KNOWLEDGE, ATTITUDES, PERCEPTIONS, ADHERENCE AND BARRIERS TO EVIDENCE- BASED SPORTS PHYSIOTHERAPY STANDARDS AMONG THE PHYSIOTHERAPISTS IN KENYA

THOMAS KYENGO MWOLOLO

MASTER OF SCIENCE

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Knowledge, Attitudes, Perceptions, Adherence and Barriers to Evidence-Basedsports Physiotherapy Standards among the Physiotherapists in Kenya

Thomas Kyengo Mwololo

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Signature …… Date ……

Thomas Kyengo Mwololo

This thesis has been submitted for examination withour approval as University Supervisors.

Signature …… Date ……

Prof. Benita Olivier (PhD)

University of the Witwatersrand, Johannesburg, South Africa.

Signature …… Date ……

Dr Wallace Karuguti (PhD)

JKUAT, Kenya

DEDICATION

This work is dedicated to my family: Mumbua, Mutheu, Nyiva, Ndanu and Mueni for their endless support.

To the faculty of the Department of Rehabilitation Sciences, School of Medicine, College of Health Sciences, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya, for their commitment and dedication in supporting the pioneer physiotherapy Masters class (2016) in Kenya.

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ABBREVIATIONS

APTA: American Physical Therapy Association

CPA: Canadian Physiotherapy Association

EB: Evidence - Based

EBP: Evidence-based practice

EBPQ: Evidence-based Practice Questionnaire

EBPT: Evidence-based physical therapy or Physiotherapy

IERC: Institutional Ethical research committee

JKUAT: Jomo Kenyatta University of Agriculture and Technology

KMTC: Kenya Medical Training College

Msc: Master of Science

NACOSTI: National Commission for Science, Technology and Innovation

NOC- K: National Olympic Committee- Kenya

PCK: Physiotherapy Council of Kenya

SPSS: Statistical Package for Social Sciences

WCPT: World Confederation for Physical Therapy

WHO: World Health Organization

ABSTRACT

Evidence-based practice (EBP) and evidence-based physiotherapy (EBPT) has been investigated in different physiotherapy clinical settings including sports physiotherapy practice. However, no research has been done regarding the knowledge, attitudes & perceptions of, adherence and barriers towards evidence-based sports physiotherapy standards among the physiotherapists in Kenya. The Objective of this study was to establish the current knowledge, attitudes & perceptions of, adherence and barriers towards evidence-based sports physiotherapy standards among the physiotherapists in Kenya. A cross-sectional study utilizing quantitative methods was conducted among the entire total population of 700 licensed physiotherapists in the republic of kenya who completed a self-administered questionnaire. Data collection was through personal face-to-face visits, e-mails and follow up through telephone calls and e- mails. Data was analysed using the SPSS Statistics version 25, summarized into descriptive statistics and displayed in tables and figures. Association between the demographic characteristics and other information (independent variables) and knowledge, attitudes & perceptions of, adherence and barriers (dependent variables) were determined using Chi-square test. The level of significance was set up at ($p \leq 0.05$). A 55.9% (n=391) response rate was recorded. Those involved in structured sports physiotherapy practice accounted for 32.9% (n=129). High levels of knowledge of EBP (67.8%; n=265) were reported. More males (73.4%; n=185) than females (57.5%; n=80) presented with high levels of knowledge of EBP. Those with specialization (83.3%; n=65) demonstrated high levels of knowledge of EBP than those without (63.9%; n=200). A positive attitude towards EBP was reported by 94.6% (n=370) of the respondents. The most evident areas of agreement with attitude and perception related statements were that "EBP is important in that patients can receive the best possible treatment" (95.9%; n=375), that "evidence-based guidelines related to work exists" (84.6%; n=331). However, the respondents strongly disagreed that there is no "value in conducting EBP" (74.9%; n=293). Adherence to the step- wise process of EBP accounted for 36.6% (n=143). More males (41.3%; n=104) than females (28.1%; n=39) adhered to the step- wise process of EBP. Those with specialization (61.5%; n=48) and those without (30.4%; n=95) adhered to the step-wise process of EBP. Insufficient time was highlighted by (57.8%; n=226) of the respondents as one of the "most important barriers". Gender (p=0.006), training (p=0.000) and specialization (p=0.003) were found to have statistically- significant associations with knowledge and adherence ($p \leq 0.05$). Lower levels of adherence to the step- wise process of EBP was established among reportedly knowledgeable physiotherapists. This was statistically attributed to training and specialization whose enhancement may improve adherence. Strong positive attitudes towards EB sports physiotherapy were reported though barred mainly by lack of time, lack of generalizability of literature findings to Kenya's sporting population and inability to apply research findings. Physiotherapists in Kenya have an idea of what EB sports physiotherapy entails. They however require support with regards to exposure time for stepwise execution of the EBP process and in training on application strategies which will improve adherence. Physiotherapists in Kenya present with high levels of knowledge in EB sports physiotherapy but with lower levels of adherence to thestep-wise process of EBP. The understanding ofthe researchterms were equally found to be

lower. Although strong positive attitudes towards EBsports physiotherapy practice was depicted, barriers were identified which could hinder the implementation of EB in sports physiotherapy practice. Continuous professional development to enhance competencies in data analysis is important. That health care institution that attends to clients with sports injuries provide electronic access to databases and physical infrastructure to support EBP. Future studies should seek to establish the actual impact of the current mode of practice on athletes with sports injuries in Kenya and also explore the in-depth realities related to the barriers highlighted.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

The concept of Evidence-Based Practice (EBP) and Evidence-Based Physiotherapy (EBPT) was integrated in the physiotherapy training at the diploma level in all KMTC campuses in 2013, while at the bachelor's degree level, the two universities (Moi and JKUAT) have always had EBP in their undergraduate training programs in order to equip the students with the relevant knowledge and skills to practice EBP in the core areas of practice including sport physiotherapy.

According to the (World Confederation for Physical Therapists [WCPT], 2011) stateme nt on evidence-based practice, "physical therapists have a responsibility to use evidence to inform practice, and to ensure that the management of patients or clients, carers, and communities is based on the best available evidence, and not in the use of technologies and techniques shown to be ineffective and unsafe".

The Vision 2020 statement on evidence-based practice (American Physical Therapy Association [APTA], Vision 2020) advocates for "the rendering of evidence-based services by physical therapists throughout the continuum of care to improve the quality of life for our society and anticipates specialist's physical therapists to lead the profession in the management of movement disorders".

Similarly, the (Canadian Physiotherapy Association [CPA], 2009) states that "evidence-informed practice is the provision of the best available care to specific patient populations in a specified clinical setting which is derived from the interaction between evidence-informed knowledge, clinical experience and patient needs".

The Sicily statement on EBP is a consensual statement conceived by the delegates of the Second International Conference of Evidence-based Healthcare Teachers and

Developers held in 2003 and it proposes that the choices of healthcare be based on "the best available, current, valid and relevant evidence made by those receiving care and informed by the tacit and explicit knowledge of those providing the care within the available resources" (Dawes *et al.,* 2005). Further, the components of EBP are defined as those of knowledge, skills, attitudes and behaviour (Dawes *et al.,* 2005).

Although a relatively new concept in Kenya, EBP has been widely used in different physiotherapy clinical settings including sports physiotherapy practice (Manske & Lehecka, 2012). Practioners in physiotherapy in general and similarly in sports physiotherapy are required to integrate clinical experience with the best research evidence for the welfare of the patient (Manske & Lehecka, 2012).

Various authors have defined EBP as the "integration of individual clinical experience or clinical expertise with the best available external clinical evidence from systematic research and patients' unique values and preferences, circumstances and knowledge of practice to make clinical decisions" (Herbert *et al.,* 2011; Strauss *et al.,* 2011; Strauss & Sackett, 2005; Dawes *et al.,* 2005; Strauss & Haynes, 2002).

Clinical experience or clinical expertise is the knowledge gained by good training and years of experience grown over time and is also considered an enabling factor for the effective application of the best scientific evidence (Herbert *et al.,* 2011). The best available external clinical evidence is clinically relevant systematic research derived from the literature (Herbert *et al.,* 2011). Patients' unique values and preferences are the beliefs, preferences and the needs that the patient brings to a clinical encounter (Herbert *et al.,* 2011), while patient circumstances is the individual patient clinical state and the clinical setting including the available resources (Condon *et al.,* 2016; Manske & Lehecka, 2012) as seen in Fiqure 1.1.

Clinical experience in the practice of sports physiotherapy relies mainly on the use of clinical skills as well as past experiences and at the same time integrating the personal

values and expectations of the athletes. This, in turn, facilitates the identification of each athlete's unique health diagnosis (Manske & Lehecka, 2012; Strauss & Sackett, 2005).

The EBP concept requires that healthcare professionals provide effective quality healthcare (Condon *et al.*, 2016; Frantz & Diener, 2009). Further, it requires that healthcare professionals improve the quality, effectiveness and appropriateness of clinical practice (Cormack, 2002). Based on clinically relevant studies and research, and combined with professional expertise and patient preferences, EBP has been accepted worldwide by health professionals (Condon *et al.*, 2016; Aveyard & Sharp, 2013; Guyatt *et al.*, 2003) as seen in Figure 1.1.

EBP takes into consideration the patients and their preferences, the clinical setting and the available resources, the current scientific evidence and using the clinical expertise and the training of the healthcare professionals, knits the three together to make a clinical decision (Dawes *et al.*, 2005; Strauss & Haynes, 2002). As such, an EBP approach referred to as evidence-based physical therapy (EBPT) has been accepted in the international physiotherapy community (Maher *et al.*, 2004).

Figure 1.1: Evidence-based medicine: How to practice and teach EBM (Sackett *et al.*, 2011)

As seen in Figure 1.2, implementating EBP in any physiotherapy clinical setting involves five essential key steps i.e., 5A's.

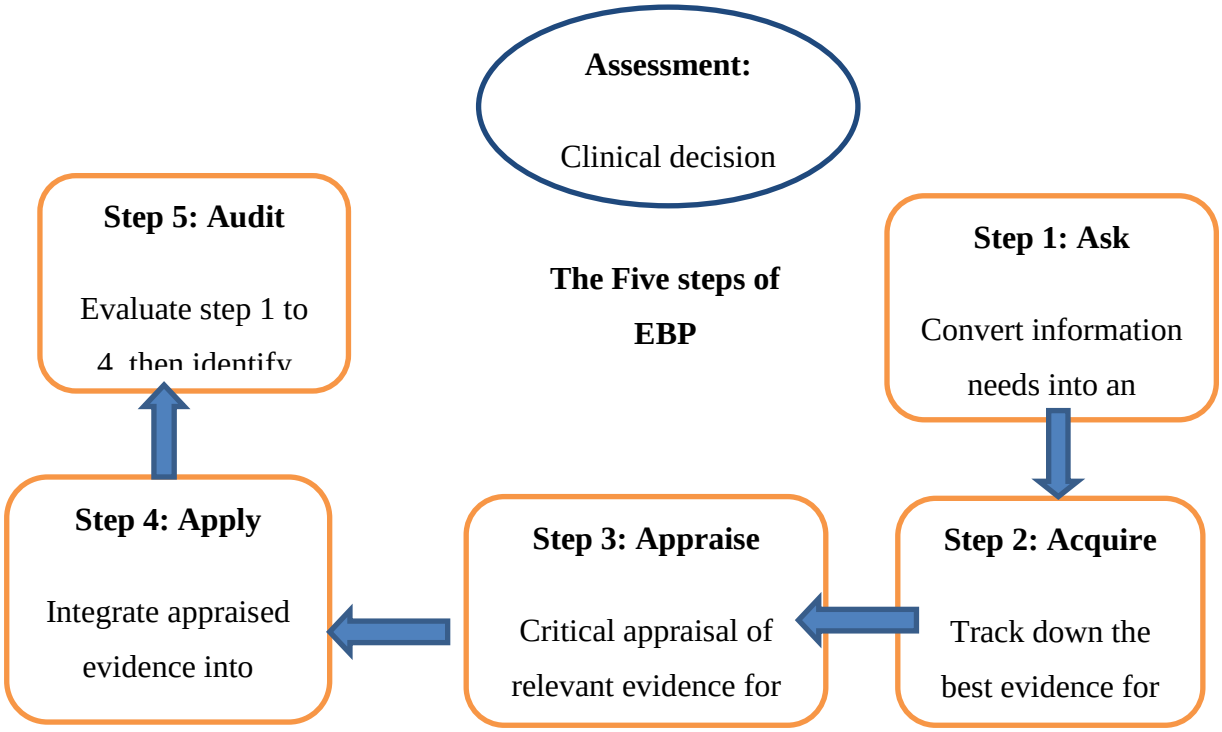

Figure 1.2 Evidence-based medicine: How to practice and teach EBM (Sackett *et al.,* 2011)

Sports physiotherapy practice is meant to follow the five essential key steps (figure 1.2) (Condon *et al.,* 2016; Manske & Lehecka, 2012; Akobeng, 2005). Failure to carry out any one of the five essential steps constitutes a barrier to EBP (Yahui & Swaminathan, 2017; Condon *et al.,* 2016) and may therefore lead to the non-adherence to the EBP sports practice standards.

The EBP process relies on various factors. Firstly, physiotherapists must have the knowledge of the patient's problem. Secondly, physiotherapists must have the knowledge of the evidence appraisal process and the knowledge on how to access the evidence. Thirdly, physiotherapists must have the time to search for, appraise the

evidence, and integrate the evidence into clinical practice (Ramírez-Vélez *et al.,* 2015a; Scurlock-Evans *et al.,* 2014; Jewell, 2014; Iles & Davidson, 2006).

In sports physiotherapy, the EBP process starts with the conversion of information needs into an answerable clinical question in response to a patient's problem or concern. A search for the best relevant research evidence is then conducted that will answer the clinical question being addressed. A critical appraisal of the evidence to determine its validity and its applicability to the patient is then conducted. After the critical appraisal process, the evidence is then integrated or applied with clinical expertise and the patient's values and circumstances into one's own clinical decision making. Finally, all the four steps are evaluated for effectiveness and efficacy of the efforts in steps 1 through 4 and in the implementation of the next step in the management process (Jewell, 2014; Manske & Lehecka, 2012; Guyatt *et al.,* 2003).

1.2 Statement of the problem

Globally, Physiotherapists are faced with challenges towards understanding and utilizing EBP in clinical practice (Scurlock-Evans *et al.,* 2014).

In Kenya particularly, there is lack of data on EBP standard adherence by all the physiotherapists particularly in sports practice. Failure to use such EBP adherence standards compromise the outcomes of sports injuries, prevention and rehabilitation management by the physiotherapists.

Further, there is no documented research into the knowledge, attitudes & perceptions of, adherence and barriers to EB sports physiotherapy standards among the physiotherapists in Kenya.

1.3 Justification of the study

According to Manske and Lehecka, (2012), EBP facilitates the reduction of medical errors, health care costs and helps in the integration of patient preferences into decision making in sports physiotherapy.

The practice of EBP improves the quality of healthcare, professional credibility and increases awareness of the known and unknown benefits of EBP while at the same time challenging the views that are based on mere beliefs rather than the documented clinical research evidence (Dizon, 2011).

Therefore, the information regarding the knowledge, attitudes and perceptions of, adherence to, and barriers towards EBP standards is relevant in sports physiotherapy.

1.4 Significance of the study

Study results will highlight the existing gaps in knowledge-to-practice of EBP in Kenya and more particularly in sports practice among the physiotherapists.

This will therefore, facilitate addressing any of the existing challenges to this model of service delivery and, hence the need for a platform to inform training and practice in this regard.

The Institutions offering physiotherapy programs, the various National Sports bodies, the National Olympic Committee- Kenya (NOC-K), the policy makers and the Physiotherapy Council of Kenya (PCK) may also use the results from this study to inform, to facilitate training and to stimulate discussions and practice in this regard.

1.5 Broad Objective

The main objective of this study was to establish the current knowledge, attitudes & perceptions of, adherence and barriers towards evidence-based sports physiotherapy standards among the physiotherapists in Kenya.

1.5.1 Specific objectives

1. To establish the level of knowledge regarding evidence- based sports physiotherapy standards among the physiotherapists in Kenya.
2. To evaluate the attitudes and perceptions towards evidence-based sports physiotherapy standards among the physiotherapists in Kenya.
3. To determine the level of adherence towards evidence- based sports physiotherapy standards among the physiotherapists in Kenya.
4. To establish the barriers towards evidence-based sports physiotherapy standards among physiotherapists in Kenya.

1.6 Research Questions

1. What is the level of knowledge towards evidence- based sports physiotherapy standards among the physiotherapists in Kenya?
2. What are the attitudes & perceptions towards evidence- based sports physiotherap y standards among the physiotherapists in Kenya?
3. What is the level of adherence to evidence- based sports physiotherapy standards among the physiotherapists s in Kenya?
4. What are the barriers to evidence-based sports physiotherapy standards among the physiotherapists in Kenya?

