers.
- Items in this study centred on the same sub-scales as other studies using the same instrument, supplemented by a few items identified as being important during the development of the research instrument.
- Qualifications did not have any association with the barriers hindering the utilisation of research in the current study.
- There was a correlation between the items of all the subscales of the BARRIERS scale.
- The organisational subscale ranked the highest of all subscale and was important barrier hindering the utilisation of research in clinical practice situations.
- The respondents ranked the following barriers as major barriers perceived to impede the utilisation of research to moderate to a great extent:
 1. Research results took long to get published
 2. The midwives felt they did not have authority to change patients' procedures.
 3. Staff members, other than nurses, were not supportive about the implementation of research findings in the clinical situations
 4. There was insufficient time on the job to implement new ideas.
 5. Research results are not generalised in own setting.
 6. Lack of resources adversely affected the utilisation of research findings.
 7. Shortage of staff hindered these efforts.

- Shortage of staff and lack of resources were not identified as possible barriers by items in the BARRIERS scale but midwives, who participated in the current study, mentioned these aspects in response to open-ended questions. The identified shortage of staff in the current study could have serious negative effects because it could contribute to suboptimal care that is not informed by evidence (Thopola, 2016:123)

The findings indicate that the study had achieved its objectives because it was able to identify barriers to research utilisation, as perceived by midwives in CHCs in the Gauteng Province.

5.3 LIMITATIONS OF THE STUDY

The “no opinion response” to some questions in the questionnaire affected the methodological inadequacy. It is possible that the *no opinion* response could have been selected because respondents had limited knowledge about barriers to research utilisation or because they simply had no interest in the issues addressed by particular questions or they feared responding honestly to certain items.

The study focused on midwives working in a Community Health Centres with a limited number of midwives working there, and less resources like research journals and computers to use to search for research, which limits the findings of the study to similar settings.

Although the BARRIERS Scale to Research Utilization is a relevant tool for identifying barriers to research utilisation, the tool itself might have some limitations as it does not consider factors such as technology, staff turnover rates and motivation levels.

5.4 RECOMMENDATIONS

The following recommendations are proposed for education, midwifery practice, research and policy.

5.4.1 Recommendations for education

Respondents of the current study reported that they did not have the capacity to evaluate research and/or to understand statistical analyses posing barriers of moderate to great extent to research utilisation. Although research in midwifery or nursing is currently taught as a module in all undergraduate and post graduate courses in South Africa, the significance of evidence-based practice should be included at both undergraduate and post graduate levels. This could provide students at all levels with an awareness of the importance of research utilisation, and enhance research utilisation at a practical level.

In-service training and workshops should be conducted for nursing and midwifery educators on research utilisation that would enable them to teach knowledge and skills informed by evidence to students and practising midwives. Statistics should be part of the module so that midwives could understand and interpret quantitative research findings and appraise such research results. Researchers and academics should make their research articles available at the clinical facilities.

5.4.2 Recommendations for midwifery practice

A significant number of midwives (52.1%; n= 73) in this study reportedly perceived the lack of administrative support as a barrier of moderate to great extent. Facilities were insufficient for the implementation of research findings, comprising part of managerial and administrative support as a barrier of great extent. Administrative or managerial support is important to ensure that barriers to research utilisation are eliminated, especially organisational factors. Midwives did not believe that they had the authority to change practice. A decentralised management system could allow midwives to initiate ideas and elect champions for utilising research in the clinical situation. These can be team or shift leaders who are knowledgeable about barriers to research utilisation who could advocate, support and monitor utilisation of research at facility level. The establishment of these teams in facilities would assist midwives to have access to colleagues who are knowledgeable and with whom midwives could discuss research and enhance team building and support for implementing research utilisation.

The establishment of research journal clubs could be of great assistance and has been found to be beneficial. Some of the benefits of such a journal club include that midwives would be continuously informed about current research, gain skills in terms of reading and critically appraising research and in EBP. Belonging to journal clubs would encourage midwives to support each other to utilise research.

A programme to enhance research utilisation should be developed and integrated in service training and workshops intended for midwives. The rationale for integration is that any isolated programme for research utilisation would be unfeasible due to the complexity of the existing barriers identified during the current study.

