INFLUENCE OF MENOPAUSE ON WORK PRODUCTIVITY AMONG HEALTH WORKERS IN PUBLIC HOSPITALS IN KIAMBU COUNTY, KENYA.

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DECLARATION

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

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DEDICATION

I dedicate this work to God for giving me strength, health and sound mind through this course and research and to my family for moral support.

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ABBREVIATIONS AND ACRONYMS

CBT	Cognitive Behavior Therapy
ERC	Ethical Review Committee (ERC) of Kenyatta University
FP	Family Planning
FSH	Follicle Stimulating Hormone
HRO	Health Record Officer
HRT	Hormonal Replacement Therapy
KDHS	Kenya Demographic Health Survey
KII	Key Informant Interview
LH	Leiutenizing Hormone
NACOSTI	National Commission for Science, Technology and Innovations
POF	Premature Ovarian Failure
PHO	Public Health Officer
WPAI	Work Productivity and Activity Impairment

DEFINITION OF OPERATIONAL TERMS

Absenteeism	Represented the percentage of work time missed due to health in the past 5 days (Whiteley et al., 2013)
Climacteric	is a change from reproductive to non-reproductive stage in a woman (Freeman et al., 2007)
Formal Working Woman	A woman who is a health worker in employment that is structured and paid in a formal way. That is specific working schedule, wages, defined job responsibilities and expectations.
Health Worker	A woman who is formally employed as a health professional in a public health hospital
Menopausal Transition	Refers to the period around the menopause (Melissa, 2012)
Menopausal Woman	Refers to a woman in menopause period (Whiteley et al., 2013)
Menopause	it is a permanent end of menstrual period for at least 12 consecutive months due to natural or surgical, chemotherapy or radiation. (NIH, 2017)
Overall Work Productivity Impairment	represented the total percentage of work time missed due to either absenteeism or presenteeism (since those measures are mutually exclusive) (Whiteley et al., 2013).
Premature Menopause	Menopause that happens between age 40 and 45

Premature Ovarian Failure	Refers to a condition in which the ovaries, for unknown reasons, prematurely stop releasing eggs before the age of 40
Pre-Menopause	Refers to a period of a woman's life immediately preceding menopause. It constitutes the years leading up to the last menstruation period, when the levels of reproductive hormones are already becoming more variable and lower, and the effects of hormone withdrawal are present(Harlow et al., 2012)
Presenteeism	Represented the methodology as percentage of impairment while at work due to health in the past 5 work days preceding the study.
Work Productivity Index	Refers to an indicator or a measure of Work Productivity among menopausal women (Adoyo et al., 2014).
Work Productivity	Refers to ability of a person to perform/execute assigned duties/activities as required and with efficiency. Work productivity will be measured by percentage (%) loss of productivity (gauged in terms of presenteeism, absenteeism and overall work productivity) at work where higher percentages indicate greater impairment or productivity loss. (Whiteley et al., 2013)

ABSTRACT

Menopause is a normal process in women marked by a reduction in estrogen and progesterone levels and eventual cessation of menstruation. Despite many studies on menopause, influence of menopause on work productivity and performance are poorly documented. The main objective of the study was to examine the influence of menopause on work productivity among health workers in public hospitals in Kiambu County. The specific objectives were to (i) To determine menopausal symptoms presented by health workers in public hospitals, (ii To established the influence of menopause on work productivity among health workers and (iii)To identify menopause coping strategies adopted by health workers in public hospitals in Kiambu County. The study adopted a cross-sectional study design constituting 239 women aged 40-60 years in menopause as the study group and 239 women aged 40-60 years and not in menopause as control group. The study used mixed-methods approach; Simple random sampling was used to select study respondents while purposive sampling was employed in selecting 20 key informants**.** A semi-structured questionnaire was used to collect data from the study respondents while an interview guide was used to interview key informants. Descriptive statistics, cross-tabulation, chi-square and regression analysis were used to analyze the quantitative data collected while thematic analysis of qualitative data. Findings indicated that mean age at menopause was 48.5 years. The main symptoms presented by menopausal women were anorexia, anhedonia, lack of concentration, irritability, depression, insomnia, nervousness, muscle and joint pains, hot flushes, night sweats and loss of sexual desires. Menopause was associated with work absenteeism ($\chi 2=21.549$, $p=0.001$) and productivity impairment ($\chi 2=76.979$, $p=0.001$). Regression analysis showed that nervousness ($p=0.005$, $df=1$, $OR=7.909$), lack of concentration ($p=.032$, $df=1$, $OR=4.608$), breathing difficulties ($p=0.010$, $df=1$, $OR=6.587$) and anorexia ($p=0.09$, $df=1$, $OR=6.880$) increased work productivity impairment. The main coping strategies adopted by women in menopause were taking time off work, writing notes to avoid forgetting, joking about symptoms, talking to other women, cooling their bodies by allowing more fresh air in the room, double checking their work and negotiating more flexible work hours. In conclusion, menopause symptoms presents with differing severity among women. Menopause impairs work productivity and increases work absenteeism. There is need for work places to adopt measures for supporting menopausal women to improve work productivity and to mitigate its adverse effects particularly, recognizing menopause as a workplace issue. This requires organizations to develop and institutionalize appropriate policies and staff support programs to support women during menopause transition and improve their work productivity.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Menopause was estimated to be with 57 million women in the United States who were at least 45 years of age. Everyday approximately 6,000 of them reach menopause. The cessation of menstrual periods is often associated with a variety of unpleasant symptoms, including anxiety, difficulty concentration, decreased libido, depression, vaginal dryness, insomnia, difficulty concentrating, and vasomotor symptoms (hot flushes and night sweats). A study by Berecki-Gisolf (2009) demonstrated that many symptoms persisted 7 years after the cessation of their menstrual periods. Some women find this transition life altering while others find it barely noticeable

There is a lot of fluctuation in the hormone levels during menopausal transition and thus women may experience many symptoms associated with different medical conditions. However, the influence of this on work productivity fluctuation varies from one woman to another (Whiteley et al. 2013). According to Geuke et al. (2012), certain work situations and physical working environments increase the intensity of menopausal symptoms and their influence on their work productivity. The experience of hot flushes at work has been reported as stressful, particularly for women who report embarrassment.