CHAPTER TWO

LITERATURE REVIEW

2.1 Evidence-Based Practice

Healthcare practitioners consider EBP as the gold standard model of clinical practice as it supports clinicians in their endeavors to achieve the best patient outcomes with minimal healthcare costs (Herbert *et al.,* 2011).

According to Heiwe *et al.,* (2011), Iles & Davidson, (2006), Jette *et al.,* (2003), physiotherapists believe that the quality of patient care improves when evidence is used.

In Australia, Iles and Davidson, (2006) emphasized that the appropriateness of evidence on the efficacy of various treatment approaches results in the clinician choosing techniques that are effective and which leads to improved patient outcomes. In their US study, Jette *et al.* (2003) reported that the use of evidence in practice is an essential component in the provision of improved quality care for patients.

Knowledge, attitudes and perceptions, barriers and the interventions of physiotherapy towards EBP have been addressed in many studies (Nilsagård & Lohse, 2010; Schreiber *et al.,* 2009; Schreiber & Stern, 2005; Jette *et al.,* 2003). For instance, in Sweden, Nilsagård & Lohse, (2010) described the knowledge, attitudes, behaviour and relevant prerequisites regarding evidence-based physiotherapy. A US review by Schreiber and Stern, (2005) discussed the barriers and challenges of implementing EBP for physiotherapy clinicians while, Jette *et al.,* (2003) in the US described the common beliefs, attitudes, knowledge, and behaviors of physiotherapists in relation to EBP.

Specific population of physiotherapists and their aspects of practice that require EBP have also been studied (Scholten-Peeters *et al.,* 2013; Salbach *et al.,* 2007; Iles & Davidson, 2006 and Jette *et al.,* 2003). For instance, a survey in the Netherlands by Scholten-Peeters *et al.,* (2013) documented the attitudes, knowledge and behaviour

towards evidence-based medicine among a specific population of physical therapist, students, teachers and supervisors and reported a lack of knowledge and EBP behaviour among the physical therapy students. In Canada, Salbach *et al.,* (2007) looked at the practitioner and organizational barriers in relation to EBP among a population of physiotherapy practitioners attending to people with stroke and reported a lack of education in the principles of EBP, skills in searching and in critically appraising the literature as a practitioner-level barrier, and a lack of peer support as an organizational barrier.

Studies have also been done that determine the support structures used in accessing information on EBP using information technology such as the internet and smartphones (Condon *et al.,* 2016; Jette *et al.,* 2003). A review by Condon *et al.,* (2016) in Ireland reported that respondents accessed the internet outside the workplace more often than in the workplace while Jette *et al.,* 2003) in the USA reported that 89% of the study respondents accessed the internet at home more often as compared to 65% at the workplace.

Even though the concept of EBP and its approaches are clearly and extensively documented in scientific literatures, challenges and perceived barriers still exist in the implemention of these concepts. Such challenges and perceived barriers include poor access to evidence, organizational barriers, ineffective education, and continued educational programs that deter the practice and the application of EBP (Haynes & Haines, 1998).

2.2 Knowledge of EBP

The process of EBP as practised among healthcare workers in different healthcare professions is a skill that grows over time (Dawes *et al.,* 2005). The improvement of the key EBP skills includes the ability to find and retrieve the best evidence, critically appraising the evidence, and incorporating sound scientific evidence into one's own clinical practice (Bierwas *et al.,* 2016; Akobeng, 2005).

A systematic review in Brazil (Silva *et al.,* 2015) documented a lack of skills and knowledge of EBP amongst most physiotherapy practitioners and a challenge with capacity in this field. Another review by Scurlock-Evans *et al.,* (2014) in the UK reported that physiotherapists most often present favorable opinions towards EBP.

Researchers have also reported varying levels of knowledge of EBP (Nilsagård & Lohse, 2010; Salbach *et al.,* 2009, Akintaro, 2008; Jette *et al.,* 2003). For instance, in Sweden (Nilsagård & Lohse, 2010) reported that 55% of the respondents had the knowledge regarding EBP while in Canada (Salbach *et al.,* 2009) reported that 50% of the respondents had learnt about EBP during their undergraduate training. In the USA, Jette *et al.* (2003) reported a high of 82% of the respondents as having previous knowledge of EBP and 42% as having had educational sessions in the foundations of EBP. However, in Nigeria, Akintaro (2008) reported a relatively low proportion of 29% of the respondents as having learnt EBP as part of their academic pursuit. In Zimbabwe, practice decisions by physiotherapists are not only based on clinical research but on the knowledge acquired during undergraduate training and from their practice experiences (Tadyanemhandu *et al.,* 2016). The only study conducted in Kenya reported a 95% awareness of EBP (Wanjiru, Kabara & Milimo, 2016).

2.3 Attitudes & perceptions towards EBP

A substantial commitment and a positive attitude towards EBP are essential for the development of dynamic professionals willing to adhere to the EBP process (Gudjonsdottir *et al.,* 2017). Generally, physiotherapists have been reported to hold positive attitudes towards EBP and that they also recognize the importance of using research to guide their clinical practice (Scurlock-Evans *et al.*, 2014; Jette *et al.,* 2003).

A review by Scurlock-Evans *et al.,* (2014) in the UK found that most physiotherapists generally hold positive attitudes and beliefs towards EBP. There is also a consensus regarding positive attitudes towards EBP documented in the USA among physiotherapy clinicians (Jette et al., 2003) and equally among clinical instructors in USA universities

(Bierwas *et al.,* 2016) and also in Sweden, as cited by Heiwe *et al.,* (2011); Dannapfel *et al.,* (2013); Nilsagård & Lohse, (2010). In addition, some countries in the Asia Pacific region such as in Malaysia as cited by Yahui & Swaminathan, (2017), in Australia by Iles & Davidson, (2006) and in India by Panhale & Bellare, (2015) also recorded positive attitudes among their respondents. In the South American region, countries such as in Colombia as cited by Ramirez-Velez *et al.*, (2015b) and in Brazil by Silva *et al.*, (2015) similar findings were also reported.

Literature from African countries such as in Zimbabwe (Tadyanemhandu *et al.,* 2016), in Nigeria (Akintaro, 2008) and in South Africa (Frantz & Diener, 2009) positive attitudes towards EBP were also reported. However, a study in Belgium reported negative attitudes towards EBP purely as a result of concerns around reduced therapeutic autonomy with a resultant lack of motivation to implement it (Hannes *et al.,* 2009).

2.4 Adherence to the step- wise process of EBP

Adherence to EBP in any clinical setting, including sports physiotherapy, requires the knowledge of the step-wise process of EBP (Condon *et al.,* 2016; Manske & Lehecka, 2012). However, Condon *et al.,* (2016) reported that, despite physiotherapists being knowledgeable about the EBP concept and the process, there is a paucity of evidence to show that physiotherapists conduct the full process steps of EBP.

A systematic review by Condon *et al.,* (2016) on the ability and skills of physiotherapist s to conduct the full process of EBP identified twenty-five studies of which eighteen were quantitative methods design, six were qualitative design and one was a mixed method design that met the criteria where each of the five process steps of EBP were addressed.

Formulating a specific clearly answerable clinical question is the first step of the process of EBP and is usually structured using the PICO format which translates to Patient or Problem, the Intervention, a Comparison intervention, and an Outcome of interest

(Herbert *et al.,* 2011; Dawes *et al.,* 2005; Glasziou *et al.,* 2003; Herbert *et al.,* 2001). This step has been addressed by researchers, particularly in developed countries, with most results indicating that respondents are able to do so (Bierwas *et al.,* 2016; Scholten-Peeters *et al.,* 2013; Nilsagård & Lohse, 2010; Iles & Davidson, 2006). For instance, at USA universities, it was reported that 39% of the clinical instructors were able to formulate a clinical question (Bierwas *et al.,* 2016). In Sweden, (Nilsagård & Lohse, 2010) reported that 70% of the physiotherapists were able to formulate a clinical question. In Australia, (Iles and Davidson, 2006) reported that 59% of the physiotherapists were able to formulate a clearly answerable clinical question that also defined the patient or problem, the intervention and outcome of interest.

However, in the Netherlands, Scholten-Peeters *et al.,* (2013) reported that 16.3% of the students, 11.5% of the supervisors and 16% of the physical therapists never formulated any answerable clinical question.

As a second step, studies have indicated that respondents generally have the ability to conduct and perform literature searches as a way of retrieving the best relevant evidence (Bierwas *et al.,* 2016; Scholten-Peeters *et al.,* 2013; Heiwe *et al.,* 2011; Nilsagård & Lohse, 2010; Salbach *et al.,* 2009; Iles and Davidson, 2006; Jette *et al.,* 2003). For instance, Bierwas *et al.,* (2016) in the US found that 39.4% of the respondents were able to retrieve the relevant evidence. In Sweden, Nilsagård and Lohse, (2010) found that 44.2% of the respondents had the ability to track down the best research evidence. Physiotherapists have also been reported to have confidence in search skills (Yahui & Swaminathan, 2017; Bierwas *et al.,* 2016; Nilsagård & Lohse, 2010; Salbach *et al.,* 2007; Iles & Davidson, 2006; Jette *et al.,* 2003). For instance (Jette *et al.,* 2003) in the US reported that 65% of the respondents were confident in search skills and 70% were knowledgeable on the use of electronic databases (such as MEDLINE and CINAHL). However, in Australia, Iles and Davidson, (2006) found only 10.6% of the respondents were able to search the PEDro data base, 15.3% the COCHRANE library, 26.6% CINAHL and MEDLINE databases respectively. In Sweden, Nilsagård & Lohse, (2010) found only 28% of the respondents able to perform database searches.

As a third step, various research has documented the critical appraisal of the literature and application of the information (Bierwas *et al.,* 2016; Silva *et al.,* 2015; Scholten-Peeters *et al.,* 2013; Heiwe *et al.,* 2011; Nilsagård & Lohse, 2010; Akintaro, 2008; Iles & Davidson, 2006; Jette *et al.,* 2003). For instance, it was reported that in US Universities, 44% of the respondents were able to critically appraise the evidence (Bierwas *et al.,* 2016). In Australia, it was found that 26% of the study respondents were able to critically appraise the literature (Iles & Davidson, 2006). In Sweden, it was documented that 70% of the respondents were able to make critical appraisal of the literature (Nilsagård & Lohse, 2010) while (Jette *et al.,* 2003) in the USA reported that 67% of the respondents were confident in doing the same. However, in Nigerian, a low 29% of the respondents were able to critically review professional literature (Akintaro, 2008).

The fourth step is the application and integration of the critically- appraised research evidence with clinical expertise and patients' preferences and circumstances. Findings from studies indicate that physiotherapists are able to apply research evidence and use EBP in clinical practice (Bierwas *et al.,* 2016; Jansen *et al.,* 2012; Nilsagård & Lohse, 2010; Salbach *et al.,* 2009; Jette *et al.,* 2003). For example, in Canada, it was found that 68% of the respondents were able to apply evidence from the literature to individual patients (Salbach *et al.,* 2009).

Although not often documented, the fifth step is the frequent evaluation of one's approach in deciding on how to improve the four steps (Condon *et al.,* 2016; Iles & Davidson, 2006; Akobeng, 2005, Strauss & Sackett, 2005).

Disseminating and communicating knowledge has been added as a sixth step and involves the sharing of results with colleques, especially when positive outcomes have been achieved (Karkada, 2015; Law *et al.,* 2007).

Even though physiotherapists have not been documented to apply the evidence derived from the EBP process (Condon *et al.* 2016), many researchers have findings reporting on

the barriers in undertaking the full process of EBP and in the application of clinical guidelines (da Silva T *et al.,* 2015; Scurlock Evans *et al.,* 2014; Jette *et al.,* 2003).

2.5 Barriers to EBP

Barriers that interfere with the implementation of EBP have been reported in various studies and they make it difficult to integrate the evidence-based practice model into clinical practice.

Two systematic reviews identified a "lack of time", "poor access to data bases", the "inability to make critical appraisal of the literature" and a "lack of understanding of statistical data" as among the most frequently mentioned barriers (Silva *et al.,* 2015; Scurlock-Evans *et al.,* 2014).

In addition, "journal access" and "limited access to online information" (Yahui & Swaminathan, 2017; Ramirez-Velez *et al.,* 2015a; McInerney & Suleman, 2010; Hannes *et al.,* 2009; Salbach *et al.,* 2009; Akintaro, 2008; Iles & Davidson, 2006; Maher *et al.,* 2004; Jette *et al.,* (2003), and a "lack of employer support", "lack of resources", "lack of interest and misinterpretation of EBP", an "inability to apply research findings to individual patients with unique characteristics", "lack of research skills", and "lack of generalization of results to the specific patient population" have also been identified as barriers to EBP (Heiwe *et al.,* 2011; Akintaro, 2008; Iles and Davidson, 2006) and Jette *et al.,* 2003). Furthermore, Maher *et al.,* (2004) documented a link between barriers to access and interpretation of evidence to the lack of access to electronic databases (such as MEDLINE, CINHAL and EMBASE) and the access of the full- text article and to publication language issues.

Lack of time as the "most important barrier" has been identified in various studies (Tadyanemhandu *et al.,* 2016; Wanjiru *et al.,* 2016; Ramirez-Velez *et al.,* 2015a; Nilsagård & Lohse, 2010; Heiwe *et al.,* 2011; McInerney & Suleman, 2010; Akintaro, 2008; Schreiber & Stern, 2005; Iles & Davidson, 2006 and Jette *et al.,* 2003). For

example, in Colombia, Ramirez-Velez *et al.,* (2015a) reported 43.5% while in Sweden; two studies reported a high of 84% (Heiwe et al., 2011) and high of 86% (Nilsagård & Lohse, 2010) of the respondents rating time as the most important barrier. Similarly, a Nigeria study reported 64% (Akintaro, 2008) and a Kenyan study reported 80% (Wanjiru *et al.,* 2016), while a USA study reported 46% of their respective respondents had rating time as the most important barrier (Jette *et al.,* 2003).

The inability to critically appraise the literature or evidence and the inability to understand statistical data have also been reported as barriers (Bierwas *et al.,* 2016; Ramirez-Velez *et al.,* 2015a; Heiwe *et al.,* 2011; Nilsagård & Lohse, 2010; Salbach *et al.,* 2007 and Jette *et al.,* 2003). For instance, in Columbia (Ramirez-Velez *et al.,* 2015a) reported 10.7% and in Sweden (Heiwe *et al.,* 2011) reported 32% while in the US (Jette et al., 2003) reported 20% of the respondents having identified inability to make critical appraisal of the literature as a barrier. Additionally, in Columbia (Ramirez-Velez *et al.,* (2015a) reported 53%, in Sweden (Heiwe *et al.,* 2011) reported 33% while in Canada (Salbach *et al.,* 2007) reported 36.4% of the respective respondents having identified inability to understand statistical data or analysis as a barrier.

Studies have identified lack of employer support as a barrier (Ramirez-Velez *et al.,* 2015a; Nilsagård & Lohse, 2010; Salbach *et al.,* 2007). For instance, in Columbia (Ramirez-Velez *et al.,* 2015a) reported 15% and in Sweden (Nilsagård & Lohse, 2010) reported a low 2% while in Canada (Salbach *et al.,* 2007) reported 37% of their respective respondents having identified lack of employer support as a barrier.

Lack of resources as a barrier to EBP has also been identified in research (Nilsagård & Lohse, 2010; Salbach *et al.,* 2007; Iles & Davidson, 2006 and Jette *et al.,* 2003). For instance, a study in Canada reported that 15.6% of the respondents had identified a lack of resources (such as money, computers and internet access) as a barrier (Salbach *et al.,* 2007).

Lack of interest and misinterpretation of EBP have also been identified as barriers (Ramirez-Velez *et al.,* 2015a; Nilsagård & Lohse, 2010; Salbach *et al.,* 2007; Jette *et al.,* 2003). For example, in Columbia (Ramirez-Velez *et al.,* 2015a) reported 10.9 %, in Sweden (Nilsagård & Lohse, 2010) reported 36% and in Canada (Salbach *et al.,* 2007) reported a low 3.7% while in the US (Jette *et al.,* 2003) reported 11% of their respective respondents had identifying a lack of interest and misinterpretation of EBP as a barrier.

Studies have also documented results whose findings have identified difficulty in applying evidence to the patient population and into every day practice as barriers (da Silva T *et al.,* 2015; Ramirez-Veldez *et al.,* 2015a; Akintaro, 2008 and Jette *et al.,* 2003). In Colombian (Ramirez-Veldez *et al.,* 2015a) reported 46.9% while in Nigerian (Akintaro, 2008) reported 37% of the respondents had identified difficulties in the application of findings to individual patients having unique characteristics as a barrier.