South Africa is heading toward using Continued Professional Development (CPD) as a measure for issuing licensure for both nursing and midwifery. This gives an opportunity to managers to encourage midwives to select research utilisation training and/or implementation to attain their CPD points. The implementation of CPD points could influence midwives to see the value of research for practice and encourage them to be active participants in research utilisation activities.

The administrators need to devote time to the utilisation of research and to integrate it in key performance areas of the managers and midwives (Panagiari, 2008:23). This would help to ensure that every midwife is committed to the implementation of research findings and to the improvement of patient care. Offering midwives opportunities to begin considering implementing new ideas could help to improve midwifery practice.

5.4.3 Recommendations for district management

The respondents of the current study perceived the shortage of staff, the lack of resources, insufficient time, and other staff members' lack of support to implement new ideas as barriers of moderate to great extent. The district health system is core in the delivery of PHC in South Africa. Therefore district management and governance has a large role to play in ensuring that health care is delivered in a scientific and safe manner to the public by addressing the lack of resources experienced by midwives. Research utilisation requires not only management ability but also leadership commitment and action to deliver safe care. Therefore district management has the responsibility to ensure that conditions of work are improved by making sure that the environment is safe and conducive for practice. The improvement of the environment might allow midwives to refocus their attention to the utilisation of research to enhance care benefitting the patients. They also need to ensure that there is sufficient allocation of resources and time to utilise research in practice.

The establishment of teams at district level that can support facilities with research utilisation could have a great effect. The teams could be responsible for evaluating research findings appropriate for use at facility level and support the implementation of relevant research findings. These teams could also ensure that policies and protocols are reviewed periodically and are based on the current, best available evidence. They might be used for skills transfer since they will be providing support to facilities and could thus address the perception of midwives that they did not have authority to change patients' protocols.

5.4.4 Recommendations for research

Future research should compare barriers to research utilisation in both urban and rural settings on a larger scale and using larger samples. This might clearly indicate midwives' perceived barriers to research utilisation in CHCs and hospitals, as well as other categories of nurses, such as paediatric nurses, all over the country.

An intervention study, based on the outcomes of the current study should be conducted. Such a future study might be able to identify specific interventions that could be used to facilitate research utilisation in different settings. An investigation of factors that promote research utilisation in clinical practice would also be of value.

The delayed publication of research results could be addressed publishing studies' results in facilities in the form of posters on notice boards and/or in pamphlets. Furthermore, midwives tend not utilise research if it has not been replicated. Therefore research must be replicated in the context within which midwives can relate then more of them will be more willing to use it.

Although the BARRIERS scale is a relevant tool to identify barriers affecting research utilisation in practice, a study based on an adaptation of the BARRIERS scale or developing a new tool, that captures the current situations and circumstances in practice, should be designed during future investigations.

5.4.5 Recommendations for policy

The midwives' perceptions that research utilisation was hindered because they did not have authority to change patients' protocols or procedures and because of staff shortages should be addressed at policy level to change current practice and encourage research utilisation in the clinical situation.

Policy makers should develop measures to enhance the implementation of research utilisation. The policy should also link key performance of managers and practitioners to research utilisation. Policy makers should consider midwives' inputs during policy developments. Such involvement of midwives might give them a voice in this regard, and thus strengthen ownership of and commitment to the use of policy informed by research. The results of the current study, concerning staff shortages, necessitate policy makers and to rethink the opening of nursing colleges and introducing a direct midwifery training course. Such a venture will first require amendments to the legal statute and its regulations.

5.5 CONCLUSION

The barriers found to play the most significant role in hindering research utilisation in this study, were similar to the barriers found by Funk and colleagues decades ago. The organisational barriers were the most influential barriers that impeded midwives from using research in clinical practice.

Of the organisational factors, the dominant barriers that midwives perceived to hinder them from utilising research, included the lack of authority to change patients' protocols and staff members,

other than nurses, not being supportive about the implementation of research findings. The midwives perceived insufficient time on the job to implement new ideas could be attributed to the shortage of staff. There was also a reported lack of resources. Research utilisation requires concerted efforts involving a collaboration of practice, education and research to attain success. The collaboration effort for ensuring success of research utilisation in CHCs by midwives will improve the quality of care and thus elevate the status of maternal health care and benefit the pregnant women and newborn babies of South Africa. Effective utilisation of research in midwifery practice might help to reduce maternal and neonatal mortality and morbidity rates in South Africa.