During the transition to menopause, women may experience vasomotor, urogenital, psychosomatic, and psychological symptoms, as well as sexual dysfunction. The prevalence of each of these symptoms related to menopause varies across ethnic and socioeconomic groups, and between rural and urban women. Some researchers have observed socioeconomic (e.g., working status and income); lifestyle (e.g., smoking

and dietary practices); and biological variables (Adoyo et al., 2014; Bairy et al., 2009).

According to Amanda et al. (2013) women are generally reluctant to divulge menopausal status particularly at work due to fear of stigmatization and ridicule and where poise and control are highly valued.

Generally, women from developing countries, including those of the present study, tend to view menopause and its symptoms as a natural process that does not require medical care, so they are less aware about the health-related issues of menopause (Njoku and Ngome, 2013). Moreover, a culture of silence prevents them from seeking health care. However, studies have shown that educated women from developing countries are now seeking treatment for menopausal problems (Yee and Lin 2010; Adoyo et al., 2014)

According to Amanda et al. (2013), women report a wide range of coping strategies such as distraction, making light of matters and belonging to social support networks, to be helpful in managing effect of menopause on work productivity and quality of life.

There is considerably lack of awareness about the effects and the treatment of the menopausal symptoms among women (Griffiths et al., 2009), particularly, working women in Kenya. Studies on issues relating to menopause are lacking in Kenya and other developing countries. This study aimed at examining the influence of menopause on work productivity among women in Kenya.

1.2 Statement of the Problem

Although many studies have been done on menopause, signs and symptoms of menopause including their severity differ among different women. In Kenya and specifically Kiambu County, there are inadequate studies focused on providing scientific evidence on differing signs and symptoms of menopause among formal health workers as well as its influence on work productivity (Adoyo et al., 2014). Past studies have associated menopause with decreased quality of life, increased cost of hospitalization, work absenteeism, limitations in physical functioning and activity impairment which adversely limits the ability of women to be productive at work. At work, discussion about the menopause is widely perceived as a taboo (Ayers et al., 2012) and he employers had little or no consideration of what or how to provide necessary support. Lack of adequate knowledge on menopause, its effects and how to cope with the associated problems continues to adversely impact on the productivity of health workers at work.

Although many studies have been done on Menopause, there are few studies done in Africa and Kenya on influence of menopause on work productivity. Most of the studies are focused on clinical aspects of menopause. In addition, there are no current studies done on the area of the study in Africa and more specifically in Kenya. This has not only limited linkage of the menopause transition with the influences on work productivity within the study context which is Kenya but also limited the ability of the researcher to conclusively examine study variables and issues of interest. It is on this basis that this study aimed at bridging this gap by examining influence of menopause on work productivity in Kiambu County, Kenya.

1.3 Justification of the Study

The study focused on health sector due to the nature, sensitivity and associated job demands which have significant influence on staff health status and productivity over time. For instance, staff in health sector deals with health of humans which requires a lot of attention and commitment in delivering health services. As such, absenteeism and or lack of productivity brings along serious effects which can adversely affect the entire health system and its ability to meet its goals.

Kiambu County was purposively selected for the study due to its high population of formal working women aged 40-60 years. Influence of menopause on work productivity among health workers as well as other sectors are not only poorly understood and managed, but also hardly documented in low and middle income countries such as Kenya.

According to Adoyo et al. (2014), over eighty percent (80%) of women in Kenya are not sufficiently knowledgeable on menopause and how to cope with associated symptoms which impair their work productivity. Forty four percent (44%) of menopause women attribute menopause problems to sickness while fifty six percent (56%) attributed them to being bewitched, pregnancy and use of contraceptives.

The researcher selected the health sector due to its dominance by working women and its high quality human capital demand from its workforce for high productivity and maximum health outcomes to be achieved. Therefore, information generated by this study is important in informing policy initiatives, programmatic and managerial interventions aimed at improving productivity of women at work in the public health sector.

1.4 Study Questions and hypothesis

1.4.1 Study Questions

1. What are the menopausal symptoms presented by health workers in public hospitals in Kiambu County?
2. What is the influence of menopause on work productivity among health workers in public hospitals in Kiambu County?
3. What are the menopause coping strategies adopted by health workers in public hospitals in Kiambu County?

1.4.2 Null Hypothesis

There is no significant relationship between menopause symptoms and work productivity of health workers in public hospitals in Kiambu County