Studies by Ramirez-Velez *et al.,* (2015a), Scurlock Evans *et al.,* (2014), Heiwe *et al.,* (2011), Hannes *et al.,* (2009), Iles and Davidson, (2006), Maher *et al.,* (2004) and Jette *et al.,* (2003) also documented findings that reported lack of search skills and evaluating research evidence as a barrier. In Colombia (Ramirez-Velez *et al.,* 2015a) reported 56.0% and in Sweden (Heiwe *et al.,* 2011) reported 36% while in the US (Jette *et al.,* 2003) reported 20% of their respective respondents had identified lack of search skills and evaluating research evidence as a barrier.

Studies also identified poor access to data bases, journal access and limited access to online information as barriers (Yahui & Swaminathan, 2017; Ramirez-Velez *et al.,* 2015a; McInerney & Suleman, 2010; Hannes *et al.,* 2009; Salbach *et al.,* 2009; Akintaro, 2008; Iles & Davidson, 2006; Maher *et al.,* 2004 and Jette *et al.,* 2003). A Nigeria study by Akintaro, (2008) found that 51% of the respondents had access to online databases at workplace, 80% had access to online practice guidelines while 64% had access to paper journals. In the US, a low of 5% of the respondents had access to journals and relevant guidelines, 25% had access to online practice, 30% had access to

online data base at workplace while 10% had access to online data bases away from the workplace (Jette *et al.,* 2003). Additionally, the knowledge to discriminate between trials of low quality & high quality has also been identified as impediments to EBP.

Lack of generalization of results to the specific patient population has also been identified as a barrier (Ramirez-Velez *et al.,* 2015a; Jette *et al.,* 2003). In Columbia (Ramirez-Velez *et al.,* 2015a) documented 10% and in the US (Jette *et al.,* 2003) documented 30% of the respondents had identified generalization of findings to patients with specific conditions as a barrier.

Strategies advanced to overcome these barriers include the facilitation of published research, critical appraisal skills, fostering consumer access to evidence, and maximizing the efficient use of data bases (Schreiber & Stern, 2005; Maher *et al.*, 2004).

CHAPTER THREE

METHODOLOGY

3.1 Study location and setting

The location of this study was in the Republic of Kenya. The study settings were distributed among the public health facilities and private health facilities and at the privately-owned physiotherapy clinics across the eight regions where the participants practiced.

3.2 Study design

This was a cross-sectional descriptive study utilizing quantitative methods to collect data and in conjunction with a constructed self-administered questionnaire.

3.3 Study population

The study population was the entire total 700 physiotherapists who were licensed by the Physiotherapy Council of Kenya as of February 2018 (PCK, 2018).

3.3.1 Inclusion Criteria

All the physiotherapists licensed by the Physiotherapy Council of Kenya as of February 2018 (PCK, 2018), practicing or not practicing were included in the study.

3.3.2 Exclusion Criteria

Those who failed to consent and participate in the survey were excluded from the study.

3.4 Sample size determination

A survey was conducted among the entire total population of the 700 licensed physiotherapists.

3.5 Data Collection Instrument

The Evidence-based practice questionnaire (EBPQ), is a validated four and a five-point Likert scale by Jette *et al.,* (2003) with a Cronbach's alpha scores of 0.87 and test-retest scores of 0.80 to 0.92 (Upton and Upton, 2006). The EBPQ is designed to investigate the knowledge, attitudes & perceptions of, adherence and barriers to the use of EBP. This was adopted and used to collect data from the participants (Appendix 3).

A constructed questionnaire consisting of two sections was used to collect data.

Section 1 obtained demographic data, other information such as years of work experience, level of physiotherapy training, specialization if any, work area, category of practice, involvement in sports practice, level of sports involvement and number of sports related injuries seen on a daily basis. (survey items 9-12 was designed for the physiotherapists involved in sports practice).

Section 2 had four parts: Part One, captured knowledge of EBP (11 survey items which included questions on the understanding of research terminology). Part Two**,** captured attitudes and perceptions towards EBP (9 survey items). Part Three, captured adherence to the step-wise process of EBP (10 survey items) while Part Four, captured barriers to EBP (10 survey items).

Responses to items regarding knowledge, attitudes & perceptions to EBP were scored using a four-point Likert scale with responses of 1- strongly disagree, 2- disagree, 3- agree and 4- strongly agree. On knowledge of EBP, those who agreed with only a third of the statements were considered to have "Low levels", while those who agreed with up to two-thirds and above two-thirds of all the statements were considered to possess

"Moderate and High levels of knowledge". On attitudes and perceptions, those who agreed with more than half of the statements were deemed to hold positive attitudes towards EBP, while those who agreed with less than a half of the statements were deemed to hold negative attitudes towards EBP. Adherence to the step-wise process of EBP was scored using a five-point Likert scale of 1- never, 2- monthly or less, 3- fortnightly, 4- weekly and 5- daily. Items regarding understanding of research terms were scored using the terms "Completely Understand, Understand Somewhat and Do not Understand. The barriers to EBP were rated from the "Least important" barrier to the "Most important" barrier.

3.6 Content Validity

Five Kenyan physiotherapists in academia with a minimum qualification of a Master's degree in physiotherapy were requested to ascertain the content validity of the questionnaire. This was conducted using an iterative process until consensus was achieved.

3.7 Pilot Study

Pilot study was conducted by the M.Sc. Physiotherapy students who were requested to review the tool for its friendliness to disseminate to a similar group of participants. Typographical errors were noted and corrected.

3.8 Test-retest reliability

This questionnaire had a Cronbach's alpha score of 0.751.

3.9 Data Collection

After obtaining all the necessary Ethical clearances (Appendices 4-27), the researcher contacted the PCK- registered physiotherapists to participate in the study. Data was collected using self- administered questionnaires which were e-mailed or hand delivered

to the physiotherapists who had been recruited and voluntarily accepted to participate and also included personal face-to-face visits and follow- up through telephone calls and by emails.

The participants gave informed consent to participate, participation was voluntary, and they could withdraw from the study at any time without suffering any repercussions.

3.10 Data handling, cleaning and management

A Consent form for the participants was provided (Appendix I). An information sheet which explained the purpose of the study was provided (Appendix II).

All the returned questionnaires were retrieved, checked for completeness and assigned a serial number and thereafter put under safe custody and storage by the investigator.

Confidentiality was assured and anonymity maintained by excluding the participant's identity.

3.11 Data Analysis

The collected data was analysed using the SPSS version 25, summarized into descriptive statistics and displayed in tables and figures.

Associations between the socio-demographic characteristics and other information (the independent variables) and level of knowledge, attitudes and perceptions of, adherence and barriers (the dependent variable**s)** were determined using Chi-square test. The level of Significance was set at $p \leq 0.05$.

3.12 Ethical Clearance

This study was approved by the Jomo Kenyatta University of Agriculture and Technology's (JKUAT) Board of Postgraduate Studies (Ref: JKU/2/11/HSM 321 4034/2016, *Appendix IV*), the JKUAT Institutional Ethics Review Committee (Ref:

JKU/2/4/896B, *Appendix V*), The National Commission for Science, Technology and Innovation (Ref: NACOSTI/P/19/13833/31736, *Appendix Vi and VII*), the Physiotherapy Council of Kenya (Ref: PCK/ADM/277/VOL.1, Appendix 8) and from the relevant government agencies (*Appendix IX- XXVII*).

CHAPTER FOUR

RESULTS

4.1 Response Rate

A total of 391 (55.9%) of the 700 licensed physiotherapists responded to the questionnaire.

The no-response rate was attributed to unwillingness by some respondents to fill in the questionnaire citing inadequate internet resources and time to respond, while others just never said a word, never responded to emails and phone calls.

4.2 Socio-demographic characteristics and other Information

On the Socio-demographic characteristics of the respondents, males were in the majority (64.5%; n=252). Most respondents were aged between 30- 39 years (30.7%; n=120). The majority 28.9%; n=113) had (> 20) years of work experience. Over half (60.9%; n=238) of the physiotherapists had trained at the diploma level (Table 1).

A stark majority (80.1%; n=313) had no physiotherapy specialization. Those with specialization accounted (19.9%; n=78), with Orthopedic Manual Therapy (OMT) specialty area constituting the majority (42.2%; n=33).

Majority of the respondents (70.8%; n=277) practiced in public health facilities. Other areas of practice were spread within the private health facilities (15.6%; n=61) and the private owned physiotherapy clinics (7.9%; n=31).

Those involved in structured sports physiotherapy practice were (32.9%; n=129) while those in none-structured sports physiotherapy practice accounted (67%; n =262) of the respondents. Of those involved in structured sports physiotherapy practice, (12.8%; n=50) were in football sports practice and (11%; n=43) were in Track & Field sports practice. The least represented discipline was cricket (0.3%; n=1). About 90% in

structured sports physiotherapy practice had not participated in any International sporting event. Only 3% indicated having participated in the IAAF (Track & Field) International.

Table 4.1: Socio-demographic characteristics and other information (n = 391; 55.9%)

Gender										
Males					Females					
252 (64.5%)					139 (35.5%)					
Age group distribution of participants										
20-29 years		30-39 years			40-49 years			≤ 50 years		
81 (20.7%)		120 (30.7%)			111 (28.4%)			79 (20.2%)		
Experience as a Physiotherapist										
< 5 years		≥5- 10 years		≥ 10 - < 15 years		≥ 15 - < 20 years		≥ 20 years		
48 (12.3%)		83 (21.2%)		75 (19.2%)		72 (18.4%)		113 (28.9%)		
Level of Physiotherapy Training										
Diploma	B.Sc. Students	B.Sc. Graduates		M.Sc. Students		M.Sc. graduates		Others: HND	PhD Student	
238 (60.9%)	22 (5.6%)	84 (21.5%)		27 (6.9%)		6 (1.5%)		11 (2.8%)	3 (0.8%)	
Core Physiotherapy Specialization										
Yes (Specialised)					No (Not Specialised)					
78 (19.9%)					313 (80.1%)					
Area of Specialization										
Orthopedics	Neuro	OMT	Musculoskeletal	Sports Physiotherapy	Pain	Traumatology	Pulmonary Therapy	Gynecology	Cardiac Rehabilitation	Non-core physiotherapy
13 (16.6%)	8 (10.2%)	33 (42.2%)	5 (6.3%)	7 (8.8%)	1(1.2%)	1 (1.2%)	1 (1.2%)	1 (1.2%)	1 (1.2%)	8 (10.2%)
Category of practice										
Public Hospitals	Academia	Private owned physiotherapy clinic	Private health facility	University /College	Community-based agency	Self Employed				
277 (70.8%)	6 (1.5%)	31 (7.9%)	61 (15.6%)	6 (1.5%)	8 (2.0%)	2 (0.5%)				
Region of practice										
Central	Coast	Eastern	Rift Valley	Western	Nyanza	Nairobi				
13%	9%	14%	14%	2%	4%	44%				
Sports physiotherapy involvement										
Structured				Non-Structured						
129 (32.9%)				262 (67.0%)						
Specific disciplines										
Volleyball	Rugby	Football	Swimming	Cricket	Golf	Tennis	Hockey	Handball	Basketball	Track & Field
9 (2.3%)	10 (2.6%)	50 (12.8%)	4 (1.0%)	1 (0.3%)	2 (0.5%)	3 (0.8%)	3 (0.8)	2 (0.5%)	2 (0.5%)	43 (11.0%)
Level of sports physiotherapy practice										
Club Games	School games	County games	National team games	International games	Military Games	None				
29 (22.4%)	29 (22.4%)	32 (24.8%)	26 (20.1%)	6 (5.3%)	7 (5.4%)	262 (67.0%)				
Number of Patients with Sports related injuries attended to on daily basis										
None	<5 patients	5- <10 patients	11- <15 patients	>15 patients						
192 (49.1%)	142 (37.1%)	44 (11.3%)	7 (1.8%)	3 (0.8%)						

HND: Higher National Diploma

4.3 Evidence -Based Practice

4.3.1 Knowledge of EBP

A Four-point Likert Scale on knowledge of EBP ranging from “strongly disagree”, “disagree”, “agree” and “strongly agree” with ten survey items were provided. The Likert scale was later transformed into a dichotomy of “agree” and “disagree”.

The agreements with the positive statements (i.e., an understanding of EBP) were mostly evident in the following areas: “EBP helps me to make decisions about work” (91%; n=356), “literature and research findings are useful in the day-to-day work situation” (90.7%; n=355) and “EBP helps in decisions making concerning the choice of treatment” (90.5%; n=354). As presented in Table 4.2, another area of agreement was “EBP is necessary in daily sports physiotherapy practice” (89.2%; n=349).

The disagreements with the positive statements (i.e., a lack of understanding of EBP) were in areas such as “the use of EBP at work” (27.4%; n=107), “familiarity with the medical search engines” such as PEDro, PubMed (26.8%; n=105) and in “access to relevant databases for evidence-based research articles” (23.5%; n=92) as indicated in Table 4.2.

Table 4.2: Knowledge of EBP (n = 391)

Knowledge of EBP	Disagree n (%)	Agree n (%)
I learnt the foundations of EBP during my academic years	78 (20)	313 (80)
EBP is necessary in my daily sports physiotherapy practice	42 (11)	349 (89.2)
EBP helps me make decisions about my work	35 (8.9)	356 (91)
EBP helps me make decisions in the choice of treatment	35 (8.9)	354 (90.5)
I use EBP in my work	107 (27.4)	284 (72.6)
I am familiar with the medical search engines. Example PEDro, PubMed	105 (26.8)	286 (73.1)
I know how to access relevant databases for Evidence-based research articles	92 (23.5)	299 (76.5)
Literature and research findings are useful in my day-to-day work	36 (9.2)	355 (90.7)
I feel confident in my ability to find relevant research to answer my clinical questions	60 (15.3)	331 (84.6)
I am confident in my ability to critically review scientific literature	82 (20.9)	309 (79)

As presented in Table 4.3 majority of the respondents (67.8%; n=265) demonstrated high levels of knowledge of EBP.

Table 4.3: Levels of knowledge of EBP (n = 391)

Levels of Knowledge	n (%)
Low level of Knowledge of EBP	24 (6.1)
Moderate Level of Knowledge of EBP	102 (26.1)
High level of Knowledge of EBP	265 (67.8)

Most of the respondents demonstrated a lack of understanding of the EBP research terms (Table 4.4). The least understood terms were "heterogeneity" (84.4%; n=330); "publication bias" (76.5%; n=299); "meta-analysis" (75.7%; n=296), "odds ratio" (73.4%; n=287) and "confidence interval" (68.2%; n=267). The rest of the research terms not completely understood are presented in Table 4.4. The respondents indicated a complete understanding of only "systematic review" (42.5%; n=166), "absolute risk" (40.4%; n=158) and "relative risk" (39.6%; n=155).

Table 4.4: Understanding research terms (n=391)

Understanding Research Terms	Understand Completely n (%)	Do not understand n (%)
Understanding of Relative Risk	155 (39.6)	236 (60.3)
Understanding Absolute Risk	158 (40.4)	233 (59.6)
Understanding Systematic Review	166 (42.5)	225 (57.5)
Understanding Meta-Analysis	95 (24.3)	296 (75.7)
Understanding Odds Ratio	104 (26.6)	287 (73.4)
Understanding Confidence interval	124 (31.7)	267 (68.2)
Understanding Publication Bias	92 (23.5)	299 (76.5)
Understanding Heterogeneity	61 (15.6)	330 (84.4)

4.3.2. Association between demographic, other characteristics and level of knowled ge of EBP

As presented in Table 4.5, there was an association between gender and knowledge of EBP
($p = 0.006$). This study found more males (73.4 %; n=185) than females (57.5%; n=80) a s having a high level of knowledge of EBP. A significant association was seen between physiotherapy training and level of knowledge of EBP ($p = 0.000$). Further, a significant association was established between specialization in physiotherapy areas and level of knowledge of EBP ($p = 0.003$) with (83.3%; n=65) with specialization demonstrating a high level of knowledge of EBP than (63.9 %; n=200) without specialization.