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ANNEXURE A: ETHICS CERTIFICATE FROM NWU

·WEST UNIVERSITY
SITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT



2016/09/02

Faks: (018)
299-4910
Web: <http://www.nwu.ac.za>

ETHICS APPROVAL CERTIFICATE OF STUDY

Private Bag X6001,
Potchefstroom, South
Africa, 2520

Tel: (018)
299-4900

**Institutional Research Ethics
Regulatory Committee**
Tel: +27 18 299 4849
Email : Ethics@nwu.ac.za

Based on approval by Health Research Ethics Committee (HREC), after being reviewed at the meeting held on **15/06/2015**, the North-West University Institutional Research Ethics Regulatory Committee (NWU-IRERC) hereby **approves** your study as indicated below. This implies that the NWU-IRERC grants its permission that provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Barriers to research utilisation as perceived by midwives in community health centres in Gauteng.

Study Leader/Supervisor: Prof CS Minnie **Student:**
D Sebopa

Ethics number:

N	W	U	-	0	0	1	7	7	-	1	5	-	A	1
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Study Number Year Status
Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type: Single study

Commencement date: 2016-08-01 **Risk:**

Minimal

Continuation of the study is dependent on receipt of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation up to a maximum period of three years.

Special conditions of the approval (if applicable):

- x Translation of the informed consent document to the languages applicable to the study participants should be submitted to the HREC (if applicable).
- x Any research at governmental or private institutions, permission must still be obtained from relevant authorities and provided to the HREC. Ethics approval is required BEFORE approval can be obtained from these authorities.

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following:

- x The study leader (principle investigator) must report in the prescribed format to the NWU-IRERC via HREC:
 - annually (or as otherwise requested) on the monitoring of the study, and upon completion of the study
 - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- x Annually a number of studies may be randomly selected for an external audit. x The approval applies strictly to the proposal as stipulated in the application form. Would any changes to the proposal be deemed necessary during the course of the study, the study leader must apply for approval of these amendments at the HREC, prior to implementation. Would there be deviation from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.
- x The date of approval indicates the first date that the study may be started.
- x In the interest of ethical responsibility the NWU-IRERC and HREC retains the right to:
 - request access to any information or data at any time during the course or after completion of the study;
 - to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process.
 - withdraw or postpone approval if:
 - any unethical principles or practices of the study are revealed or suspected,
 - it becomes apparent that any relevant information was withheld from the HREC or that information has been false or misrepresented,
 - the required amendments, annual (or otherwise stipulated) report and reporting of adverse events or incidents was not done in a timely manner and accurately,
 - new institutional rules, national legislation or international conventions deem it necessary.
- x HREC can be contacted for further information or any report templates via Ethics-HRECAApply@nwu.ac.za or 018 299 1206.

The IRERC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the IRERC or HREC for any further enquiries or requests for assistance.

Yours sincerely

ANNEXURE B: PERMISSION TO CONDUCT STUDY FROM GAUTENG DEPARTMENT OF HEALTH



GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name (Principal investigator)	Ms Dimakatso Sebopa
Organization / Institution	North West University (Potchestroom Campus)
Research Title	Barrier to research utilisation as perceived by midwives in community health centres in Gauteng.
Contact number	Address: Contact no: 011 440 0122/5 Cell: 082 449 7457 Email: Master-mind@mwebmail.co.za
Protocol number	GP_2016RP27_810
Date submitted	2016/03/01
Date reviewed	2016/03/31
Outcome	Approved

It is a pleasure to inform that the Gauteng Health Department has approved your research on "Barrier to research utilisation as perceived by midwives in community health centres in Gauteng".

Study sites: West Rand District: Mohlakeng CHC

The Provincial Protocol Review Committee kindly requests that you to submit a report after completion of your study and present your findings to the Gauteng Health Department.