1.5 Objectives of the Study (Main and Specific)

1.5.1 Main Objective

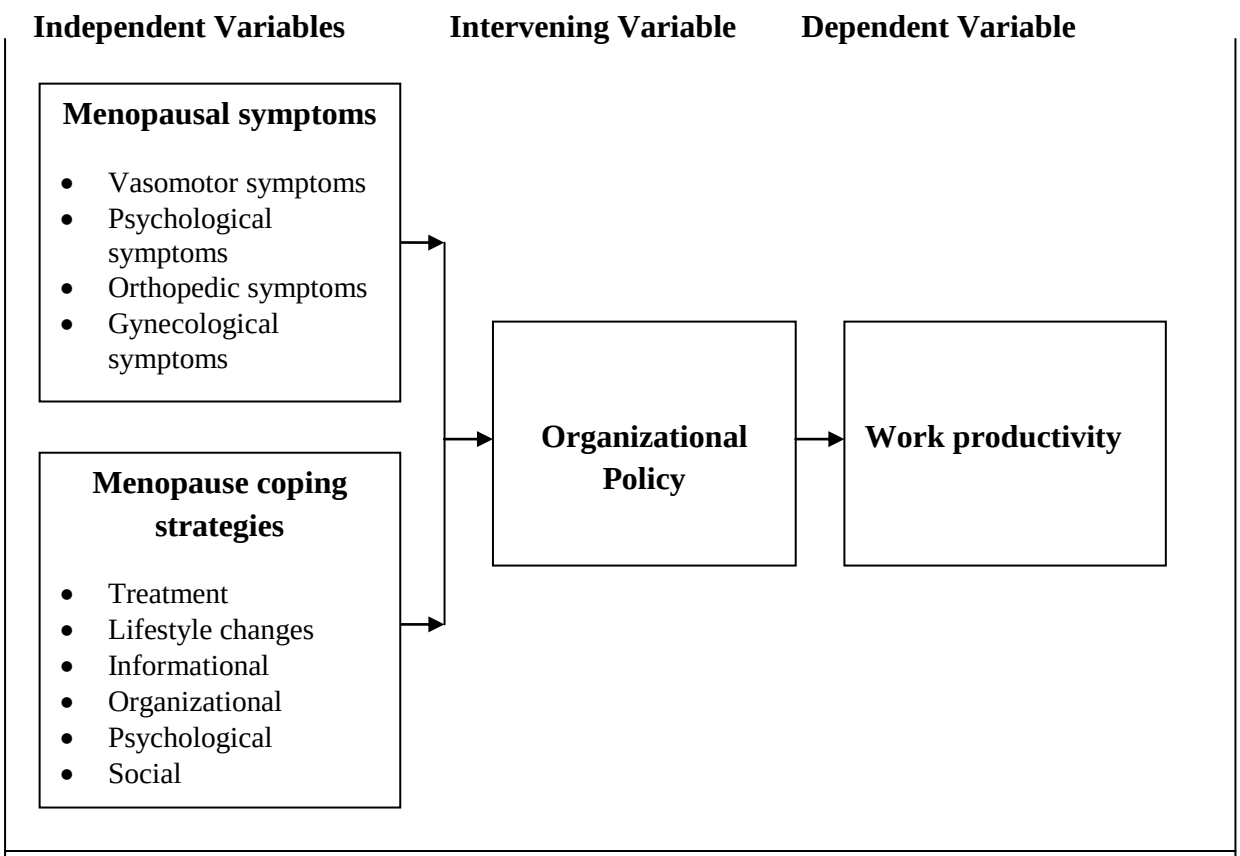
The main objective of the study was to examine the influence of menopause on work productivity among health workers in public hospitals in Kiambu County, Kenya.

1.5.2 Specific Objectives

1. To determine menopausal symptoms presented by health workers in public hospitals in Kiambu County
2. To establish the influence of menopause on work productivity among health workers in public hospitals in Kiambu County
3. To identify menopause coping strategies adopted by health workers in public hospitals in Kiambu County

1.6 Conceptual Framework

The relationship between the dependent and independent variable of the study is show by the conceptual framework. The dependent variable of the study will be improved work productivity while the independent variable will be menopause symptoms and menopause coping strategies as shown in Figure 1.1



Source: Modified from Whiteley et.al, (2013)

Figure 1.1: Conceptual Framework of the study

1. 7 Significance of the Study

The study documented the influence and extent of menopausal problems faced by health workers in Kiambu County on work productivity is useful in developing a menopause problem based model for managing menopause transition and its impact on work productivity through policy, programmatic and managerial interventions. Tailored policy recommendations were also provided to guide interventions for mitigating influences of menopause at work place.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Chapter two discusses related literature on menopause in Kenya, Sub-Saharan Africa as well as globally. The chapter is organized to provide an introduction on menopause, discuss the relevant themes which are: signs and symptoms of menopause, influence of menopause on work productivity and coping strategies on menopause followed by summary of literature review.

Menopause, which is also referred to as the climacteric, is the time in most women's lives when monthly menstrual flow stop permanently, and becomes unable to bear children. Menopause is defined as a normal process that mark end of a woman reproductive life by the gradual cessation of menstrual cycle, first becoming irregular and then stopping altogether. However, this phase ends 12 months after the last menstrual period. Menopause occurs around the age 50 years but it should not be assumed that the climacteric is complete until two years have elapsed since the last period (Diane et al., 2014). Menopause happens when the ovaries no longer release an egg every month and menstruation stops (Hammam et al., 2012). Following the removal of the uterus, symptoms typically occur earlier at the average of 45 years of age (Diane et al., 2014).

According to Harlow et al. (2012), cessation of hormonal production of estrogen, progestrone and body’s endocrine systems occur through natural or surgical procedures. Natural or physiological menopause occurs as a part of a woman's normal aging process. According to Berecki-Gisolf et al. (2009), natural menopause is associated with ovaries having reducing number of oocytes and ovarian follicle and

this causes an increase in circulating follicle stimulating hormone (FSH) and luteinizing hormone (LH) levels hence low estrogen and progesterone levels.

According to Harlow et al. (2012), natural menopause is considered a normal part of aging when it happens after the age of 40. But some women can go through menopause early, either as a result of surgery, such as hysterectomy, or damage to the ovaries, such as from chemotherapy. Menopause that happens before 40, regardless of the cause, is called premature menopause. This involves changes in the levels of both estrogen and progesterone when the ovaries, for unknown reasons, prematurely stop releasing eggs. When this happens before the age of 40, it's called premature ovarian failure. Unlike premature menopause, premature ovarian failure is not always permanent.

Premature menopause can be the result of genetics, autoimmune disorders, or medical procedures such as surgical removal of ovaries, uterine cancer or endometriosis. Induced menopause can also result from damage to the ovaries caused by radiation or chemotherapy.