Table 4.5: Association between demographic, other characteristics and level of knowledge of EBP

Level of Knowledge							Asymptotic Significance (2-sided) (df)
	Age group distribution of the respondents n (%)						
	20-29 years (n=81)		30-39 years (n= 120)	40-49 years (n= 111)	50 years and above (n= 79)		0.526 (6)
Low level	4 (4.9)		4 (3.3)	8 (7.2)	8 (10.1)		
Moderate Level	20 (24.6)		30 (25)	32 (28.8)	20 (25.3)		
High level	57 (70.4)		86 (71.6)	71 (63.9)	51 (64.5)		
	Physiotherapy Training (n %)						
	Diploma (n= 238)	B.Sc. student (n= 22)	B.Sc. (n= 84)	M.Sc. student (n= 27)	M.Sc. (n= 6)	Others (HND) (n=11)	Ph.D. student (n= 3)	0.000(12)
Low level	20 (8.4)	0 (0.0)	3 (3.6)	1 (3.7)	0 (0.0)	0 (0.0)	0 (0.0)	
Moderate Level	82 (34.5)	7 (31.8)	9 (10.7)	1 (3.7)	0 (0.0)	3 (27.3)	0 (0.0)	
High level	136 (57.1)	15 (68.2)	72 (85.7)	25 (92.6)	6 (100)	8 (72.7)	3 (100)	
	Physiotherapy Work Experience (n %)						
	< 5 years (n= 48)	> 5 years- <10 years (n= 83)	> 10 years -< 15 years (n= 75)	> 15 years- < 20 years (n=72)	> 20 years (n= 113)			0.299 (8)
Low level	3 (6.3)	2 (2.4)	2 (2.6)	7 (9.7)	10 (8.8)			
Moderate Level	12 (25)	23 (27.7)	15 (20)	21 (29.2)	31 (27.4)			
High level	33 (68.7)	58 (69.8)	58 (77.3)	44 (61.1)	72 (63.7)			
	Gender n (%)							
	Male (n= 252)			Female (n= 139)				0.006 (2)
Low level	13 (5.2)			11 (7.9)				
Moderate Level	54 (21.4)			48 (34.5)				
High level	185 (73.4)			80 (57.5)				
	Specialization in core physiotherapy areas n (%)							
	Yes (n= 78)			No (n = 313)				0.003 (2)
Low level	1 (1.28%)			23 (7.3%)				
Moderate Level	12 (15.3%)			90 (28.7%)				
High level	65 (83.3%)			200 (63.9%)				

HND: Higher National Diploma**. NOTE:** All percentages do not necessarily add up to 100% due to rounding.

4.3.3 Attitudes and Perceptions towards EBP

On attitudes and perceptions, the respondents majorly held a positive attitude towards EBP (370 (94.6). The most evident areas were in the agreement that "EBP is important so that the patients can receive the best possible treatment" (95.9%; n=375 and also in the agreement that it was important that "evidence-based guidelines related to work exist" (84.6%; n=331). However, as indicated in Table 4.6, there was a strong disagreement in the area "there is not much point in conducting an EBP because there is lack of strong evidence to support most of the work done" (74.9%; n=293) and the "adoption of EBPplaces an unreasonable demand on physiotherapists" with (71.4%; n=279).

Table 4.6: Attitudes and perceptions towards EBP (n=391)

Attitudes and perceptions towards EBP	Disagree n (%)	Agree n (%)
I consider it important that easily available evidence-based guidelines related to my work exists	63 (16.1)	331 (84.6)
Evidence-based practice is important so that the patients receive the best possible treatment	16 (4.1)	375 (95.9)
The adoption of Evidence-based practice places an unreasonable demand on Physiotherapists	279 (71.4)	112 (28.6)
Evidence-based practice does not take into account the limitations of my day-to-day work	221 (56.5)	170 (43.5)
Evidence-based practice does not take into account my patient's preferences	241 (61.6)	150 (38.4)
There is not much point in doing evidence-based practice because there is lack of strong evidence to support most of the work I do	293 (74.9)	98 (25.1)
In making clinical decisions about my professional work, I value clinical field experiences more than literature from scientific studies	211 (54)	180 (46)
Workplace experience is the most reliable way to know what really works	194 (49.6)	187 (50.4)
Seeking relevant evidence from scientific studies is not very practical in the real world	255 (65.2)	136 (34.8)

As indicated in Table 4.7, those who agreed with more than half of the statements were deemed to hold positive attitudes towards EBP (94.6%; n=370), while those who agreed with less than half of the statements were deemed to hold negative attitudes towards EBP (5.4%; n=21).

Table 4.7: Summative assessment of attitudes and perceptions towards EBP (n=391)

Attitudes towards EBP	**n (%)**
Positive attitudes	370 (94.6)
Negative attitude	21 (5.4)

4.3.4 Association between demographic characteristics, other information and attit udes and perceptions towards EBP

As indicated in Table 4.8,there were no significant associations between the demographic Characteristics and other information (gender p = 0.104, age distribution p =0.495, physiotherapy training p = 0.590, physiotherapy work experience p= 0.980, physiotherapy specialization p= 0.649), and attitudes and perceptions towards EBP.

Table 4.8: Association between demographic, other characteristics and attitudes and perceptions towards EBP (n=391)

							Asymptotic Significance (two-sided) (df)
Gender n (%)							
	Male (n=252)			**Female (n=139)**			0.104 (1)
Negative Attitude	17 (6.7)			4 (2.8)			
Positive Attitude	235 (93.2)			135 (97.1)			
Age group distribution of the respondents n (%)							
	20-29 years (n=81)		**30-39 years (n= 120)**	**40-49 years (n= 111)**	**50 years and above (n= 79)**		0.495 (3)
Negative Attitude	4 (4.9)		5 (4.1)	9 (8.1)	3 (3.8)		
Positive Attitude	77 (95.1)		115 (95.8)	102(91.8)	76(96.2)		
Physiotherapy Training (n %)							
	Diploma (n = 238)	**B.Sc. student (n= 22)**	**B.Sc. (n= 84)**	**M.Sc. student (n= 27)**	**M.Sc. (n= 6)**	**Others (HND) (n= 11)**	**Ph.D. student (n= 3)**	0.590 (6)
Negative Attitude	10 (4.2)	2 (9.09)	6 (7.14)	3 (11.1)	0 (0.0)	0 (0.0)	0 (0.0)	
Positive Attitude	228 (95.8	20 (90.9)	78 (92.8)	24 (88.88)	6 (100)	11 (100)	3 (100)	
Physiotherapy Work Experience (n %)								
	< 5 years (n= 48)		**> 5 years-<10 years (n= 83)**	**> 10 years -< 15 years (n= 75)**	**> 15 years-< 20 years (n=72)**	**> 20 years (n= 113)**		0.980 (4)
Negative Attitude	3 (6.3)		5 (6.1)	3 (4)	4 (5.5)	6 (5.3)		
Positive Attitude	45 (93.7)		78 (93.9)	72 (96)	68 (94.4)	107 (94.6)		
Specialization in core physiotherapy areas n (%)								
	Yes (n=78)				**No (n=313)**			0.649 (1)
Negative Attitude	5 (6.4)				16 (5.1)			
Positive Attitude	73 (93.6)				297 (94.8)			

HND: Higher National Diploma

NOTE: On account of rounding, none of the percentages add up to 100%.

4.3.5 Adherence to the step-wise process of EBP

A Likert Scale ranging from “Never”, “Monthly”, “Fortnightly”, “Weekly” and “Daily” was provided to the participants. The Likert Scale was later transformed into a dichotomy scale of either adhering i.e., practicing the steps at a frequency of “daily”, “weekly” and “fortnightly” and non-adhering i.e., practicing the steps at a frequency of “monthly” or “never”.

As indicated in Table 4.9, a starker none-adherence to the step-wise process of EBP was observed in about two-thirds of the respondents in the areas of “critically appraising any literature to establish the methodological quality” (64.7%; n=253), “not tracking down the relevant evidence once a question has been formulated” (52.2%; n=204) and “not formulating a clearly answerable clinical question” (51.6%; n=202). Other areas of none-adherence are presented in Table 4.9.

Noteworthy adherence to the step-wise process of EBP was noticed in the areas of “integrating research evidence with one’s expertise” (50.8%; n = 199), in “searching for literature from electronic databases” (49.6%; n =194) and in “formulating a clearly answerable clinical question” (48.3%; n = 189). Other areas of adherence are presented in Table 4.9.

Table 4.9: Adherence to the step-wise process of EBP (n=391)

Adherence to EBP process steps	Non-adherent (n%)	Adherent (n%)
I formulate a clearly answerable clinical question	202 (51.6)	189 (48.3)
I track down the relevant evidence once i formulate the question	204 (52.2)	187 (47.8)
I search for literature from electronic databases	197 (50.4)	194 (49.6)
I critically appraise any literature to establish the methodological quality	253 (64.7)	138 (35.3)
I integrate research evidence with my expertise	192 (49.1)	199 (50.8)

A collective assessment of adherence to the step-wise process of EBP indicates that (63.4%; n=248) of the respondents were non-adherent to the step-wise process of EBP. The adherents to the step-wise process of EBP accounted (36.6%; n=143) of the respondents as presented in Table 4.10.

Table 4.10: Summative assessment of the level of adherence to the step-wise process of EBP (n= 391)

Adherence to EBP process steps	n (%)
Non-Adherent	248(63.4)
Adherent	143(36.6)

4.3.6 Association between demographic characteristics, other information and Adherence to the step-wise process of EBP

As indicated in Table 4.11, training (p = 0.002), gender (p=0.009) and specialization (p=0.000) each had a significant relationship with adherence to the step-wise process of EBP.

Table 4.11: Association between demographic, other characteristics and the level of adherence to the step-wise process of EBP (n=391)

Adherence to Steps wise process of EBP								Asymptotic Significance (2-sided) (df)
	Age n	20-29 years (n= 81)	30-39 years (n= 120)	40-49 years (n=111)	50 years and above n=79)			0.539 (3)
Non-Adherent		51 (62.9)	71 (59.2)	76 (69.1)	50 (63.3)			
Adherent		30 (37)	49 (40.8)	35 (31.9	29 (36.7)			
	Physiotherapy Training n (%)							
		Diploma (n=238)	B.Sc. student(n=22)	B.Sc. (n=84)	M.Sc. student (n=27)	M.Sc. (n=6)	Others (HND) (n=11)	Ph.D. student(n=3)
Non-Adherent		170 (71.4)	11 (50)	44 (52.3)	13 (48.1)	3 (50)	7 (63.6)	0 (0)
Adherent		68 (28.5)	11 (50)	40 (47.6)	14 (51.8)	3 (50)	4 (36.3)	3 (100)
	Physiotherapy Work Experience n (%)							
		< 5 years (n=48)	> 5years- <10 years (n=83)	> 10 years -< 15 years (n=75)	> 15 years- < 20 years (n= 72)		> 20 years (n=113)	
Non-Adherent		22 (45.8)	54 (65.1)	50 (66.6)	50 (69.4)		72 (64)	0.093 (4)
Adherent		26 (54.2)	29 (35)	25 (33.3)	22 (30.6)		41 (36.2)	
	Gender n (%)							
	Male (n=252)				**Female (n=139)**			
Non-Adherent	**148 (58.7)**				**100 (71.9)**			
Adherent	**104 (41.3)**							**39 (28.1)** **0.009 (1)**
	Specialization in core physiotherapy areas n (%)							
	Yes (n=78)			No (n=313)				
Non-Adherent	30 (38.5)			218 (69.6)				
Adherent	48 (61.5)			95 (30.4)				0.000 (1)

HND: Higher National Diploma

NOTE: Due to rounding all percentages do not add up to 100%.

4.3.7 Barriers to EBP

A six- point Likert Scale ranking from the "Least important" to the "Most important" barrier was presented to the participants as indicated in Table 4.12.

The barrier rated as the "most important" by most participants (57.8%; n = 226) was "insufficient time". Other barriers also ranked by many as "most important" barriers were "lack of generalizability of the literature findings to the sport patient population" (56.3%; n = 220), "inability to apply research findings to individual patients with unique characteristics" (50.1%; n = 196), "limited ability to critically appraise the literature" (47.6%; n= 186) and "lack of understanding of statistical analysis" (45.8%; n = 179). As indicted in Table 4.12, "lack of interest" (45.3%; n=177) was rated by most participants as "least important" barrier.

Table 4.12: Barriers to EBP (n=391)

Barriers to Evidence-Based Practice	Least Important n (%)	Less Important n (%)	Slightly Important n (%)	Important n (%)	Fairly Important n (%)	Most Important n (%)	Mean	SD
Insufficient Time	38 (10.0)	23 (5.9)	45 (11.5)	24 (6.1)	34 (8.7)	226 (57.8)	4.71	1.775
Limited access to search engines and interpreting evidence	41 (10.5)	43 (11.0)	38 (9.7)	29 (7.4)	68 (17.4)	172 (44.0)	4.42	1.801
lack of research skills	113 (28.9)	36 (9.2)	27 (6.9)	38 (9.7)	26 (6.6)	151 (38.6)	3.72	2.141
Poor ability to critically appraise the literature	64 (16.4)	46 (11.8)	34 (8.7)	32 (8.2)	29 (7.4)	186 (47.6)	4.21	1.993
Lack of generalizability of the literature findings to my sport patient population	42 (10.7)	33 (8.4)	31 (7.9)	32 (8.2)	33 (8.4)	220 (56.3)	4.64	1.822
Inability to apply research findings to individual patients with unique characteristics	48 (12.3)	40 (10.2)	41 (10.5)	31 (7.9)	35 (9.0)	196 (50.1)	4.41	1.884
Lack of understanding of statistical analysis	62 (15.9)	38 (9.7)	33 (8.4)	53 (13.6)	26 (6.6)	179 (45.8)	4.23	1.938
Lack of collective support among colleagues in my facility	86 (22.0)	48 (12.3)	30 (7.7)	29 (7.4)	36 (9.2)	162 (41.4)	3.94	2.075
Lack of Interest	177 (45.3)	49 (12.5)	20 (5.1)	27 (6.9)	16 (4.1)	102 (26.1)	2.90	2.126
Lack of information resources	82 (21.0)	46 (11.8)	29 (7.4)	23 (5.9)	36 (9.2)	175 (44.8)	4.05	2.079

Note: Mean and SD calculated upon the Likert Scale of 1-6 where 1= “Least Important” and 6= “Most Important”.

CHAPTER FIVE

DISCUSSION

5.1 Socio- demographic information

The response rate was (55.9%; n=391). There were more male physiotherapists (64.5%; n=252) than females (35.5%; n=139) in this study. This largely reflects a virtually similar National gender distribution of physiotherapists in Kenya of 56% males and 44% females (Physiotherapy Council of Kenya, 2020) and therefore, the greater preponderance of male over female physiotherapists in Kenya and therefore the large number of male respondents. In Nigeria, Akintaro (2008) recorded a gender distribution of 63% males and 37% females. On the contrary, the Colombian (Ramírez-Vélez *et al.*, 2015a), Swedish (Heiwe *et al.*, 2011), Canadian (Salbach *et al.*, 2009) and US (Jette *et al.*, 2003) experiences were different, with a representation of females of more than 60% in each case.

Most of the respondents were between the ages of 30 -39 years (30.7%). As opposed to the over-50 age group, and owing to their training at college, they would be expected to have the knowledge and also possess positive attitudes and perceptions towards EBP. This was a common occurrence in several settings (Heiwe *et al.*, 2011; Salbach *et al.*, 2009; Akintaro, 2008 and Jette *et al.*, 2003). For instance, in Sweden, Heiwe *et al.*, (2011) found 36.4% of the respondents were between the ages of 30-39 years. In Canada, Salbach *et al.*, (2009) found 34.7% of the respondents were between the ages of 30-39 years. In the US, Jette *et al.*, (2003) found that 32.5% of the respondents were between the ages of 30-39 years while in Nigeria, Akintaro (2008) also reported similar findings.

About 28.9% had over 20 years of work experience as physiotherapists. In Kenya, EBP is a relatively new concept having been taught at the undergraduate level for less than a decade. Therefore, those with over 20 years of work experience were not well versed

with EBP and might in fact require continuous professional training to enable them to practise as such. Studies conducted by Salbach *et al.,* (2007) and Jette *et al.,* (2003) found that therapists who graduated more than 15 years previously were unlikely to have learnt the foundations of EBP in their academic programmes and, would therefore be more likely to post lower levels of confidence in EBP. Furthermore, in the US, Jette *et al.,* (2003), reported that younger graduates tended to be more knowledgeable about EBP than those with more than 15 years of work experience. Their study also reported that training, confidence to conduct search strategies, the use of data bases and critical appraisal skills were associated with the younger age groups (Jette *et al.,* 2003).

Most of the physiotherapists in Kenya trained at the diploma level (60.9%), with minimal training at the postgraduate level. On the other hand, only 19.9% had gained any specialization in physiotherapy. The discrepancy in these levels significantly contributed to knowledge and adherence to EBP but did not significantly influence their attitudes and perceptions to EBP. This result points to the need for higher levels of training for physiotherapists in Kenya. Specializing in any of the physiotherapy areas would also be important. In Sweden, Kamwendo, (2002) found the level of education to have a positive relationship with knowledge of EBP, while in the US, Jette *et al.,* (2003) found that education and knowledge of EBP are associated with entry levels and advanced academic degrees. Furthermore, Jette *et al.,* (2003) found that therapists with a Baccalaureate Certificate as their first professional Degree were less likely to have had training and confidence in skills pertaining to EBP than those with a Master's Degree or a Doctorate as their highest degree.

The current study established that 80.1% of the respondents had no specialization in physiotherapy. Of those with specializations in physiotherapy, Orthopedic Manual Therapy (OMT) had the majority representation accounting for 42.2% of the specialty areas. Only one study by Jette *et al.,* (2003) in the US was found to have reported the physiotherapy specialization areas. Their study was in concurrence with the current study findings where the Orthopedics specialization was significantly represented. Since specialization was found to significantly affect knowledge, it would be worthwhile to

analyse the rigor of the OMT curriculum in relation to knowledge of EBP and practice in the future.