Approved/Not approved

Dr. Julia Moorman
Chairperson: PPRC

Date: 25-5-16

ANNEXURE C: PERMISSION TO CONDUCT STUDY FROM THE DIRECTORS OF THE HEALTH DISTRICTS



OFFICE OF THE CHIEF DIRECTOR: EKURHULENI HEALTH DISTRICT

Enquiries: Mr. T. Ntsoelengoe
Telephone: 011 878 8524
Fax/Email: 086 422 7997
E-mail: thabiso.ntsoelengoe@gauteng.gov.za

To: HREC Chairperson
North West University: Potchefstroom

From: Ms N. Mekgwe
Chief Director: Ekurhuleni Health District

Permission is hereby granted to Ms. Sebopa Master's Degree

Student-North West University Potchefstroom to conduct research in Ekurhuleni Community Health Centres.

Thank you.

Ms. N. Mekgwe

Chief Director: Ekurhuleni Health District

Date: 27/01/2016



GAUTENG PROVINCE

REPUBLIC OF SOUTH AFRICA



a world class African city

JOHANNESBURG HEALTH DISTRICT

2016/07/12
Demakatso Sebopa
Private Bag X 6001
E-mail: violari@mweb.co.za

Enquiries
Hillbrow CHC Administration Building, Klein Street
Hillbrow, Johannesburg
E-mail
Coralf@joburg.org.za
Johannesburg.research@gmail.com

Dear Demakatso Sebopa

Re: Barrier to research utilization as perceived by midwives in community health centers in Gauteng

Your application dated 2016/07/12 refers. The District Research Committee has reviewed your application. This letter serves as an in-principle approval to access the Districts Health facilities (mentioned below) for the above project subject to following conditions:
The facility to be visited: Hillbrow CHC

- The research can only commence after you submit an ethics clearance certificate from a recognized institution.
- This facility will be visited from 15/07/2016 to 15/06/2017

Mr Peter Mathole

011 440 1259

082 772 0582

- You will report to the Facility Manager before initiating the study.
- Participants' rights and confidentiality will be maintained all the time.
- No resources (Financial, material and human resources) from the above facilities will be used for the study. Neither the District nor the facility will incur any additional cost for this study.
- The study will comply with Publicly Financed Research and Development Act, 2008 (Act 51 of 2008) and its related Regulations.
- You will submit a copy (electronic and hard copy) of your final report. In addition, you will submit a six-monthly progress report to the District Research Committee. Your supervisor and University of South Africa will ensure that these reports are being submitted timeously to the District Research Committee.
- The District must be acknowledged in all the reports/publications generated from the research and a copy of these reports/publications must be submitted to the District Research Committee.

We reserve our right to withdraw our approval, if you breach any of the conditions mentioned above.

Please feel free to contact us, if you have any further queries. On behalf of the District Research Committee, we would like to thank you for choosing our District to conduct such an important study.

From: dimakatso sebopa <master-mind@webmail.co.za>

To: <Karin.Minnie@nwu.ac.za>

Date: 2016/07/25 9:50 AM

Subject: Fwd: FW: Request for permission to access your facilities to conduct a study.

Dear Prof Minnie,

Kindly find the email below for Sedibeng District Approval. The letters attached on yesterday email are from Provincial Department of Health and other 4 Districts. Districts indicated that I can take their letters to facilities for access not necessarily write letters again because approval comes from them.

Kind Regards

Dimakatso Sebopa(Ms)

Student

FROM: Hlahane, Salamina (gphealth)

[<mailto:Salamina.Hlahane@gauteng.gov.za>]

SENT: Thursday, June 02, 2016 4:52 PM

TO: Dimakatso Sebopa

SUBJECT: RE: Request for permission to access your facilities to conduct a study.

If it has been approved by head office it is okay

The district does not have any reason so far not to approve

It is exciting when nurses do research

And good luck

FROM: Dimakatso Sebopa [<mailto:dimakatsos@denosa.org.za>]

SENT: 02 June 2016 02:36 PM

TO: Hlahane, Salamina (gphealth) <Salamina.Hlahane@gauteng.gov.za>

CC: Ikalafeng, Bridget (gphealth) <Bridget.Ikalafeng@gauteng.gov.za>;

Dinga, Nomonde (GPHEALTH) <Nomonde.Dinga@gauteng.gov.za>

SUBJECT: RE: Request for permission to access your facilities to conduct a study.

Dear Madam,

The study is permitted by the research team headed by Dr Ikalafeng. Yes the paper shows Mohlakeng CHC because it was the last CHC mentioned request. Unfortunately the National Research Data Base does not show the entire list however under sample the information is reflected that the study is to be conducted from Gauteng Community Health Centres.