The first stage of natural menopause is called premenopause. Pre menopause starts sometime before the monthly cycles become noticeably irregular in timing. This is followed by menopause transition years referred to perimenopause, which literally means ‘around the menopause’ a span of time both before and after the date of the final episode of flow. (Harlow et al 2012). This transition can last for four to eight years. (Harlow et al 2012) noted that there was a wide fluctuation of estrogen levels averaging 20 -30% in perimenopause higher than during premenopause.

The third phase is called menopause. This is the point when it's been a year since a woman last had her last menstrual period. At this stage, the ovaries have stopped releasing eggs and making most of their estrogen (Chichester et al., 2011). It is determined once 12 months have passed after the last appearance of menstrual blood flow. Although most women become aware of their menopause transition in their mid to late 40's which is many years after the menopausal window, signs and effects of menopause transition can begin as early as age 35 years. According to Bellipanni et al. (2005) noticeable body effects can be experienced during perimenopause but can last ten or more years. In some women sense of loss related to the end of fertility is experienced during menopause.

The fourth and final stage is known as postmenopause that describes women who have not experienced any menstrual flow for a minimum of 12 months, assuming that they do still have a uterus, and are not pregnant, are not using FP or lactating (Harlow et al., 2012). Blood test showing a very high follicle stimulating hormone (FSH) level would indicate that the woman either has no uterus, and is in menopause or postmenopausal. Thus post menopause is the time in a woman's life that follows her last monthly period, and when her ovaries become inactive. In post-menopause a woman's reproductive hormone levels continue to drop and may fluctuate after some time and their withdrawal effects such as hot flushes may take several years to disappear.

The typical age of menopause (last period from natural causes) is between 40 and 55 years. The average age of natural menopause in Australia is 51.7 years. In India and the Philippines, the median age of natural menopause is considerably earlier, at 44

years (Ringa, 2000) while for Africa it’s 50 years (Diane et al., 2014). In rare cases, a woman's ovaries stop working at a very early age, ranging anywhere from the age of puberty to age 40, and this is known as Premature Ovarian Failure (POF). POF is diagnosed or confirmed by high blood levels of FSH and Luteinizing Hormone (LH) on at least 3 occasions at least 4 weeks apart.

Women with functional disorders at younger age affecting the reproductive system e.g. cancer, endometriosis, polycystic ovary syndrome get into menopause earlier as they often significantly speed up the menopause process. Other contributing factors to early menopause include higher body mass index, cigarette smoking, racial and ethnic factors (surgical removal of ovaries with or without the uterus). (Harlow et al (2012))

According to Harlow et al. (2012), Menopause can also be surgically induced by bilateral oophorectomy (removal of ovaries), which is often, but not always, done in conjunction with removal of the Fallopian tubes (salpingo-oophorectomy) and uterus (hysterectomy). Cessation of menses as a result of removal of the ovaries is called "surgical menopause". The sudden and complete drop in hormone levels usually produces extreme withdrawal symptoms such as hot flushes, etc. Removal of the uterus without removal of the ovaries does not directly cause menopause, although pelvic surgery of this type can often precipitate a somewhat earlier menopause, perhaps because of a compromised blood supply to the ovaries. Other factors which can promote an earlier onset of menopause (usually 1 to 3 years early) include smoking cigarettes or being extremely thin (Harlow et al. (2012)

2.2 Relevant themes

2.2.1 Signs and Symptoms of Menopause

Menopausal symptoms occurs gradually due to fluctuating hormonal levels and are experienced in different degrees, from low, medium, high to very high.. Other than the cessation of the menses, a number of women have reported intense symptoms while other women experience no symptoms at all,. Uro-genital symptoms, body aches and pains are the predominant symptoms in menopausal women (Bairy et al., 2009). Other symptoms include hot flushes, night sweats, sleep disturbances, urinary frequency, vaginal dryness, poor memory, anxiety and depression. These symptoms cause an important impact in the physical, social and sexual life of these women (Ama and Ngome, 2012).

While not every menopausal woman reports symptoms, approximately 85% of midlife women report at least one symptom and 10% visit a health care provider regarding these concerns (Woods et al., 2005). Anxiety, decreased libido, mood changes, headache, joint pains, back ache and stiffness are the most common signs and symptoms of menopause. However, proof of correlation with the hormonal changes is missing (Ensrud et al., 2008).

In relation to physical symptoms experienced during menopause, women have reported headaches and irritability, which are often due to estrogen dominance because of lack of progesterone. Other common symptoms include fatigue, body aches, sore breasts, migraine depression, swollen ankles, forgetfulness, panic attacks, excitability, and mental imbalance (Freeman and Sherif, 2007)

Symptoms of menopause may be precipitated by many factors. Symptoms of menopause may be precipitated by rapid decrease in estrogen levels, low level of physical activity, smoking, ethnicity, low socioeconomic status, underweight and low education levels are associated with increased severity of hot flushes (Col et al., 2009). For instance, past studies show that urban female leads in all menopausal symptoms compared to rural women (Bairy et al., 2009; Sagdeo et al., 2011). However, according to Amore et al. (2004), women living in rural areas have more pronounced depressive symptoms and anxiety symptoms.

According to Amore et al. (2004), poor quality of life outcomes in rural and remote areas are likely to be the result of factors such as greater socioeconomic disadvantage (lower levels of education and poorer access to work), poorer access to health services, higher levels of personal health risk factors, and environmental issues linked to road travel and occupation. However, women living in the city have more opportunities to be involved in social or economic activities which reduce the intensity of the symptoms. In contrast, women in rural areas are more labile to a diminished self-esteem at the end of their child-bearing age. In modern rural and urban societies, a low education level is a handicap for the strong role of postmenopausal women in the family and the society (Yee et al., 2010).