This study revealed that only 32.9% of the physiotherapists interviewed were involved in structured sports physiotherapy. Football (12.8%), Track and Field (11%), Rugby (2.6 %) and volleyball (2.3%) sports practices were the most represented. Football is a popular sport in the country but with very minimal representation at the international level.

However, Internationally, Kenya is renowned for its Track, Rugby and Volleyball achievements. The remaining structured sports (Tennis, Golf, Cricket, Basketball, Hockey, Swimming and Handball) were represented as less than 1% each. These sports are generally considered expensive and are practiced at highly resourced settings such as schools and clubs located in the urban areas. Regarding the levels of practice, the proportion of physiotherapists at county games accounted 8%, while school games and club games were represented at 7.4% each. Almost 90% of the physiotherapists in structured sports practice had not participated in any international sporting event.

The findings of this study show that 86% of the physiotherapists attended to less than five patients with sports related injuries on a daily basis. Only about 1% attendend to more than fifteen patients with sports related injuries daily. Literatures reporting on the number of sports related injuries seen by physiotherapists daily were unavailable. Those found only reported on all cases seen daily (Ramirez-Velez *et al.,* 2015a; Akintaro, 2008; Salbach *et al.,* 2007; Jette *et al.,* 2003). Considering that those in non- structured sports physiotherapy constituted only 67% implies that they also attend to clients with sports injuries and would therefore also require knowledge of EBP in order to provide quality care to their few clients. The small number of physiotherapists attending to more than fifteen patients can be attributed to those in structured sports physiotherapy practice.

5.2 Knowledge of EBP

This study established that 67.8% of the physiotherapists in Kenya had a high level of knowledge of EBP. Gender, Training and Specialization showed statistically significant associations between them and levels of knowledge of EBP ($p \leq 0.05$). Although gender appears to affect knowledge, the study may have experienced some bias in that there were more male physiotherapists than females. Future studies may seek to clarify this further. A high level of knowledge of EBP was also found in Sweden, USA and Australia (Nilsagård & Lohse, 2010; Schreiber *et al.,* 2009; Iles and Davidson, 2006; Jette *et al.,* 2003). However, Iles and Davidson, (2006) noted that a high self-rating of knowledge of EBP or skills does not translate into a greater or a more accurate implementation of EBP. Furthermore, in the US, Schreiber *et al.,* (2009) added that although knowledge of EBP may improve practice it does not translate into any behavioural change. Despite practitioners in Sweden rating their knowledge of EBP highly, only 12% to 36% of them could correctly define the EBP components (Nilsagård & Lohse, 2010). Although self-reported rating for knowledge of EBP was high, translation into behaviour was not directly proportional and would therefore call for ethnographic methods to establish the same causal behaviour in the future.

This study found that 91% of the respondents agreed that EBP helps in making decisions about work. From a Swedish context, Heiwe *et al.,* (2011) affirmed this argument by stating that respondents were more likely to say that EBP helps them in decision-making. In the US, Jette *et al.,* (2003) proffered the same argument in their study involving 72% of the physiotherapy population. However, other studies done indicate that practice decisions by physiotherapists are not only based on research, but the knowledge acquired during undergraduate training and personal experiences (Tadyanemhandu *et al.,* 2016; Heiwe et al., 2011; Nilsagård & Lohse, 2010).

The relevance of literature and research findings in the day-to-day work was rated highly at 90.7% in the current study with an almost similar finding of 82% reported in the US (Jette *et al.,* 2003).

Regarding the role of knowledge of EBP in making decisions in the choice of treatment, there was a high agreement of 90.5%. In the US, Jette *et al.,* (2003) established similar findings of 79% in their respondents. Arguably, a population such as the one studied currently and was found to be highly knowledgeable about EBP, may translate the knowledge into practice. However, more detailed studies to establish the in-depth of EBP usefulness and the role of knowledge in making decisions in the choice of treatment in such a population would be necessary.

The Ability to find relevant research findings to answer clinical questions was found in 84.6% of the physiotherapists. On the Contrary, Bierwas *et al.,* (2016) in the US found that clinical instructors were able to retrieve the relevant evidence in only 39.4%, and at 44.2% cases in Sweden (Nilsagård & Lohse, 2010).

Most of the physiotherapists (80%) agreed that they had learnt the foundations of EBP during their foundational academic years. This finding was also established by (Nilsagård & Lohse, 2010; Salbach *et al.,* 2007; Akintaro, 2008 and *Jette et al.,* 2003). All the above studies had their respondents agreeing that they had undergone EBP educational sessions during their foundational academic pursuits.

All most 79% of the respondents agreed having confidence in the ability to critically review scientific literature which was at a smaller scale of 29% in Nigeria (Akintaro, 2008). As was pointed out by Iles and Davidson, (2006) and by Schreiber *et al.,* (2009) regarding the inability to translate self-rating values of knowledge into behaviour change, the same would be said pertaining to the high ratings of confidence in the ability to critically review scientific literature in the current study. This argument was deemed valid in Kenya since the high rating of elements such as ability to critically review scientific literature did not translate into adherence.

Most of the physiotherapists had a 76.5% access rate to relevant databases for evidence-based research articles. Physiotherapists in Kenya now have access to computers and laptops at their workplace, high-speed fiber connections at home and to smartphones that

make it easier to access the relevant databases. Such aids are supported by the National government's ICT 2019 policy that seeks to expand access to ICT infrastructure in the country (Ministry of ICT, Kenya, 2019). A large proportion of 89% of US respondents had greater access to online information at home than 65% at the workplace (Jette *et al.*, 2003). In the UK McColl, *et al.*, (1998) found a smaller scale of 17% of physicians accessing the internet at workplace and 29% at their homes.

It was noted that 73.1% of physiotherapists were familiar with medical search engines such as PEDro and PubMed. Similar findings of 70% were reported by *Jette et al.*, (2003) in the US.

Most of the physiotherapists studied demonstrated a lack of understanding of the EBP research terminology. Knowledge of its terminology is essential in the understanding of the concept of EBP (Snibsøer *et al.,* 2018). A UK study reported that most of their respondents had at least some understanding of the technical terms used in the literature (McColl *et al.,* 1998). The respondents in this study rated complete understanding of the terms "systematic review" at 42.5%, "Absolute risk" at 40.4% and "relative risk" at 39.6%. On the other hand, the least understood terms were "heterogeneity" at 84.4%, "publication bias" at 76.5%, "meta- analyses at 75.7%, "odds ratio" at 73.4% and "confidence interval" at 68.2%. This was replicated from the scenario in a Columbia study (Ramirez-Velez *et al.,* (2015a). According to McColl *et al,* (1998), the terms "odds ratio" and "confidence interval" were the least understood in the UK.

This study noted that those with higher levels of training (education and specialization) were better placed to understand the research terms. This could be explained by the necessity to undertake research work at that level. In Australia, Iles & Davidson, (2006) reported that practitioners with higher levels of training were more likely to understand EBP terminology. In the US, Jette, *et al.,* (2003) noted that those with baccalaureate degrees were less knowledgeable about research terms than those with Master's degrees. They also noted that those with specialization were two times more likely to understand the research terms than those without any specialization.

5.3 Attitudes and Perceptions towards Evidence-Based Practice

This study established that 94.6% of the physiotherapists generally hold positive attitudes towards EBP. However, no associations were found between the demographic characteristics and other information (gender, age, training, work practice, specialization) and attitudes and perceptions towards EBP. A study in the US found that demographic characteristics were not associated with attitudes about EBP (Jette *et al.*, 2003). Regardless of the education and specialization, the physiotherapists perceived EBP positively. At this point, it should be noted that the participants with negative attitudes (n=21) was found to be small compared to those with positive attitudes (n=370) and the findings should be interpreted with caution.

The finding of positive attitudes was also established by Scurlock-Evans *et al.*, (2014) in a systematic review and in studies documenting that physiotherapists present with positive attitudes and perceptions concerning EBP (Yahui & Swaminathan, 2017; Tadyanemhandu *et al.*, 2016; Silva *et al.*, 2015; Ramirez-Velez *et al.*, 2015b; Heiwe *et al.*, 2011; Hannes *et al.*, 2009; Schreiber *et al.*, 2009; Frantz & Diener, 2009; Akintaro, 2008; Iles & Davidson, 2006 and Jette *et al.*, 2003).

Specifically, they were found to have positive attitude towards the fact that "evidence-based practice is important for offering patients the best possible treatment" (95.9%), that "it is important that evidence-based guidelines related to their work exist" (84.6%). They however disagreed that "evidence-based practice places an unreasonable demand on physiotherapists (71.4%) and that "evidence-based practice does not take into account patient's preferences" (61.6%). A US study reported that 79% of the respondents agreed that "evidence-based practice improves the quality-of-care", 80% agreed that "clinical guidelines related to their practice was available" while 61% disagreed that "evidence-based practice places unreasonable demand on physical therapists" and 61.6% disagreed that "evidence-based practice does not take into account patient's preferences (Jette *et al.* (2003).

Elsewhere, a Zimbabwe study (Tadyanemhandu *et al.,* 2016) reported that 64% of the respondents held positive attitudes towards EBP while a US study (Jette *et al.* 2003) and a Swedish study (Heiwe *et al.*, 2011) also reported findings of positive attitudes among their respondents. However, a Belgium study reported negative attitudes towards the concept of EBP purely from concerns of decreased therapeutic autonomy with resultant lack of motivation to implement it (Hannes *et al.,* 2009).

The researcher considered the positive attitudes towards the presented ideas as a positive foundation for building up an evidence-based practice- conscious and friendly population of physiotherapists.

5.4 Adherence to the step-wise process of EBP

The adherence to evidence-based practice has five guiding statements detailing the process steps to be followed during the actual practice of EBP.

This study found that 63.4% of the physiotherapists were non-adherent to the step-wise process of EBP. The study also found that most of the physiotherapists were only able to implement the step-wise process of EBP on a monthly basis or never at all. This implies low adherence or non-adherence to the full range of the step-wise process of EBP. A study in Canada noted that although physiotherapist believed that EBP is important, they also felt that it was not their responsibility to undertake all of the steps (Salbach *et al.,* 2007). In this regard, any form of advanced learning beyond the majority's level, namely diploma, is important in offering the necessary impetus for adhering to the step-wise process of EBP and thus in providing quality care. The quest to advance in training is gaining popularity among physiotherapists in Kenya and future studies will need to determine the impact of further education on EB sports physiotherapy.

About 51.6% of those studied were unable to formulate a clearly answerable clinical question which would imply that the subsequent step-wise process of EBP would not be executed properly by those failing to adhere to the first important step. This observation

is consistent with the findings of Iles and Davidson (2006) in Australia which noted that a clearly answerable clinical question renders a search for information a well-disciplined and efficient undertaking.

Low adherence observations were also made in the European context. For example, in the Netherlands, Scholten-Peeters *et al.,* (2013) found that the non-adherence level of formulating any answerable clinical questions by the physical therapists scored a value of 16%. However, the relevant literature has also documented note-worthily high levels of ability to formulate a clearly answerable clinical question. For instance, in Sweden Nilsagård & Lohse, (2010) found that 70% of the respondents were able to formulate a clearly answerable clinical question, while in Australia Iles and Davidson (2006) recorded an ability of 59%. The formulation of answerable questions is a key factor at the formative stages of an impactful research study. Failure to achieve this would amount to non-existent research which could impact negatively on practice. Efforts to enable physiotherapists in Kenya to formulate answerable questions would contribute to scientifically rigorous studies emerging from field work.

With regard to tracking down or retrieving the best relevant evidence, 52.2% of the physiotherapists did not comply.

About 50.4% of those studied never conducted literature searches from electronic databases. As opposed to the Swedish experience, only 23% had never conducted searches into literature sources (Nilsagård & Lohse, 2010). In the US, Bierwas *et al.,* (2016) reported 39.4% of those studied who were able to retrieve relevant evidence from electronic databases while Iles and Davidson, (2006) in Australia reported an average ability of 52.5% in respect of database searches. Furthermore, Iles and Davidson, (2006) noted that the use of high-quality and pre-appraised evidence of the PEDro and Cochrane databases significantly reduced the period spent by busy practioners in the EBP process.

Almost two-thirds (64.7%) of the physiotherapists studied never critically appraised any literature. A study in Canada reported that failure to critically appraise the literature may hinder the use of EBP (Salbach *et al.,* 2009). A comparison made with a Nigerian study found that 71% of the physiotherapists were unable to critically appraise the literature (Akintaro, 2008). Higher levels of adherence for critically appraising the literature were reported in the US, at 44% (Bierwas *et al.*, 2016) and in Sweden, at 70% (Nilsagård & Lohse, 2010).

This study found that 50.8% of the physiotherapists were able to integrate research evidence with clinical expertise, while even more Canadian physiotherapists at 68% were able to apply research evidence that they had gleaned from the literature (Salbach *et al.,* 2009).

This study established that over half of the physiotherapists did not adhere to the important steps stipulated for practising EB sports physiotherapy as most of these clinicians work in settings where internet coverage and strengths in using this form of accessing information would often have limitations. Initiatives, whether personal or institutional, to procure stronger internet access were thought to be a motivation to EB sports physiotherapy adherence.

The current study established that most of the physiotherapists in Kenya do not routinely engage in the five steps of EBP and therefore are non-adherent to the step-wise process of EBP. As noted by Condon *et al.,* (2016); Manske & Lehecka, (2012), adherence to EBP in any clinical setting requires knowledge of the step-wise process of EBP.

In this regard, for EBP to be effective in sports physiotherapy, it is necessary to undertake the full range of the step-wise process of EBP. Failure to undertake the full range of the process of EBP constitutes a barrier to EBP and by extension may affect the practice of EBP.

5.5 Barriers to EBP

The barriers to EB sports physiotherapy standards in Kenya are numerous and varied.

In this study, insufficient time was highlighted by 57.8% of the respondents as "most important" barrier which could be attributed to the attitude and perception that the "adoption of evidence-based practice places an unreasonable demand on physiotherapists". This implies that with the removal of the barriers or with some facilitation process, they would be willing to employ EBP at a higher level. Similarly, the large number of patients in some health institutions and possible time mismanagement by the therapists would limit critical thinking for commencement of the EBP process. This finding is also supported by systematic reviews that found insufficient time to be the "most important" barrier (Tadyanemhandu *et al.,* 2016; da Silva T *et al.,* 2015; Scurlock-Evans *et al.,* 2014) and in other studies that established insufficient time as the most important barrier at the following rates (Ramirez-Velez et *al.,* 2015a) at 43.5%; (Heiwe *et al.,* 2011) at 84%; (Nilsagård & Lohse, 2010) at 86%; (Akintaro, 2008) at 64% and (Salbach *et al.,*2007) at 52%.

In the context of time being a barrier, it is important for health care institutions to create EB friendly incentives such as provision of internet connected computers with access to the necessary search engines and databases. This can be attributed to the perception that "I consider it important that easily available guidelines related to my work exists". This would possibly encourage the physiotherapists to allocate time towards searching for evidence following which the outcomes of care experienced through EBP would improve the quality of care and possibly reduce patient's volumes in the clinics. Institutions may also find it valuable to borrow from Iles & Davidson, (2006) Australian finding which notes that the usage of high-quality and pre-appraised evidence of the PEDro and Cochrane databases reduce the time necessary to adhere to the EBP processes even if the clinician is very busy.

This study study found that 56.3% of the respondents reported lack of generalizability of the literature findings to the sport patient population (patients with specific conditions) as a “most important” barrier. Owing to insufficiency of empirical studies in the Kenyan context, the researcher found this concern to be of importance and would warrant more research that pertains to locally-identified problems in Kenya.

This current study found 50.1% of the respondents rated the inability to apply research findings to individual patients with unique characteristics as a “most important” barrier. On the other hand, but at lower ratings, other researchers also found the inability to apply research findings to individual patients with unique characteristics as barriers. For instance, (Ramirez-Velez *et al.,* 2015a) in Colombia reported 41%, while (Akintaro, 2008) in Nigeria reported a 37% barrier rating. The researcher recognizes that failure to apply findings maybe multifaceted. Therefore, to establish whether these are knowledge, resource-based limitations or beyond, it would probably include and possibly go beyond the boundaries of knowledge and resources and would therefore call for further investigations.

In this study 47.6% of the respondents rated inability to critically appraise the literature or the evidence as a “most important” barrier. This was rated lower in other countries and was thus considered less of a barrier in Colombia at 10.7% (Ramirez-Velez *et al.,* (2015a), in Sweden (Heiwe *et al.,* 2011) at 32% and in the US (Jette *et al.,* 2003) at 20%. It is therefore evident that physiotherapists in Kenya experience a capacity challenge in the area of critically appraising the literature. The researcher found this to have been a knowledge challenge which could be overcome through the implementation of continuous professional development initiatives targeting induction and advanced exposure.