Your consideration and approval will be appreciated.

Kind Regards

Dimakatso Sebopa(Ms)



Kuyasheshwa! Gauteng Working Better

GAUTENG PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

427 Hilda Street, 4th floor, The Fields Building, Hatfield Pretoria 0001 South Africa. Tel: +27 12 451 9036
Enquiries: Dr. Molapane Chueu-Shabangu
e-mail: Molapane.Shabangu@gauteng.gov.za

TSHWANE RESEARCH COMMITTEE

CLEARANCE CERTIFICATE

Meeting: N/A

PROJECT NUMBER: 23/2016

Title: Barriers to research utilization as perceived by midwives in community health centres in Gauteng

Researcher: Dimakatso Sebopa

Supervisor: Dr. Karin Minnie

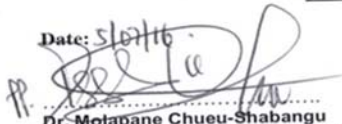
Department: Nursing, North-West University Potchefstroom

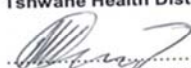
DECISION OF THE COMMITTEE

Approved

NB: THIS OFFICE REQUESTED A FULL REPORT ON THE OUTCOME OF THE RESEARCH DONE

Date: 5/07/16


Dr. Molapane Chueu-Shabangu
Chairperson Tshwane Research Committee
Tshwane Health District


Mr. Pitsi Mothomone
Chief Director: Tshwane District Health
Tshwane District

NOTE: Resubmission of the protocol by researcher(s) is required if there is departure from the protocol procedures as approved by the committee.



GAUTENG PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

Enquiries: Dr Shaikh G K
Tel: 0828571925
Fax: 0866004183

Ms Dimakatso Sebopa
North West University
Potchestroom

RE: PERMISSION TO CONDUCT RESEARCH IN WEST RAND DISTRICT.

Your correspondence on the above matter refers.

Thank you for your request to conduct research in West Rand District in understanding barriers to research utilisation among midwives.

Permission is hereby granted to you to conduct research in West Rand District. I am anticipating that you will conduct your research with the knowledge of all relevant Managers in respective Sub-districts.

You are expected to share the findings and recommendations with the district in order to improve the service delivery to people of west rand.

I hope you find the above in order.

Yours faithfully,

MS PULENG MUSO

DIRECTOR

WRDCA

DATE: 02/06/2016

ANNEXURE D: INFORMED CONSENT



PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM FOR MIDWIVES WORKING IN COMMUNITY HEALTH CENTRES

TITLE OF THE RESEARCH PROJECT:

Barriers to research utilisation as perceived by midwives in community health centres in Gauteng

REFERENCE NUMBERS: NWU-00177-15-S1

PRINCIPAL INVESTIGATOR: Dr. Karin Minnie

STUDENT RESEARCHER: Ms Dimakatso Sebopa
2460 Godlo Avenue
Bekkersdal
Westonaria, 1779
Email: master-mind@webmail.co.za
Cell Number: 082 449 7457
Tel: 011 440 0122/5

You are being invited to take part in a research project that forms part of my partial fulfilment of the requirements for the degree Magister Curationis in Nursing at the Potchefstroom Campus of the North-West University. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the **Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00177-15-S1)** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki and the ethical guidelines of the National Health Research Ethics Council. It might be necessary for the research ethics committee members or relevant authorities to inspect the research records.

What is this research study all about?

- The objective of this research is to explore and describe the barriers to research utilisation as perceived by registered midwives working in community health centres in Gauteng. We hope that this information will assist us to promote evidence based practice.
- This study will be conducted in Gauteng in the Community Health Centres and will involve self-reported questionnaires. The study is conducted by a masters student supervised by an experienced health researcher. About 270 participants will be included in this study.

Why have you been invited to participate?

- You have been invited to participate because you meet the following criteria:

You are a midwife who is registered with the South African Nursing Council permanently employed by Gauteng Department of Health, working as a midwife in a community health centre in the antenatal, intrapartum or postnatal areas and have at least two or more years of experience as a midwife. The rationale for selecting midwives with two year experience is that, at that period the midwife has gained confidence, knowledge and skills to make independent clinical decisions.
- You will be excluded if you fall within another category of nursing staff and do not meet the above mentioned criterion. The rationale for the exclusion is that such a person will not be knowledgeable about the barriers that midwives perceive hinder research use.
- An independent mediator will serve as recruitment agency for the study, the presentation on recruitment will be done on group and individual basis during lunch and tea times. However the researcher will be present in the setting to attend to questions that the participants might have.