Further, the imbalance of estrogen and progesterone during menopause causes the majority of menopausal symptoms. Women who have experienced a surgical menopause suffer drastic and immediate side effects and symptoms due to an abrupt drop in estrogen levels. Women who undergo premature menopause have been reported to have increased susceptibility to dementia. (Melissa, 2012) The most common symptoms in women who undergo surgical menopause are hot flushes and

night sweats. Symptoms such as insomnia, irritability, fatigue, and mood swings can result and get worsened by the hot flushes.

According to Smith et al. (2011), negative views of menopause increase symptoms of hot flashes, night sweats, fatigue, and insomnia. Positive perception towards menopause transition is important in embracing effective symptomology coping strategies. Women with insufficient and inaccurate knowledge on menopause transition and its management report increased severity of the symptomology compared to those with knowledge deficit. Informed women have higher tendencies of seeking medical assistance for the symptoms they experience which help them receive appropriate treatment and counseling on coping strategies. Among many women, treatment is sought only when symptoms become so debilitating and severe yet many prescription medications are available to help deal with menopausal symptoms. To replace the loss of estrogen and progesterone most of these medications are forms of synthetic or natural hormones, and are prescribed.

Further, across the world, menopause has been perceived largely in negative terms, described as an 'estrogen deficiency' state that impairs health or a time of social upheaval due to the 'empty nest', fertility loss, or the 'abandonment' of women (Smith et al., 2011). The knowledge and concept about the menopause in women influences their management of this transition. Many of women regard menopause as a natural transition and they consider that related symptoms are anticipated component of this transition (Smith et al., 2011).

2.2.2 Influence of Menopause on Work Productivity

The limited literature suggests that some women do find menopausal symptoms problematic at work. Majority of women perceive their symptoms to have a moderate to severe impact on their capacity to function at work and some had even stopped working as a result (Williams et al. 2009). Impact on work life of women is nearly 3 times likely to have negative impact due to severe vasomotor symptoms compared with mild to moderate symptoms. The sexual drive may not be diminished but some women find it difficult to accept that they are no longer fertile (Diane et al., 2014). Smith et al. (2011)) showed that perimenopausal women with vasomotor symptoms were 4.39 times more likely to be depressed than those without vasomotor symptoms.

According to Whiteley et al. (2013), women experiencing menopausal problems such as depression, joint stiffness, anxiety and memory loss report significantly higher absenteeism and overall work impairment than the rest. Lack of awareness, poor knowledge and negative perceptions of women towards menopause has also been associated with decreasing work productivity index of menopausal women (Adoyo et al., 2014).

Some women find menopause to have a negative effects at work and that certain work situations and physical working environments increase the intensity of menopausal symptoms (Hammam et al., 2012). For instance, situational factors, including work, may precipitate or exacerbate hot flushes, and affect women perceptions of the severity of symptoms. The experience of hot flushes at work has been reported as stressful, particularly for those who report embarrassment (Geukes et al., 2012). Women are generally reluctant to divulge menopausal status but particularly so at

work, where fear of stigmatization and ridicule is common, and where poise and control are highly valued.

Discussion about the menopause at work is widely perceived as a taboo (Whiteley et al., 2013) and employers have no or little consideration of providing support to menopausal women. Some women are left feeling less confident or at odds with their desired professional image due to the major problems menopause pose. Menopause main problems at work are attributed to lowered confidence, poor concentration, poor memory, feeling low or depressed, hot flushes were a major source of distress for many women.

High visibility work such as formal presentations, working in hot and poorly ventilated environments and formal meetings are some of the factors that make menopause symptoms to cope with (Whiteley et al., 2013). However, Burton et al. (2004) compared patterns and severity of self-reported work impairment associated with common medical conditions (including menopause) and demonstrated that menopause was not associated with an increased likelihood of productivity impairment.

2.2.3 Coping Strategies for Women in Menopause

According to Amanda et al. (2013), women report a wide range of coping strategies to be helpful in trying to manage menopausal symptoms and working life such as distraction, making light of matters and talking with other women who had gone through the menopause, increasing knowledge about menopause, double checking work, making notes/lists, changing working hours, having flexible approach to tasks doing exercise, getting more sleep and diet changes. Although many adverse effects

of menopause on their work productivity can be avoided, controlled and or managed effectively most of them are unable to identify appropriate coping strategies (Njoku and Ngome, 2013).

Psychological interventions to reduce anxiety or improve mood and self-esteem have proved useful, particularly for women who have negative appraisals of menopause. Cognitive behavior therapy (CBT) has also proved to be effective in reducing the frequency of hot flushes as HRT and in improving self-efficacy and perceived ability to cope. CBT helps improve confidence and perceived ability to cope at work for women who find menopause problematic. Research has shown CBT in group and self-help formats is helpful for women with problematic hot flushes (Ayers et al., 2012).

Also helpful might be exploring working women's attributions of co-workers' and line managers' perceptions. Workplace information or advice sessions about menopause might address women's possible overestimation of others' ability to infer menopausal status from signs of hot flushes, and explore women's beliefs that menopause symptoms are perceived negatively by others. Beliefs may be unduly negative and contribute to distress (Smith et al., 2011) which hampers work performance. It is possible that constantly trying to conceal menopausal status at work may be a stressor itself. However, some women feel that their menopausal status opens them up to being stereotyped and prefer to consider age and gender as irrelevant at work.

2.3 Summary of Literature Review

Although many studies have been done on Menopause, there are few studies done in Africa and Kenya on influence of menopause on work productivity. Most of the studies are focused on clinical aspects of menopause. In addition, there are no current studies done on the area of the study in Africa and more specifically in Kenya. This has not only limited linkage of the menopause transition with the influences on work productivity within the study context which is Kenya but also limited the ability of the researcher to conclusively examine study variables and issues of interest. It is on this basis that this study aims at bridging this gap by examining influence of menopause on work productivity in Kiambu County, Kenya.