A lack of understanding of statistical analysis and of information resources was highlighted by 45.8% and 44.8% of the respondents as a “most important” barrier. A study in Colombia (Ramirez-Velez *et al.,* 2015a) established that 53% of the respondents considered lack of understanding of statistical analysis as a barrier.

Furthermore, a study in Sweden (Heiwe *et al.,* 2011) found 33% and one in Canada (Salbach *et al.,* 2009) found that 36.4% of their respondents had identified inability to understand statistical data or analysis as a barrier. A lack of information resources (41%) was identified in a Nigerian study as an important barrier (Akintaro, 2008). Along with the exposure necessary in other areas of EBP, Kenyan physiotherapists would also require analytical skills for all forms of data. This would position them better for the interpretation of findings generated by themselves or from secondary sources. The support necessary in this regard would be for health institutions to procure a wide range of databases capable of providing recent peer- reviewed and relevant material as need arises.

Limited access to search engines and the interpretation of the evidence was identified by 44% as a "most important" barrier. In Nigeria, Akintaro, (2008) reported that 51% of the respondents had access to online databases at the workplace, while 64% had access to paper journals. In the US, Jette *et al.,* (2003) reported that 30% of the study respondents had access to online databases at the workplace and less than 10% were able to access online databases away from the workplace. Since the physiotherapist studied in this research were found to hold positive attitudes towards EBP, it would be worthwhile to use this good will to encourage health care institutions to invest in the provision of databases, while rewarding the physiotherapists for using the same.

In this study, lack of research skills was identified as a "most important" barrier by a limited 38.6% of the respondents. Such findings were recorded at a higher rate (56%) by Ramirez-Velez *et al.,* (2015a) in Colombia. Considering that physiotherapy training offers research methods at all levels although in varying levels of exactitude, the physiotherapists involved in the research were not expected to rate the lack of such skills very highly. However, it would be important to up-scale the research skills of all the physiotherapists over time for them to remain competent during any efforts to execute EBP.

Lack of interest in the current study was viewed by the majority (45.3%) as a "least important" barrier. This was equally reflected when the participants responded to the attitude statement that indicated that "evidence-based practice is important so that the patients receive the best possible treatment". Similarly, a study in Nigeria, Akintaro, (2008) and in the US, Jette *et al.*, (2003) found that their respective study participants did not view lack of interest as a barrier. This was viewed by the researcher as an expression of interest particularly in the Kenyan context.

The researcher however, noted the barriers expressed and recommends to stakeholders in sports physiotherapy training and practice that those barriers be addressed. The associated positive attitudes and perception towards EBP will serve to facilitate the adoption of the programmes and training to be employed.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study concludes that physiotherapists in Kenya present with high levels of knowledge, but with lower levels of adherence to the step-wise process of EBP.

The study concludes that generally physiotherapists have a strongly positive attitude towards EBP.

The main barrier identified was insufficient time. However, other barriers critical to the development of EBP standards include a lack of generalizability of the literature findings to the sport patient population. The inability to apply research findings to individual patients with unique characteristics, poor ability to critically appraise the literature and a lack of understanding of statistical analysis were all as a result of the level of physiotherapy training in Kenya. Lack of interest in EBP was considered least important by the majority of the physiotherapists in Kenya.

6.2 Recommendations

Based on the key findings discussed above, this study makes the following recommendations:

A: Clinical Practice

1. That the health care facilities that attend to clients with sports injuries provide electronic access to data bases and physical infrastructure to support EBP.
2. That the sport bodies that manage athletes consider recruiting into the health teams physiotherapists with sports specialization to manage athletes through evidence-based approaches.

B: Policy/Regulation

1. That the Kenya Society of Physiotherapists and the various health institutions provide continuous professional development to enhance competencies
2. That the Physiotherapy Council of Kenya in collaboration with universities and institutions of higher education offering physiotherapy develop and approve a physiotherapy training curriculum that includes EB sports physiotherapy.

C. Further Research

1. Future studies should seek to establish the actual impact of the current mode of practice on athletes with sports injuries in Kenya.
2. More studies should be implemented to explore in-depth realities related to the barriers highlighted.

6.4 Limitations of study

1. This study did not engage with consumers of sports physiotherapy in order to understand the quality of care from their perspectives.
2. The tools used gathered self-reported data.

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APPENDICES

Appendix I: Consent Form

Title of the study: Knowledge, attitudes & perceptions, adherence to, and barriers to Evidence-Based Practice standards among sports physiotherapists in Kenya.

I have read and understood the content that has been used in the information sheet to describe the study and I voluntarily agree to participate. My questions/concerns about the study have been answered. I am assured of confidentiality for all information I provide and that my identity will not be disclosed.

Should you wish to get any clarifications related to the study, please contact the principal researcher through phone or email given below.

Contact numbers of researcher: **Thomas Kyengo Mwololo**

Phone: +254 722 788 096; Email: tmwololo2002@gmail.com

Please note that this being an email research, your participation through filling the emailed questionnaire will be deemed as consent

Appendix 11: Information Sheet

Dear Participant,

I am a Masters student at Jomo Kenyatta University of Agriculture and Technology (JKUAT), College of Health Science, School of Medicine, Dept of Rehabilitative Sciences. As part of the study, I'm expected to conduct research. The title of my research is "Knowledge, attitudes & perceptions, adherence to, and barriers to Evidence-Based Practice standards among sports physiotherapists in Kenya".

Evidence-Based Practice is the "integration of individual clinical experience or clinical expertise with the best available external evidence from systematic research and patients' unique values and preferences, circumstances and knowledge of practice to make clinical decisions"

I am inviting you to participate in this study because you were selected to provide knowledge on the use of or lack of evidence-based practice standards among physiotherapists and especially those managing sports injuries and hence for a platform to inform training and practice in this regard.

This provides you with an opportunity to appreciate and contribute to scientific research whose outcome shall improve our knowledge, skills and attitudes leading to the provision of evidence-based sports management and improve our athlete's performance. Similarly, the institutions offering physiotherapy programs, National sports organizations and the Policy makers (Physiotherapy Council of Kenya- PCK) may use this study to inform, facilitate training, and stimulate discussions and practice in this regard.

There are no known risks associated with participating in this study. All participants will be identified using codes, Confidentiality will be assured, and Data will be kept

in safe custody to safeguard anonymity and in the future the researcher will destroy all code lists.

Participation in the study will involve filling a questionnaire that has two sections taking at least 20 minutes. The information you give will be treated with utmost respect and confidentiality. The filled in questionnaire will be returned back through the Email provided hereunder. If you have any questions or concerns before or after the study, you may contact me through phone or email given hereunder.

Contact numbers of researcher: **Thomas Kyengo Mwololo**

Phone: +254 722 788 096; Email: tmwololo2002@gmail.com

Should you have any questions or wish to get any clarifications regarding this study and your rights as a research participant, please contact:

Head of Physiotherapy Department: Dr. Joseph Matheri: mmatheri@gmail.com

Supervisors – Dr. Wallace Karuguti: mugambiw80@gmail.com Or Prof. Benita Olivier: Benita.Olivier@wits.ac.za

This research has been approved by JKUAT Institutional Ethics Review Committee (Ref: JKU/2/4/896B dated 17 June, 2019), National Commission for Science, Technology and Innovation (Ref: NACOSTI/P/19/13833/31736 dated 26 July 2019**)** and the Physiotherapy Council of Kenya (Ref: PCK/ADM/277/Vol. 1 dated 8 August 2019).

Appendix 111: Evidence-Based Practice Questionnaire (EBPQ)

Instructions: Mark √ or X in the space provided and also specify by writing down the appropriate answers in the spaces provided. ***DO NOT*** *put your name or identity on the questionnaire. The researcher confirms that all responses will be kept confidential and anonymous.*

Respondent Number:

Section 1: Demographic information.

1. Gender.

[ ] Male

[ ] Female

2. Age group.

[ ] 20 – 29 years

[ ] 30 – 39 years

[ ] 40 – 49 years

[ ] 50 years and above

3. How long have you been practicing as a Physiotherapist?

[ ] less than 5 years

[ ] more than 5 years

[ ] more than 10 years

[ ] more than 15 years

[ ] more than 20 years

4. Are you registered and licensed to practice by the Physiotherapy Council of Kenya (PCK)?

[ ] Yes

[ ] No

5. What is your level of physiotherapy training?

[ ] Diploma

[ ] Bsc

[ ] Msc student

[ ] Msc

[ ] PhD student

[ ] PhD

[ ] Doctoral degree

[ ] Others: Specify

6. Have you specialized in any core physiotherapy area?

[ ] Yes

[ ] No

6a. If yes, in which specialized area? (e.g., Orthopedics, Neuro, OMT, Musculoskeletal, Sports physiotherapy etc)**.**

7. In which **County** do you practice?

8. Please indicate your current category of practice (Tick one box only).

[ ] Public health facility [ ] Private health facility

[ ] Academia [ ] University

[ ] Private owned physiotherapy clinic

[ ] Community-based agency (e.g. home care, community centre, charitable organization)

9. What sport(s) are you involved with in your practice? (Track and field, Rugby, Boxing, Football, Swimming, Cricket etc) specify

10. What level are you involved in sports physiotherapy practice (e.g., club, school games, county games, national team games etc) Specify.

11. On average, how many patients with sports-related injuries do you attend to on a daily basis?

[ ] None

[ ] Less than 5

[ ] 5 – 10

[ ] 11 – 15

[ ] More than 15

12. Have you participated in any major international sports events (e.g. IAAF (Track and Field), Rugby events, Boxing events, Football, Swimming, Cricket, All African games; commonwealth games; Olympic games etc) specify in detail

Section 2: Evidence-based practice

Part One. Knowledge regarding evidence-based practice (EBP).

Please rate your degree of agreement with the following by ticking the appropriate box.

1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree

13. I learnt the foundations of evidence-based practice during my academic years.

1[ ] 2[ ] 3[ ] 4[ ]

14. Evidence-based practice is necessary in my daily sports physiotherapy practice.

1[ ] 2[ ] 3[ ] 4[ ]

15. Evidence-based practice helps me make decisions about my work.

1[ ] 2[ ] 3[ ] 4[ ]

16. Evidence-based practice helps me make decisions in the choice of treatment.

1[ ] 2[ ] 3[ ] 4[ ]

17. I USe evidence-based practice in my work.

1[ ] 2[ ] 3[ ] 4[ ]

18. I am familiar with the medical search engines. Example: PEDro. PubMed.

1[ ] 2[ ] 3[ ] 4[ ]

19. I know how to access relevant databases for evidence-based research articles.

1[ ] 2[ ] 3[ ] 4[ ]

20. Literature and Research findings are useful in my day-to-day work.

1[ ] 2[ ] 3[ ] 4[ ]

21. I am confident in my ability to find relevant research to answer my clinical questions 1[ ] 2[ ] 3[ ] 4[ ]

22. I am confident in my ability to critically review scientific literature.

1[ ] 2[ ] 3[ ] 4[ ]

For the following item, place an X in one of the boxes.

23. My understanding of research terms.

Term	**Understand Completely**	**Understand some what**	**Do not understand**
a. Relative risk	[ ]	[ ]	[ ]

b. Absolute risk [ ] [ ] [ ]

c. Systematic review [ ] [ ] [ ]

d. Meta-analysis [ ] [ ] [ ]

e. Odds ratio [ ] [ ] [ ]

f. Confidence interval [ ] [ ] [ ]

g. Publication bias [ ] [ ] [ ]

h. Heterogeneity [ ] [ ] [ ]

Part Two: Attitudes and Perceptions towards evidence-based practice (EBP).

Indicate your level of agreement with the statements in part two by selecting any of the options 1-4 below

1. Strongly Disagree 2. Disagree 3. Agree 4. Strongly Agree

24. I consider it important that easily available evidence-based guidelines related to my work exist.

1[ ] 2[ ] 3[ ] 4[ ]

25. Evidence-based practice is important so that the patients receive the best possible treatment.

1[ ] 2[ ] 3[ ] 4[ ]

26. The adoption of Evidence-based practice places an unreasonable demand on physiotherapists.

1[ ] 2[ ] 3[ ] 4[ ]

27. Evidence-based practice does not take into account the limitations of my day-to-day work.

1[ ] 2[ ] 3[ ] 4[ ]

28 Evidence-based practice does not take into account my patient's preferences.

1[ ] 2[ ] 3[ ] 4[ ]

29. There is not much point in doing evidence-based practice because there is lack of strong evidence to support most of the work i do.

1[ ] 2[ ] 3[ ] 4[ ]

30. In making clinical decisions about my professional work, I value clinical field experiences more than the literature from scientific studies.

1[ ] 2[ ] 3[ ] 4[ ]

31. Workplace experience is the most reliable way to know what really works.

1[ ] 2[ ] 3[ ] 4[ ]

32. Seeking relevant evidence from scientific studies is not very practical in the real world.

1[ ] 2[ ] 3[ ] 4[ ]

Part Three: adherence to evidence-based practice (EBP) process steps.

Please tick options 1-5 as applies to you in the practice of EBP.

1. Never 2. Monthly or less 3. Fortnightly 4. Weekly 5. Daily

33. I formulate a clearly answerable clinical question.

1[ ] 2[ ] 3[ ] 4[ ] 5[ ]

34. I Track down the relevant evidence once i formulate the clinical question.

1[ ] 2[ ] 3[ ] 4[ ] 5[ ]

35. I search for literature from electronic database.

1[ ] 2[ ] 3[ ] 4[ ] 5[ ]

36. I critically appraise any literature to establish the methodological quality.

1[ ] 2[ ] 3[ ] 4[ ] 5[ ]

37. I integrate research evidence with my clinical expertise.

1[ ] 2[ ] 3[ ] 4[ ] 5[ ]

Part Four: Barriers to Evidence-Based Practice.

43. In a scale of 1-6, rank the extent that each of the following items is a barrier to your sports physiotherapy practice. Note:[**1**] being the least important barrier and [**6**] being the most important barrier.

[ ] Insufficient time

[ ] Limited access to search engines and interpreting evidence

[ ] Lack of research skills

[ ] Poor ability to critically appraise the literature

[ ] Lack of generalizability of the literature findings to my sport patient population

[ ] Inability to apply research findings to individual patients with unique characteristics

[ ] Lack of understanding of statistical analysis

[ ] Lack of collective support among colleagues in my facility

[ ] Lack of interest

[ ] Lack of information resources

Others: Please indicate.

THANK YOU

Appendix 1V: Approval of Research Proposal and Supervisors

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

P.O. BOX 62000
NAIROBI – 00200
KENYA
Email: director@bps.jkuat.ac.ke
TEL: 254-67-5870000/1-5

REF: JKU/2/11/HSM321-4034/2016

25TH APRIL, 2019

MWOLOLO THOMAS KYENGO
C/o SOMED
JKUAT

Dear Mr. Kyengo,

RE: APPROVAL OF RESEARCH PROPOSAL AND OF SUPERVISORS

Kindly note that your MSc. research proposal entitled: **"KNOWLEDGE, ATTITUDES & PERCEPTIONS, ADHERENCE TO, AND BARRIERS TO EVIDENCE-BASED PRACTICE STANDARDS AMONG SPORTS PHYSIOTHERAPISTS IN KENYA"** has been approved. The following are your approved supervisors:-

1. Prof. Benita Olivier
2. Dr. Wallace Karuguti

NB: Kindly forward to BPS a **soft copy of the proposal** and also note that your Admission letter reads **MSc. in Physiotherapy** and not Sports Physiotherapy.

Yours sincerely,

PROF. MATHEW KINYANJUI
DIRECTOR, BOARD OF POSTGRADUATE STUDIES
Copy to: Dean, SOMED
/cm

Setting trends in Higher Education, Research and Innovation

Appendix V: Ethical Approval

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
P. O. Box 62000-00200 Nairobi, Kenya Tel 0675870225 OR Extn 3209
Institutional Ethics Review Committee

June 17th, 2019 **REF: JKU/2/4/896B**

Thomas Kyengo Mwololo,
School of Medicine.

Dear Mr. Mwololo,

RE: KNOWLEDGE, ATTITUDES AND PERCEPTIONS, ADHERENCE TO, AND BARRIERS TO EVIDENCE-BASED PRACTICE STANDARDS AMONG SPORTS PHYSIOTHERAPISTS IN KENYA

The JKUAT Institutional Ethics Review Committee has reviewed your responses to issues raised regarding your application to conduct the above mentioned study with you as the Principal Investigator.

The is to inform you that the IERC has approved your protocol. The approval period is from June 17th 2019 to June 17th 2020 and is subject to compliance with the following requirements:

a) Only approved documents (informed consent, study instruments, study protocol, etc.) will be used.
b) All changes (amendments, deviations, violations, etc.) must be submitted for review and approval by the JKUAT IERC before implementation.
c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the IERC immediately.
d) Any changes, anticipated or otherwise that may increase the risks to or affect the welfare of study participants and others or affect the integrity of the study must be reported immediately.
e) Should you require an extension of the approval period, kindly submit a request for extension 60 days prior to the expiry of the current approval period and attach supporting documentation.
f) Clearance for export of data or specimens must be obtained from the JKUAT IERC as well as the relevant government agencies for each consignment for export.
g) The IERC requires a copy of the final report for record to reduce chances for duplication of similar studies.