What will your responsibilities be?

- You will be expected to participate in the study voluntarily and required to complete the consent form prior to participating on the study. You have the right to refuse to participate and you shall not be penalised for such an action. The mediator will explain the consent to you and will solicit your participation in the study. You will further be expected to ask questions if you do not understand. You will also be expected to complete a questionnaire if you agreed to be a participant in the study. The questionnaire should take approximately 40 minutes of your time. You can complete the questionnaire during your off time at work or home. As a participant you will remain anonymous when taking part in this research.
- You also have the right and responsibility to withdraw from the study when it is in progress and you do not have to explain why you terminated..

Will you benefit from taking part in this research?

- There would not be direct benefits for you as a participant.
- The indirect benefit will be the managers and policy makers will be made aware of the barriers to research utilisation and those interventions can be developed to promote research utilisation and ultimately improve care.
- There will be indirect benefit to researchers and research community at large, with addition of unique information in the South African context.

Are there risks involved in your taking part in this research?

- The risk in this study is associated with the time that it may take you to complete the questionnaire. The questionnaire will take you about 40 minutes to complete it. The researcher aimed to avert this risk by allowing you to complete the questionnaire at your own time and return it in the weeks' time.
- The benefits outweighs the risk the risk because the study intend to bring awareness about the barriers that midwives perceive hinder research utilisation and ultimately inform managers to device interventions that will improve patient care.

What will happen in the unlikely event of some form of discomfort occurring as a direct result of your taking part in this research study?

- There is a possibility of feeling bored due to time to taken to complete to complete the questionnaire. The researcher had put in place a measure that you complete the form at your own time but return them from the following day. Should you have the need for further discussions after the research an opportunity will be arranged for you to express your views about issues you may want discussed.

Who will have access to the data?

- Anonymity will be ensured by not recording your name on the questionnaire and sealing your completed questionnaire in an enclosed envelope. Confidentiality will be ensured by keeping information under lock and key in the safe where no one can reach. Reporting of findings will be anonymous by not publishing names but the information provided. Only the researchers and the researcher and the supervisor will have access to data. Data will be kept safe and secure by locking hard copies in locked cupboards in the researcher's office and for electronic data it will be password protected. Data will be stored for five years and destroyed by shredding.
- Notwithstanding the above the research sponsor and research regulatory authority (HREC) may inspect the records.

What will happen with the data/samples?

- This is a once off collection and data will be analysed in South Africa at the Potchefstroom campus of the University of the North-West statistical consultation service.

Will you be paid to take part in this study and are there any costs involved?

No, you will not be paid to take part in the study. There will thus be no costs involved for you, if you do take part as it is expected that you will submit the questionnaire when you are on duty.

Is there anything else that you should know or do?

- You can contact Dimakatso Sebopa (the researcher) at 082 4497457/011 440 0125 or Dr. K. Minnie at 018 299 1836 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 2089; carolien.vanzyl@nwu.ac.za if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

How will you know about the findings?

- The findings of the research will be shared with you by means of a presentation at your CHC on a pre-arranged date

Declaration by participant

By signing below, I agree to take part in a research study title: Barriers to research utilisation as perceived by midwives in community health centres in Gauteng
I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) on (*date*) 20....

.....
Signature of participant

.....
Signature of witness

Declaration by person obtaining consent

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a interpreter.

Signed at (*place*) on (*date*) 20....

.....
Signature of person obtaining consent

.....
Signature of witness

Declaration by researcher

I Dimakatso Mirriam Sebopa declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 20....