CHAPTER THREE: MATERIALS AND METHODS

3.0 Research Design

The study adopted a cross-sectional comparative study design constituting of women aged 40-60 years in menopause as the study group and women aged 40-60 years and not in menopause as a control group. The study design used mixed-methods approach, that is, a combination of qualitative and quantitative techniques of data collection. The design helped provide a snapshot of the study population about which data is collected within a short period of time.

3.1 Study Variables

3.1.1 Dependent Variable

The dependent variable of the study was work productivity. Overall work productivity impairment was measured by the total percentage of work time missed due to either absenteeism or presenteeism (Whiteley et al., 2013) using the following equation

Work productivity impairment = absenteeism + (1-absenteeism) × presenteeism

To determine work productivity impairment, absenteeism and presenteeism of the respondents at work was also measured. These variables were measured and calculated as follows:

Absenteeism represented the percentage of work time missed due to health in the past 5 days and calculated as follows:

$$\textbf{Absenteeism} = \frac{\text{Time missed from work due to health problems}}{\text{Time missed from work + time spent at work}} \times 100\%$$

Presenteeism represented the percentage of impairment while at work due to health in the past 5 work days preceding the study. This was assessed using a Likert-type item

with scale range of 0-10 in which “0” meant that health problems had no influence on work and “10” meant that health problems completely prevented one from working. The score was then multiplied by 10 to give a percentage.

3.1.2 Independent Variable

The independent variables of the study were:

3.1.1.1 Menopausal symptoms referred to various symptoms presented and reported by women in menopause. they were categorized as vasomotor, psychosomatic, uterine, vaginal, psychosocial, urinary, and other related menopausal symptoms

3.1.1.2 Menopause coping strategies which referred to ways women use to cope with the menopausal symptoms. They were categorized as psychological (distraction, making light of matters), treatment (mindfulness, drugs, relaxation). social (talking with other women); practical (double checking work, making notes/lists); practical (double checking work, making notes/lists); informational (increasing knowledge about menopause); organizational (changing working hours, flexible approach to tasks) and lifestyle changes (exercise, sleep, diet)

3.2 Location of the Study

The study was carried out in Kiambu County (Appendix 13) among level 4 and 5 hospitals. These hospitals were selected because they provided a large sampling frame for the study. Kiambu County is located at 1.1^{0} South and 36.5° East. The county enjoys temperatures ranging between 12°C and 18.7°C, warm climate with rainfall aggregate 1000mm each year. Farming becomes more conducive due cool climate

with the coldest months in June and July while January-March and September-October are the hottest months. Kiambu County is sustained in its economy mostly through agriculture and industries. There are several large-scale coffee and tea farms which are serviced by local industries though majority of residents are small scale farmers growing tea and coffee, which are serviced by local industries.

According to Kiambu County Facts Sheet (2012), the county has a population of 1,623,282 as per 2009 census comprising of diverse social class with an annual growth rate of 2.56% and life expectancy of 58 years. Women comprise approximately 827,874 of the population, of which about 90,238 is estimated to be aged 40-60 years. Kiambu County has over 300 health facilities with a reliable health service network comprising District Hospitals, Sub-District Hospitals, Dispensaries, Health Centres, Medical Clinics and Nursing Homes. Kiambu county citizens are served by the following facilities classified in the following tiers: Tier 5- Inter-county facility (1); Tier 4 -Hospitals (13); Tier 3 -Health Centres (24) and Tier 2 -Dispensaries (70). Kiambu County was purposively selected because of the high number of women health workers within the targeted age category of 40-60 years.

3.3 Study Population

The target and study population constituted about 1052 women aged 40-60 years working in level 4 and 5 public hospitals in Kiambu County (Kiambu County Health Office, 2015).The study respondents comprised 478 women aged 40-60 years; 239 women aged 40-60 years in menopause and 239 women aged 40-60 years who were not in menopause. The sampling frame comprised 1052 women aged 40-60 years working in level 4 and 5 hospitals in Kiambu County. The study used mixed-methods approach; Simple random sampling was used to select study respondents while

purposive sampling was employed in selecting 20 key informants. First, the sample size (502; that is, 251 for menopausal group and 251 for non-menopausal women) was proportionately allocated to a list of level 4 and 5 hospitals sampled to participate in the study.

3.3.1 Inclusion Criteria

Study group included menopausal women in formal employment aged 40-60 years working in level 4 and 5 hospitals in Kiambu County who signed informed consent to participate in the study. Menopausal women were defined as women whose menses had stopped for at least one year and those who were not using any contraceptive. Control group comprised women who had not reached menopause aged 40-60 years working in level 4 and 5 hospitals in Kiambu County.

3.3.2 Exclusion Criteria

The study group excluded women who reported induced menopause (Surgical menopause) and those with chronic diseases such as diabetes, depression which have similar symptoms as those of menopause. Women who were aged less than 40 years and above 60 years were also excluded.

3.4 Sampling Techniques and Sample size

3.4.1 Sampling Techniques

Data collection was carried out at the work place. In the first stage, all the level 4 and 5 hospitals in Kiambu County were purposively included in the study to ensure the sampling frame was sufficient.

The sampling frame comprised 1052 women aged 40-60 years working in level 4 and 5 hospitals in Kiambu County. The study used mixed-methods approach that is both

quantative and qualitative. Simple random sampling was used to select study respondents while purposive sampling was employed in selecting 20 key informants. First, the sample size (502; that is, 251 for menopausal women and 251 for non-menopausal women) was proportionately allocated to a list of level 4 and 5 hospitals sampled to participate in the study.

During data collection, a list of women staff aged 40-60 years was compiled from each departmental in-charge in the facilitywho met the sampling criteria. A short pre-screening interview was done to help assign the respondent to each of the two groups based on the inclusion and exclusion criteria of the study. Using the lists, simple random sampling was used to randomly select respondents from each of the group in each of the hospital. A total of 478 respondents; 239 for menopausal women and 239 for non-menopausal women were successfully sampled and interviewed in this study.