Should you require clarification, kindly contact the JKUAT IERC Secretariat.

Yours Sincerely,

Dr. Patrick Mbindyo
SECRETARY, IERC

INSTITUTIONAL ETHICS REVIEW COMMITTEE
18 JUN 2019
APPROVED
P.O. Box 62000-00200 NAIROBI
www.jkuat.ac.ke
JKUAT

Setting Trends in Higher Education, Research, Innovation and Entrepreneurship

Appendix V1: Nacosti Research Authorization

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/13833/31736**

Date: **26th July, 2019**

Thomas Kyengo Mwololo
Jomo Kenyatta University of
Agriculture and Technology
P.O. Box 62000-00200
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **25th July, 2020.**

You are advised to report to **the County Commissioners, the County Directors of Education and the County Directors of Health Services, all Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioners
All Counties.

The County Directors of Education
All Counties.

The County Directors of Health Services
All Counties.

Appendix V11: Nacosti Research License

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and Innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 26163

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. THOMAS KYENGO MWOLOLO
of JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY, 0-242 Kitengela,has been permitted to conduct research in*All Counties County*

on the topic: *KNOWLEDGE, ATTITUDES AND PERCEPTIONS, ADHERENCE TO, AND BARRIERS TO EVDINCE-BASED PRACTICE STANDARDS AMONG SPORTS PHYSIOTHERAPISTS IN KENYA*

for the period ending:
25th July,2020

Permit No : NACOSTI/P/19/13833/31736
Date Of Issue : 26th July,2019
Fee Recieved :Ksh 1000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

Appendix V111: Physiotherapy Council of Kenya Research Authorization

MINISTRY OF HEALTH
PHYSIOTHERAPY COUNCIL OF KENYA

TELEGRAPHIC ADDRESS
TELEPHONE: NAIROBI 254 -20 - 4404110/
0701165338

AFYA HOUSE
CATHEDRAL ROAD
P.O BOX 9318 -00100
NAIROBI

When replying please quote
Ref: PCK/ADM/277/VOL.1

8th August, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University of Agriculture and Technology
P.O Box 62000-00200
NAIROBI

RE: AUTHORIZATION TO CARRY OUT RESEARCH

The Council is in receipt of your request to use our data to carry out research on **'Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practices standards among sports physiotherapists in Kenya'** as part of your Masters studies. We further take note of approvals for the research study from the School of Medicine, Jomo Kenyatta University of Agriculture and Technology (JKUAT) and National Commission for Science Technology and Innovation (NACOSTI)

I am pleased to inform you that you have been authorized to carry the research as requested. The Council will facilitate you with the necessary information to enable you carry the exercise smoothly.

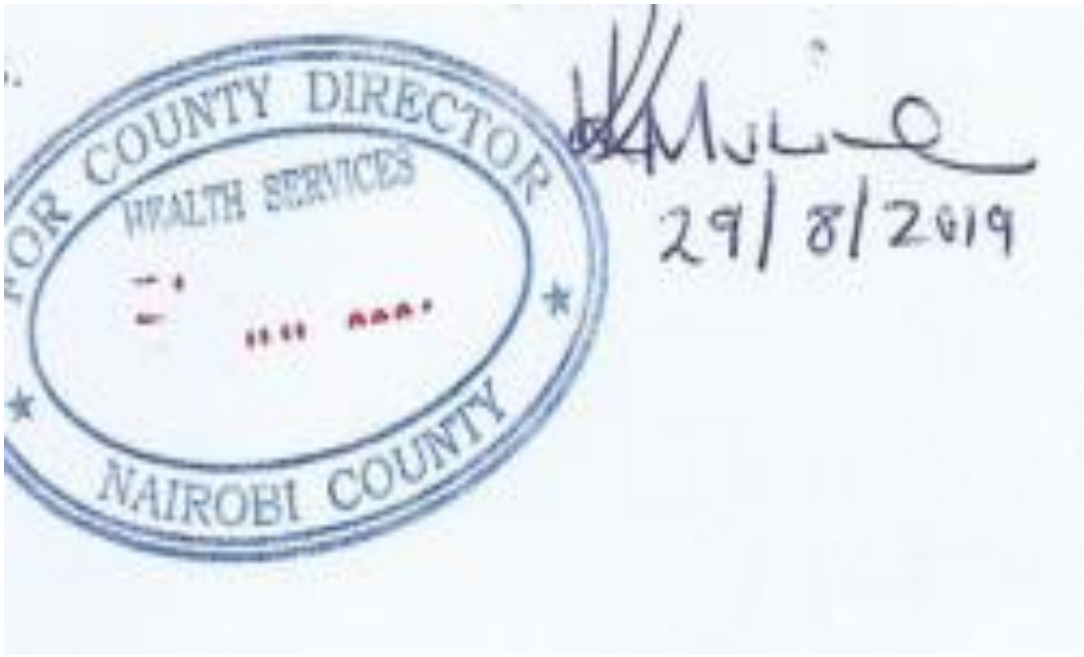
You will be expected to carry out the process with the highest standards of professionalism and ethics.

Douglas C.Kotut
REGISTRAR

REGISTRAR
PHYSIOTHERAPY COUNCIL OF KENYA
P.O. Box 9318 - 00100 NAIROBI

Appendix 1X: Nairobi County Commissioner Stamp

Appendix X: Nairobi County Health Services Stamp



Appendix X1: Nairobi County Director of Education

Republic of Kenya
MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING & BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone: Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdenairobi@gmail.com

When replying please quote

REGIONAL DIRECTOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

Ref: RCE/NRB/GEN/1/VOL. 1

DATE: 20th August, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University of
Agriculture & Technology
P O Box 62000-00200
NAIROBI

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on **"Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya.'**

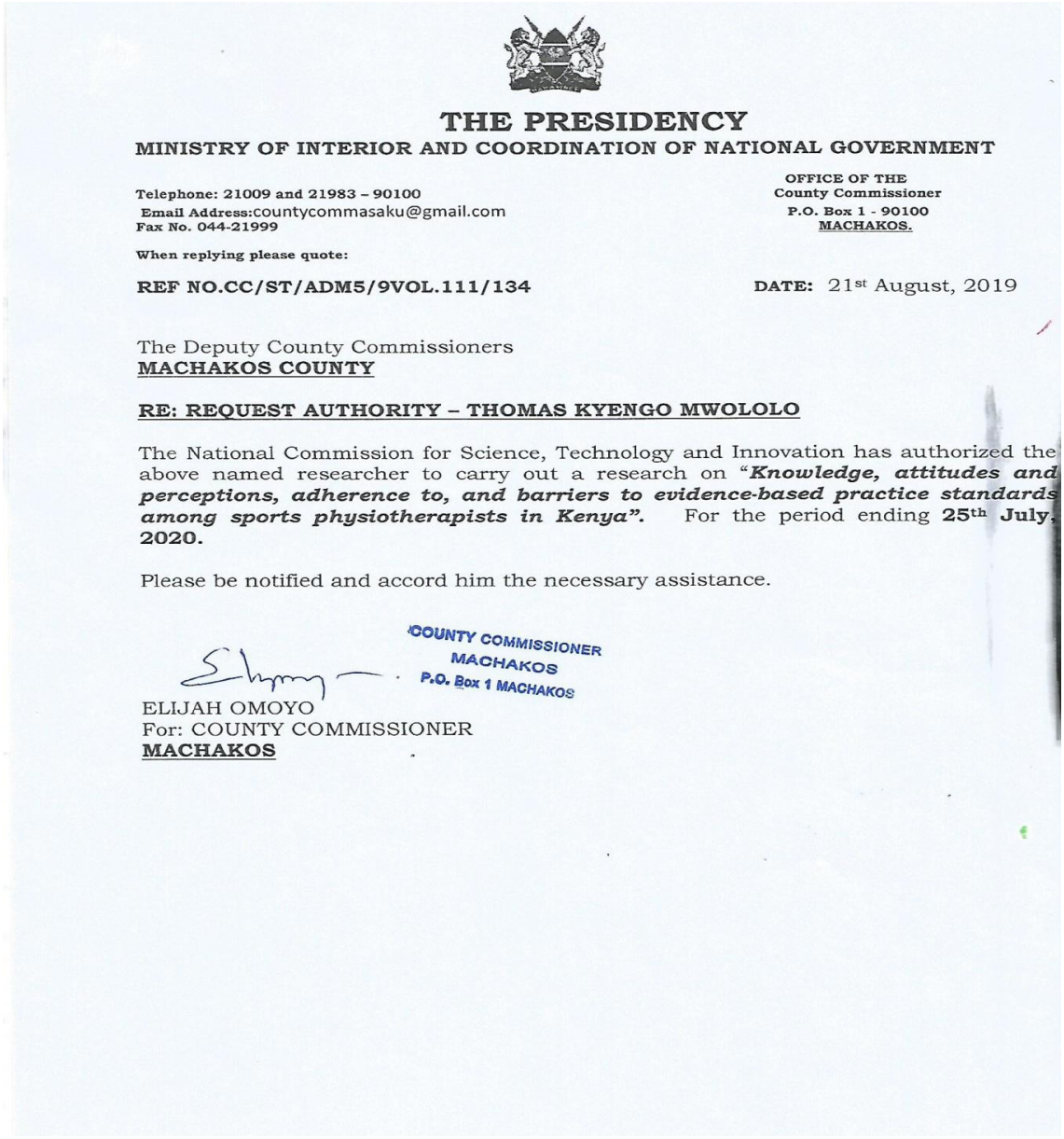
This office has no objection and authority is hereby granted for a period ending **25th July, 2020** as indicated in the request letter.

COUNTY DIRECTOR OF EDUCATION NAIROBI
20 AUG 2019
MINISTRY OF EDUCATION
P.O. Box 74629, NAIROBI.

HESBON NYAGAKA
FOR: REGIONAL DIRECTOR OF EDUCATION
NAIROBI

c.c
Director General/CEO
National Commission for Science, Technology and Innovation
NAIROBI

Appendix X11: Machakos County Commissioner



THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: 21009 and 21983 – 90100
Email Address:countycommasaku@gmail.com
Fax No. 044-21999

When replying please quote:

OFFICE OF THE
County Commissioner
P.O. Box 1 - 90100
MACHAKOS.

REF NO.CC/ST/ADM5/9VOL.111/134

DATE: 21st August, 2019

The Deputy County Commissioners
MACHAKOS COUNTY

RE: REQUEST AUTHORITY – THOMAS KYENGO MWOLOLO

The National Commission for Science, Technology and Innovation has authorized the above named researcher to carry out a research on "***Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya***". For the period ending **25th July, 2020.**

Please be notified and accord him the necessary assistance.

COUNTY COMMISSIONER
MACHAKOS
P.O. Box 1 MACHAKOS

ELIJAH OMOYO
For: COUNTY COMMISSIONER
MACHAKOS

Appendix X111: Machakos County Director of Education

MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

Telegrams: "**SCHOOLING**" Machakos
Telephone: Machakos (
Fax: Machakos
Email –cdemachakos@yahoo.com
When replying please quote

OFFICE OF THE
COUNTY DIRECTOR OF
EDUCATION
P.O. BOX 2666-90100,
MACHAKOS

MKS/ED/CDE/R/4/VOL.3/107 **21ST August, 2019**

Thomas Kyengo Mwololo
Jomo Kenyatta University of
Agriculture and Technology
P.O. Box 62000-00200
NAIROBI.

RE: RESEARCH AUTHORIZATION.

Reference is made to the letter from National Commission for Science, Technology and Innovation Ref: **NACOSTI/P/19/13833/31736 dated 26th July, 2019.**

You are hereby authorized to carry out your research on, "**Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Machakos County Kenya."** for a period ending **25th July, 2020.**

COUNTY DIRECTOR OF EDUCATION MACHAKOS
21 AUG 2019
MINISTRY OF EDUCATION P.O. BOX 2666-90100 MACHAKOS

SIMON NJIRU
FOR: COUNTY DIRECTOR OF EDUCATION
MACHAKOS

Appendix X1V: Machakos County Department of Health and Emergency Services

REPUBLIC OF KENYA

GOVERNMENT OF MACHAKOS COUNTY
DEPARTMENT OF HEALTH AND EMERGENCY SERVICES

Machakos Highway
P.O. Box 2574-90100
Machakos. Kenya

Telephone: +254 -44-20575
Fax: 254-44-20655

2nd September 2019

Principal Investigator - ATTN: Thomas Kyengo Mwololo
Jomo Kenyatta University of Agriculture and Technology

Dear Mr. Mwololo,

RE: LETTER OF AUTHORIZATION FOR CONDUCTING PROPOSED RESEARCH

The Department of Health and Emergency Services, Machakos County is keen to collaborate in your study: **'Knowledge, Attitudes and Perceptions, Adherence to, and Barriers to Evidence-Based Practice Standards among Sports Physiotherapists in Kenya.'**

Note is taken of the letter of approval by JKUAT Institutional Ethics Review Committee dated 17th June 2019, letter of authorization by National Commission for Science, Technology and Innovation (NACOSTI) dated 26th July 2019 and letter of authorization by the Physiotherapy Council of Kenya dated 8th August 2019.

You are hereby authorized to proceed with the research and urged to share the findings with the Department of Health and Emergency Services; Machakos County, through this office.

Sincerely,

DEPARTMENT OF HEALTH & EMERGENCY SERVICES
DIRECTOR
02 SEP 2019
MEDICAL SERVICES
P. O. Box 2573-90100, MACHAKOS
GOVERNMENT OF MACHAKOS COUNTY

Dr. Jonathan N. M. Nthusi
County Director – Medical Services

cc: County Executive Committee Member – Health
Chief Officer – Medical Services
County Physiotherapist

Appendix XV: Makueni County Commissioner

THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegram:
Telephone: 0743-987-177
Fax:
Email: ***cc.makueni@interior.go.ke***

COUNTY COMMISSIONER
MAKUENI COUNTY
P.O. Box 1-90300
MAKUENI

Ref: MKN/CC/ADM.6/1 VOL.III/235

16th August, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University
P.O. Box 62000 – 00200
NAIROBI

RE: RESEARCH AUTHORIZATION

Reference is made to Director General National Commission for Science Technology and Innovation letter **Ref. NACOSTI/P/19/13833/31736** dated **26th July, 2019** on the above subject.

You are hereby authorized to undertake research on ***"Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports, physiotherapists in Kenya"*** for a period ending ***25th July*, 2020.**

By a copy of this letter the Deputy County Commissioners are requested to give you the necessary assistance.

B.K. NICHOLAS
FOR: COUNTY COMMISSIONER
MAKUENI
c.c.

County Director of Education
MAKUENI COUNTY

Deputy County Commissioners
MAKUENI COUNTY

Appendix XV1: Makueni County Director of Education

REPUBLIC OF KENYA

MINISTRY OF EDUCATION

STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

Email:cdemakueni@gmail.com
When replying please quote

County Education Office
P.O. Box 41
MAKUENI.

MKN/C/ED/5/33/ VOLII/2

16th August, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University of
Agriculture& Technology
P.O BOX 6200-00200
NAIROBI

RESEARCH AUTHORISATION FOR THOMAS KYENGO MWOLOLO

This office is in receipt of a letter from the Director General, National Commission for Science Technology and Innovation dated 26th July, **2019 Ref. NACOSTI/P/19/13833/31736 on "Knowledge,attitudes and perceptions, adherence to, and barriers to evidence-based practice standrds among spotrs physiotherapists in Makueni County -Kenya"** for the period ending **25th July, 2020.**

Following this authorization, you are allowed to proceed with your research as requested.

DATE 16/9/2019
P.O. BOX 41-90300
MAKUENI

Dr. Samson Arodi
For County Director of Education
MAKUENI

ISO 9001 BUREAU VERITAS Certification

Appendix XV11: Makueni County Director of Health Services

REPUBLIC OF KENYA

GOVERNMENT OF MAKUENI COUNTY

OFFICE OF COUNTY DIRECTOR HEALTH SERVICES
PO BOX 89-90300 MAKUENI
Email:countyhealthmkn@gmail.com contact@makueni.go.ke
Website: www.makueni.go.ke

REF: GMC/DOH/CDH/GEN.IV/ (187)

19th August, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University of Agriculture & Technology
Po Box 62000-00200
NAIROBI

RE: AUTHORIZATION TO COLLECT DATA

Reference is made to the letter referenced: NACOSTI/P/19/13833/31736 dated 26th July 2019, 2019 regarding the above matter.

You are hereby authorized to undertake research on "***Knowledge, attitudes and perceptions, adherence to, and barriers to evidence – based practice standards among sports physiotherapists in Kenya***" for the period ending 25th July, 2020.