.....
Signature of researcher

.....
Signature of witness

ANNEXURE E: DATA COLLECTION INSTRUMENT BARRIERS SCALE

QUESTIONNAIRE For Research:

Barriers to research utilization as perceived by midwives in community health centres in Gauteng

For office use only:

DEMOGRAPHIC PROFILE

Please complete the following accurately:

1. Please fill in your AGE

2. Mark your highest QUALIFICATIONS

Diploma	General	1
Diploma	General and Midw	2
Diploma	4 yr Integrated	3
4 year Degree	Eg B Cur B Soc Sc	4
3 year post-basic Degree	B Cur I et A BA Cur	5
Master's degree		6
Doctoral degree		8
Other (List below)		
		10
		11
		12
		13
		14

3. Mark your years of MIDWIFERY EXPERIENCE

a. Clinical Practice	0-4 years	1
	5-9 years	2
	10 years and more	3
b. Management	0-4 years	1
	5-9 years	2
	10 years and more	3
c. Education	0-4 years	1
	5-9 years	2
	10 years and more	3
other areas		
Total years of experience in midwifery		

4. Mark your CURRENT WORKPLACE

Clinical	1
Administrative	2
College	3
University of Technology	4
University	5
Private(state)	6

QUESTIONNAIRE

Barriers and Facilitators to Using Research in Practice

Articles in nursing journals indicate that nurses in practice do not use the results of research to help guide their practice. There are a number of reasons why this might be. We would like to know the extent to which *you* think each of the following situations is a barrier to nurses' use of research to alter/enhance their practice. For each item, circle the number of the response that best represents your view. Thank you for sharing your views with us.

THIS IS A BARRIER

	To no extent	To a little extent	To a moderate extent	To a great extent	No opinion
1. Research reports/articles are not readily available	1	2	3	4	5
2. Implications for practice are not made clear	1	2	3	4	5
3. Statistical analyses are not understandable	1	2	3	4	5
4. The research is not relevant to the nurse's practice	1	2	3	4	5
5. The nurse is unaware of the research	1	2	3	4	5
6. The facilities are inadequate for implementation	1	2	3	4	5
7. The nurse does not have time to read research	1	2	3	4	5
8. The research has not been replicated	1	2	3	4	5
9. The nurse feels the benefits of changing practice will be minimal	1	2	3	4	5
10. The nurse is uncertain whether to believe the results of the research	1	2	3	4	5
11. The research has methodological inadequacies	1	2	3	4	5
12. The relevant literature is not compiled in one place	1	2	3	4	5
13. The nurse does not feel she/he has enough authority to change patient care procedures	1	2	3	4	5
14. The nurse feels results are not generalizable to own setting	1	2	3	4	5
15. The nurse is isolated from knowledgeable colleagues with whom to discuss the research	1	2	3	4	5
16. The nurse sees little benefit for self	1	2	3	4	5
17. Research reports/articles are not published fast enough	1	2	3	4	5
18. Physicians will not cooperate with implementation	1	2	3	4	5
19. Administration will not allow implementation	1	2	3	4	5
20. The nurse does not see the value of research for practice	1	2	3	4	5
21. There is not a documented need to change practice	1	2	3	4	5

Please proceed to page 2 question #22

THIS IS A BARRIER

	To no extent	To a little extent	To a moderate extent	To a great extent	No opinion
22. The conclusions drawn from the research are not justified	1	2	3	4	5
23. The literature reports conflicting results	1	2	3	4	5
24. The research is not reported clearly and readably	1	2	3	4	5
25. Other staff are not supportive of implementation	1	2	3	4	5
26. The nurse is unwilling to change/try new ideas	1	2	3	4	5
27. The amount of research information is overwhelming	1	2	3	4	5
28. The nurse does not feel capable of evaluating the quality of the research	1	2	3	4	5
29. There is insufficient time on the job to implement new ideas	1	2	3	4	5
Are there other things you think are barriers to research utilization? If so, please list and rate each on the scale:					
30. _____	1	2	3	4	5
31. _____	1	2	3	4	5
32. _____	1	2	3	4	5
33. _____	1	2	3	4	5

34. Which of the above items do you feel are the *three greatest barriers* to nurses' use of research?

Greatest Barrier Item #: _____

Second Greatest Barrier Item #: _____

Third Greatest Barrier Item #: _____

35. What are the things you think *facilitate* research utilization?

This questionnaire was adapted from:

Crane, J., Pelz, D., and Horsley, J.A. *CURN Project Research Utilization Questionnaire*. Ann Arbor, Michigan: Conduct and Utilization of Research in Nursing Project, School of Nursing, The University of Michigan, 1977.

Thank you for sharing your views!

c. 1987, Funk, Champagne, Tornquist & Wiese