Key informants were purposively selected from health professional working in health facilities. A total of 20 key informants who included heads of departments and facility in-charges were selected to help validate and provide reliable and credible insight on the issues raised in the study.

3.4.2 Sample Size Determination

The quantitative sample size was determined using the power and sample size estimation formula by Rosner (2011) as shown below:

$$n= \frac{p_0 q_0 (Z_{1-\alpha/2} + Z_{1-\beta}\sqrt{\frac{p_1 q_1}{p_0 q_o}})^2}{(p_1 - p_0)^2}$$

Where:

P_1 is the desired level of accuracy =0.05 level

q_1 =1-p1=0.95

p_o is the prevalence of the menopause in the target population

q_o is 1-po =89.1% or 0.89

$Z_{1-\alpha/2}$ is standard normal deviation at 95% confidence interval set at 1.96

$Z_{1-\beta}$ is the standard normal deviation at the power of 1-β which is 80% = 1.28

$$n = \frac{0.109 \times 0.891\left(1.96 + 1.28\sqrt{\frac{0.05 \times 0.95}{0.109 \times 0.891}}\right)^2}{[0.05-0.109]^2}$$

Therefore, n =228

To cater for non-response, an allowance of 10% was added which translated to a sample size of 251 respondents for each group. However, due to non-response, 95% response rate of a total 239 questionnaires were properly filled and returned which translates to a response rate of 95%. The sample size distribution of the study respondents within Kiambu County is shown in Table 3.1.

No.	Facility	Level	Sub County Hospital	Women aged 40-60 years		
				In menopause	Not in menopause	Total Sample size
1.	Thika	5	Thika	62	60	122
2.	Lari	4	Lari	4	6	10
3.	Kiambu	4	Kiambu	56	57	113
4.	Karatu	4	Gatundu North	2	2	4
5.	Gatundu	4	Gatundu North	48	46	94
6.	Igegania	4	Gatundu South	5	6	11
7.	Ruiru	4	Ruiru	19	18	37
8.	Tigoni	4	Limuru	22	18	40
9.	Lusigetti	4	Kikuyu	4	5	9
10.	Wangige	4	Kabete	7	5	12
11.	Kihara	4	Kiambaa	5	4	9
12.	Nyathuna	4	Kabete	2	2	4
13.	Karuri	4	Kiambaa	8	9	17
Total	**13**		**13**	**239**	**239**	**478**

Table 3.1: Sample size distribution of the study respondents

*Source: Field Hospital Administration Data, 2016

3.5 Data Collection Tools/ Instruments

A validated study instrument, Greene-Climecteric scale (Appendix 5), was used to collect data on menopause symptoms. The Greene Scale provided a brief measure of menopause symptoms. A validated study tool known as Work Productivity and Activity Impairment (WPAI) (Whiteley et al., 2013) was used to measure of work productivity inmpairment for women in menopause (Appendix 4). WPAI is a validated instrument used to measure loss of productivity at work and impairment in daily activities. The tool has 4 sub-scales: absenteeism, presenteeism, overall work

impairment and activity impairment that range from 0% to 100% with higher values indicating greater impairment.

The survey questionnaire (Appendix 2) was constructed as a composite of the other validated tools. The survey had four sections; section one comprised of questions on background characteristics of the study participants; section two comprised questions on menopause symptoms; section three comprised questions on menopause coping mechanisms used by women and section four comprised questions on WPAI. A key informant guide (Appendix 3) was used to conduct key informant interviews.

3.6 Pre-Testing of Study Instruments

Pre-testing of the study instruments was done in Githunguri Sub County hospital in Kiambu County. The purpose of pre-testing was to establish a common understanding of the tool by the research team and to determine the approximate time required to complete one study instrument for the purposes of ascertaining the clarity, objectivity, reliability and validity of the study instruments. Following the pre-test, questions found to be unclear or subjective were reframed.

3.6.1 Validity

The study tools were pre-tested to ensure they were able to collect the right data for the study. Questions which were deemed to be poorly understood, sensitive or wrongly placed in the study tools were reviewed before administration of the study tools to the study respondents. In addition, the researcher reviewed the study tools with the help of supervisors who provided input in development of valid tools. Further, the researcher used validated study tools in collecting data on menopause symptoms and productivity impairment index.

3.6.2 Reliability

To ensure reliability of the study, a test-re-test method was used to pre-test the study tools. Further, the lead researcher closely supervised well trained research assistants during the data collection exercise. The research assistants were trained on the study methods, objectives, ethical requirements and procedures, data collection, data compilation and quality assurance. The questionnaire were checked for completeness, if not the respondent was given clarity. The respondent was requested to complete it.

3.7 Data Collection Technique

Women who were recruited were interviewed using a self-administered questionnaire. An informed consent form (Appendix 1) was used to brief the respondents about the study and obtained informed consent for participation. The respondents were reassured and informed that participation was voluntary, however they could withdraw from the study at any one time. Respondents who gave informed consents were requested to sign the consent forms after which they were briefed on how to fill the questionnaire. Those who did not give consent were thanked for their time. For respondents who required assistance and or more clarification, the research assistants were available to help them. To ensure minimum interruption of their work, respondents were allowed one to two hours to complete the questionnaires after which they were picked for data coding, entry and cleaning.

For the key informant interviews, participants who gave informed consent were interviewed face to face in their offices using a pre-tested KII guide (Appendix 3) which was used to guide the interviews. To ensure optimal achieving and retrieval of data, a voice recorder was used to record the interviews. Permission to use the recorder was obtained from the participant to whom confidentiality of their

information was assured. No interviewee refused to give consent for recording. After each session, the interviewee will be thanked for his/her time.