By a copy of this letter, all Med Sups/SCMOHs are requested to accord you the necessary assistance for the success of your research work.

Yours faithfully,

COUNTY DIRECTOR OF HEALTH
MAKUENI COUNTY
19 AUG 2019
P. O. Box 89 - 90300, MAKUENI.
Email: countyhealthmkn@gmail.com

Dr. J.M. Kanyange
Director Health Commodities & Technologies
Makueni County

- ECM –Health Services
- CO –Health Services
- Director(s) Health
- All Med Supts & SCMOHs

Appendix XV111: Kiambu County Director of Education

MINISTRY OF EDUCATION
State Department of Early Learning & Basic Education

Telephone:Kiambu (office) 020-2044686
FAX NO. 020-2090948
Email:directoreducationkiambu@yahoo.com

COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY
P. O. Box 2300
KIAMBU

When replying please quote

KBU/CDE/DEPT 8/Vol. I/(56)

25th September, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University of
Agriculture and Technology
P.O Box 62000-00200
NAIROBI

RE: RESEARCH AUTHORIZATION

Reference is made to the National Commission for Science Technology and Innovation letter Ref. No NACOSTI/P/19/13833/31736 dated 26th July, 2019.

The above named has been authorized to carry out research on ***"Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kiambu County, Kenya"*** for a period ending 25th July, 2020.

Please accord him the necessary assistance.

THE COUNTY DIRECTOR OF EDUCATION
SEP 2019
KIAMBU COUNTY

LEAH ROTICH
For: COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY

Appendix X1X: Kiambu County Health Research and Development Unit

COUNTY GOVERNMENT OF KIAMBU
DEPARTMENT OF HEALTH SERVICES

All correspondence should be addressed to
HEAD HRDU – HEALTH DEPARTMENT
Email address: mndiritu@gmail.com
mkwasa@live.com
Mobile: 0721641516
0721974633

HEALTH RESEARCH AND DEVELOPMENT UNIT
P. O. BOX 2344 – 00900
KIAMBU

Ref. No: KIAMBU/HRDU/AUTHO/2019/09/16/Mwololo TK

Date: 16 Sep 2019

TO WHOM IT MAY CONCERN,

RE: CLEARANCE TO CONDUCT RESEARCH IN KIAMBU COUNTY

Kindly note that we have received a request by **Mr. Thomas Kyengo Mwololo** of **Jomo Kenyatta University Of Agriculture And Technology** to carry out research in Kiambu County, the research topic being on ***"Knowledge, Attitudes And Perceptions, Adherence To, And Barriers To Evidence-Based Practice Standards Among Sports Physiotherapists In Kenya"***.

We have duly inspected his documents and found that he has been cleared by **Jomo Kenyatta University Ethical Review Committee** until **17 Jun 2020**. He thus does not need any further clearance with another regulatory body in order to conduct research within the county of Kiambu.

However, it is incumbent upon the facility in which the research is being carried out to ensure that they are conversant with the remit of the study and operate in line with their institutional norms on conducting research. This note also accords him the duty to provide feedback on his research to the county at the conclusion of his research.

DR. M. NDIRITU NDIRANGU
COUNTY HEALTH RESEARCH DEVELOPMENT UNIT
KIAMBU COUNTY

Appendix XX: Elgeyo – Marakwet County Commissioner

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR & COORDINATION OF NATIONAL GOVERNMENT

Telegrams:
Telephone: (053) 42007
Fax : (053) 42289
E-mail: ccelgeyomarakwet@yahoo.com
ccelgeyomarakwet@gmail.com
When replying please quote

COUNTY COMMISSIONER'S OFFICE,
ELGEYO-MARAKWET COUNTY,
P.O. BOX 200-30700
ITEN

Ref. PUB. CC. 24/2 VOL.II/165

Date 22nd August, 2019

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION
Thomas Kyengo Mwololo

This is to confirm that the above named has been authorized to carry out a research in Elgeyo Marakwet County on ***"Knowledge attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya".*** The research will be undertaken for the period ending **25th July, 2020.**

Please accord him necessary assistance.

COUNTY COMMISSIONER
ELGEYO MARAKWET COUNTY

K. O. MIFWONI
FOR: COUNTY COMMISSIONER
ELGEYO MARAKWET

c.c. All Deputy County Commissioners
Elgeyo Marakwet.

KOM/sjk

Appendix XX1: Kilifi County Commissioner

THE PRESIDENCY

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

Telephone:
Fax:
Email cckilificoordination@gmail.com
When replying please quote
Ref. No. EDUC.12/7/VOL.IV/42

County Commissioner's Office
Kilifi County
P. O. Box 29 - 80108
KILIFI

And Date: 26th August, 2019

Deputy County Commissioners
KILIFI COUNTY

RE: RESEARCH AUTHORIZATION
THOMAS KYENGO MWOLOLO

The above named person from Jomo Kenyatta University of Agriculture and Technology has been authorized by this office to carry out research on "***Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya***" for the period ending ***25th July, 2020.***

Kindly accord him all necessary support.

Thank you.

COUNTY COMMISSIONER
KILIFI COUNTY
P. O. Box 29-80108,
KILIFI

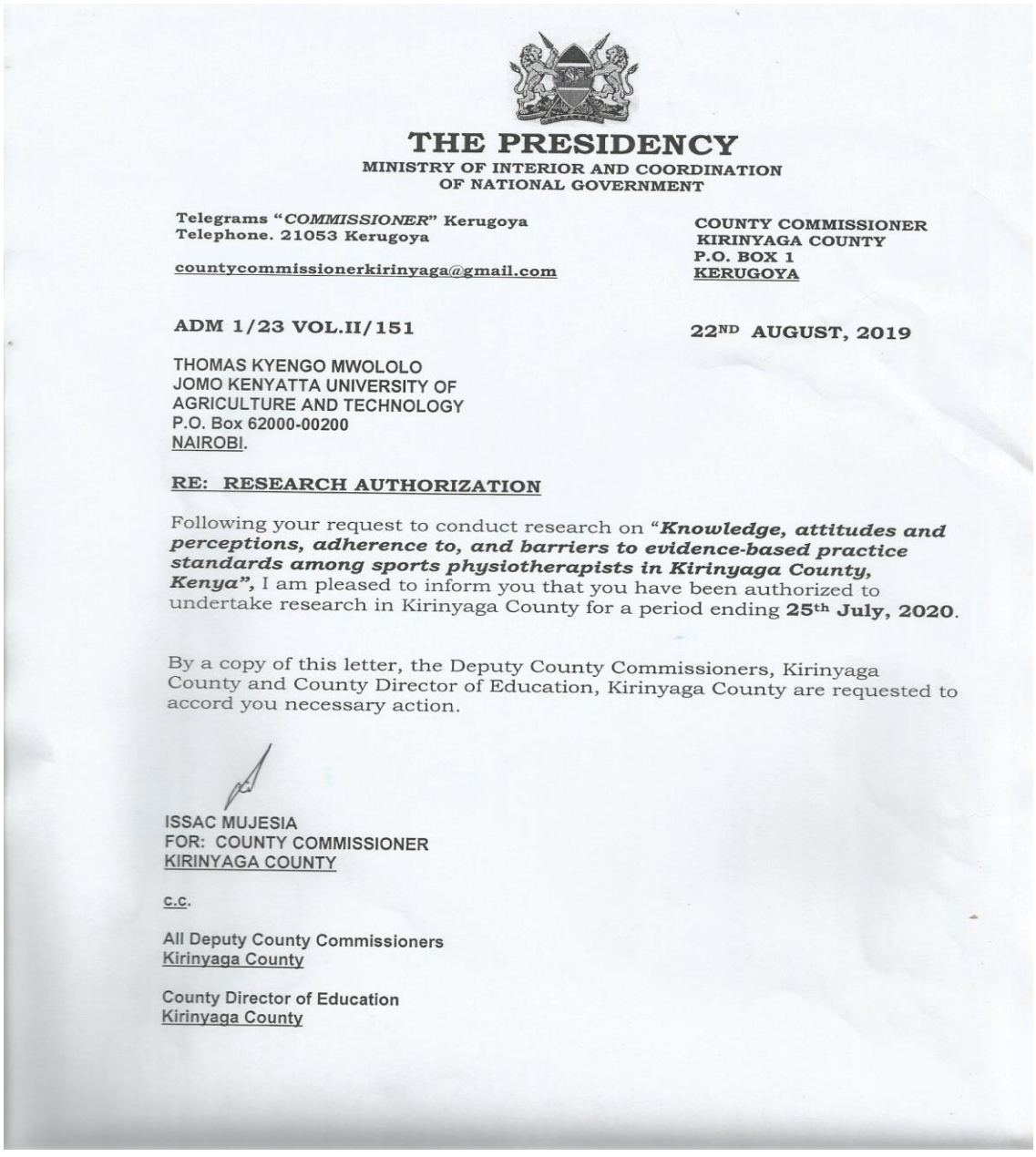
MAGU N. MUTINDIKA, OGW
COUNTY COMMISSIONER
KILIFI COUNTY

c.c.

Secretary/IERC
Jomo Kenyatta University of
Agriculture and Technology
NAIROBI

Thomas Kyengo Mwololo
School of Medicine
P. O. Box 62000 – 00200
NAIROBI

Appendix XX11: Kirinyaga County Commissioner



THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegrams "*COMMISSIONER*" Kerugoya
Telephone. 21053 Kerugoya

countycommissionerkirinyaga@gmail.com

COUNTY COMMISSIONER
KIRINYAGA COUNTY
P.O. BOX 1
KERUGOYA

ADM 1/23 VOL.II/151

22ND AUGUST, 2019

THOMAS KYENGO MWOLOLO
JOMO KENYATTA UNIVERSITY OF
AGRICULTURE AND TECHNOLOGY
P.O. Box 62000-00200
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your request to conduct research on "***Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kirinyaga County, Kenya"***, I am pleased to inform you that you have been authorized to undertake research in Kirinyaga County for a period ending **25th July, 2020**.

By a copy of this letter, the Deputy County Commissioners, Kirinyaga County and County Director of Education, Kirinyaga County are requested to accord you necessary action.

ISSAC MUJESIA
FOR: COUNTY COMMISSIONER
KIRINYAGA COUNTY

c.c.

All Deputy County Commissioners
Kirinyaga County

County Director of Education
Kirinyaga County

Appendix XX111: Baringo County Commissioner

OFFICE OF THE PRESIDENT

Telephone. 053-21285
Fax. (053)-21285
E-Mail:
baringocountycommissioner@yahoo.com
baringocountycommissioner@gmail.com

When replying please quote:

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

COUNTY COMMISSIONER'S OFFICE,
BARINGO COUNTY,
P.O. BOX 1 - 30400
KABARNET.

REF.NO: **ADM.18/1 VOL.II/118**

22ND AUGUST, 2019

All Deputy County Commissioners
BARINGO COUNTY

RE: RESEARCH AUTHORIZATION

Reference is made to a letter No.NACOSTI/P/19/13833/31736 dated 26th July, 2019 from the Director General/CEO NACOSTI.

This is to confirm that **Thomas Kyengo Mwololo** has been authorized to carry out research on **"Knowledge, attitudes and perceptions, adherence to, and barriers to evidenced-based practice standards among sports physiotherapists in Kenya,"** for the period ending **25th July, 2020.**

Please accord him the necessary support.

HENRY WAFULA
COUNTY COMMISSIONER
BARINGO COUNTY

COUNTY COMMISSIONER
BARINGO COUNTY
P. O. Box 1 - 30400, KABARNET

Appendix XX1V: Bomet County Director of Education

REPUBLIC OF KENYA
MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

Telegrams: "ELIMU",
Telephone: 052-22265
When replying please quote
email:cdebometcounty@gmail.com
Ref/CDE/BMT/ED/AUTH/74/VOL.II/8

COUNTY EDUCATION OFFICE,
BOMET COUNTY,
P.O. BOX 3-20400,
BOMET.

25TH AUGUST, 2019

Thomas Kyengo Mwololo
Jomo Kenyatta University of Science
Agriculture and Technology
P.o Box 62000-00200,
NAIROBI.

RE: RESEARCH AUTHORIZATION.

Reference is made to yours from NACOSTI Ref: No NACOSTI/P/19/13833/31736 dated 26th July, 2019 on the above subject.
Permission is hereby granted to carry out research on "***Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya" All Counties''***, *for* the period ending 25th July, 2020.

Ensure, you present a copy of the research to County Director of Education-Bomet

This letter should be presented to the principal of the schools visited for the said purpose.

COUNTY DIRECTOR OF EDUCATION
BOMET
P. O. Box 3 - 20400, BOMET
Date:.....

PP
INDIATSI MABALE
COUNTY DIRECTOR OF EDUCATION
BOMET COUNTY.

CC
DIRECTOR NACOSTI

Appendix XXV: Nyandarua County Director of Health

REPUBLIC OF KENYA

COUNTY GOVERNMENT OF NYANDARUA
OFFICE OF THE DIRECTOR -HEALTH SERVICES

Telephone: 0729289853
Email: mohnyandaruacounty@gmail.com

P.O. Box 221-20303
Ol'Kalou

Ref: NYA/CHC/091/VOL.I/78

4th September 2019

Thomas Kyego Mwololo
Jomo Kenyatta University of Agriculture & Technology
P O Box 62000-00200
NAIROBI

RE: AUTHORIZATION TO CARRY OUT RESEARCH

The Department of Health Services, Nyandarua County is in receipt of your request to carry out research in the County on ***"knowledge, attitudes and perceptions, adherence to, and barriers to evidence based practices standards among sports physiotherapists in Kenya"*** as part of your masters studies. We further take note of approvals for the research study from the School of Medicine, JKUAT and National Commission for Science Technology and Innovation (NACOSTI)

I am pleased to inform you that you have been authorized to carry out the research as requested. The Department will facilitate you with all necessary information. You will be expected to carry out the process with the highest standards of professionalism and ethics. The Department further expects you to share the research findings upon completion.

Thank you.

COUNTY DIRECTOR OF HEALTH
NYANDARUA
P. O. Box 221 - 20303, OL' KALOU
Date.....

DR. MARTHA MWATHI
COUNTY DIRECTOR OF HEALTH
NYANDARUA COUNTY

Cc
Chief Officer – Health Services
Nyandarua County

Appendix XXV1: Siaya County Commissioner

THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Fax No.
Tel: 0776 391011
Email: cc.siaya@yahoo.com

THE COUNTY COMMISSIONER
SIAYA COUNTY
P.O.BOX 83– 40600
SIAYA

When replying please quote Ref. & date

CC/SC/A.31 VOL.III/46

23rd August, 2019

All Deputy County Commissioners
SIAYA COUNTY

RE: RESEARCH AUTHORIZATION – THOMAS KYENGO MWOLOLO

The person referred to above from Jomo Kenyatta University of Agriculture and Technology has been authorized by the Director General/CEO, National Commission for Science, Technology and Innovation vide letter Ref. No. NACOSTI/P19/13833/31736 dated 26th July, 2019 to carry out research on ***"Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practice standards among sports physiotherapists in Kenya"*** for the period ending **25th July, 2020**.

The purpose of this letter therefore is to ask that you accord him the necessary support as he carries out research in your Sub County.

W.G. WACHIRA
For: COUNTY COMMISSIONER
SIAYA COUNTY

Copy to: Thomas Kyengo Mwololo
Jomo Kenyatta University of
Agriculture and Technology
P.O. Box 62000 - 00200
NAIROBI

County Director of Education.
SIAYA COUNTY

Appendix XXV11: Busia County Health Director

COUNTY GOVERNMENT OF BUSIA
County Health Director
Health & Sanitation Department
P.O. BOX 1040 – 50400
BUSIA, KENYA

CG/BSA/H/ADM/1/56 VOL. II/56 Date: 1st October, 2019

THOMAS KYENGO MWOLOLO
JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
P.O. BOX 62000-00200
NAIROBI

Dear Sir,

APPROVAL 'KNOWLEDGE, ATTITUDES AND PERCEPTIONS, ADHERENCE TO, AND BARRIERS TO EVIDENCE-BASED PRACTICES STANDARDS AMONG SPORTS PHYSIOTHERAPISTS IN KENYA.

Following your application for authority to research on '**Knowledge, attitudes and perceptions, adherence to, and barriers to evidence-based practices standards among sports physiotherapists in Kenya**" in partial fulfilment of your **Masters degree in Physiotherapy**, the department of Health and Sanitation Busia has no objection for the study to be undertaken.

Note that, you are also requested to share the finding with the Department of Health and Sanitation.

By copy of this letter, all Medical Superintendents are requested to give you assistance required.

Yours faithfully,

COUNTY DIRECTOR OF HEALTH BUSIA COUNTY

Dr. Melsa Lutomia,
County Director of Health
Department of Health and Sanitation
BUSIA COUNTY.

C.c. C.E.CM - Department of Health and Sanitation

Chief Officers - Department of Health and Sanitation

Med Supts - Busia County