3.8 Data Analysis

The quantitative data was coded, entered into data screen and cleaned using SPSS version 20. Descriptive statistics comprising mean, standard deviation, frequency and percentage were used to describe the sample of the study. Cross-tabulation was used to determine relationship between variables, chi-square established associations between variables and regression analysis was used to establish predictors of work productivity. A regression analysis model employing complementary log-log function was used to establish the influence of menopausal symptoms on work productivity. The function indicated that higher categories in the models were more probable in predicting outcomes. All the menopause symptoms which had a statistically significant relationship at 0.05% were subjected to a regression model to establish predictors of work productivity. The qualitative data from key informant interview were coded, entered, cleaned and analyzed thematically using Nvivo software. The data was analyzed thematically after which patterns and relationships within the themes were studied and synthesized to provide insight of the findings.

3.9 Logistical and Ethical Consideration

Upon approval of the proposal by Kenyatta University Graduate School (Appendix 6), an ethical review and clearance was sought from Ethical Review Committee (ERC) reference number KU/R/COMM/51/754 of Kenyatta University (Appendix 7) after which a research permit was obtained from National Commission for Science, Technology and innovations (NACOSTI) reference number NACOSTI/P/16/95948/12349 (Appendix 8) to conduct the study.

In addition, approval to carry out the study was sought from respective county administrative offices which included research approval from Kiambu County commissioner (Appendix 9), County Director of Education (Appendix 10) and Department of Health Services, Health Research and Development Unit (Appendix 11). Informed consent was sought from the respondents using an informed consent form (Appendix 1). Participation to the study was completely voluntary and the respondents had the choice of not answering any question or withdraw from the study at any time.

Confidentiality and privacy of respondents were assured by ensuring their identities of the respondents involved in the study were duly protected by ensuring that the names of the participants were not indicated in the data collection tools. Data collected from the field was kept in a lockable box to ensure security and confidentially. The principle researcher is the only one who had access to the data contents therof.

CHAPTER FOUR: STUDY RESULTS

4.0 Introduction

This chapter presents study findings comprising 478 respondents; 239 respondents from respondents in menopause and 239 respondents who were not in menopause. A total of 20 key informants participated in this study.

4.1 Demographic characteristics of the respondents

Demographic characteristics of the respondents are summarized in Figure 4.1. The mean age of respondents was 48.8 years (40-60 years). More than half (259) of the respondents were aged 40-49 years. More than half (288) of the respondents were married. Majority of the respondents (277) were diploma holders. More than two-thirds (69 %) of the respondents were nurses.

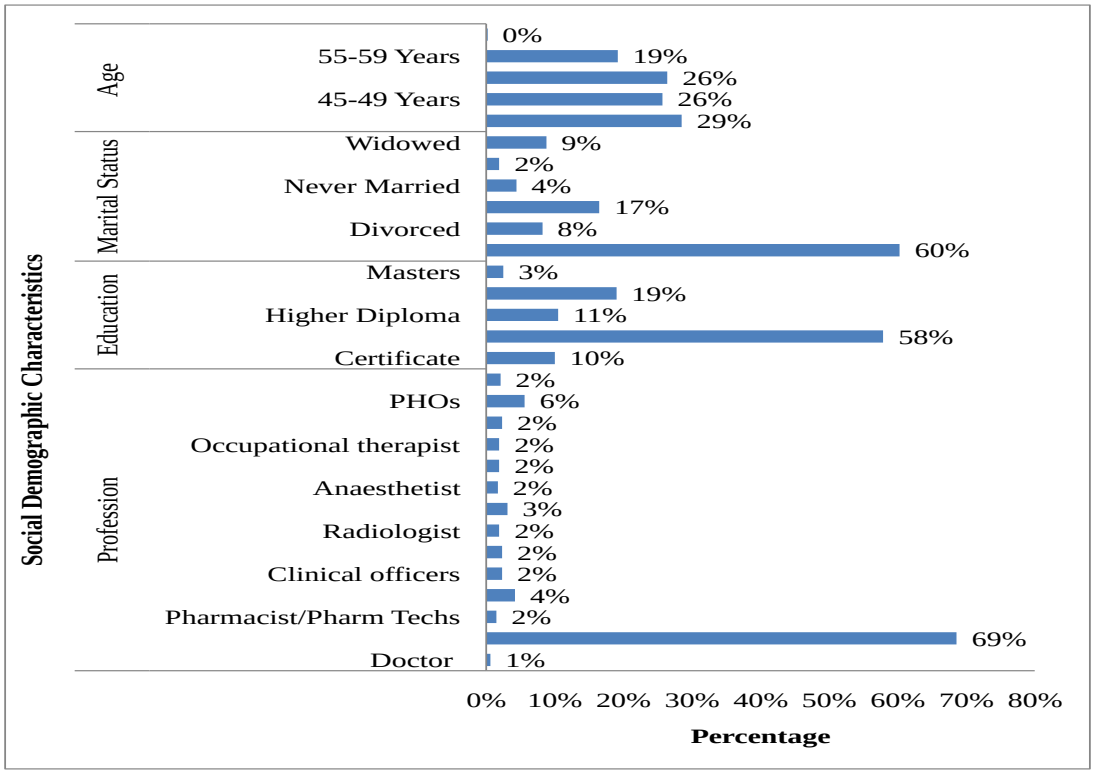


Figure 4.1: Demographic Distribution of the Respondents

4.1.1 Proportion of Menopausal women

The study surveyed an equal proportion of respondents in menopause and not in menopause. Half (239) of the 478 respondents surveyed had not received menses for at least 12 months and the other half (239) of the 478 respondents surveyed were in menopause.

4.1.2 Age at menopause

The mean age at menopause was 48.5 years with a standard deviation of 3.87 years. A total of 30 (13%) of the menopausal women reported pre-mature menopause i.e. menopause occurring below 45 years.

4.2 Menopause Symptoms presented

4.2.1 Psychological Symptoms

Psychological symptoms reported by the respondents are shown in Figure 4.2.

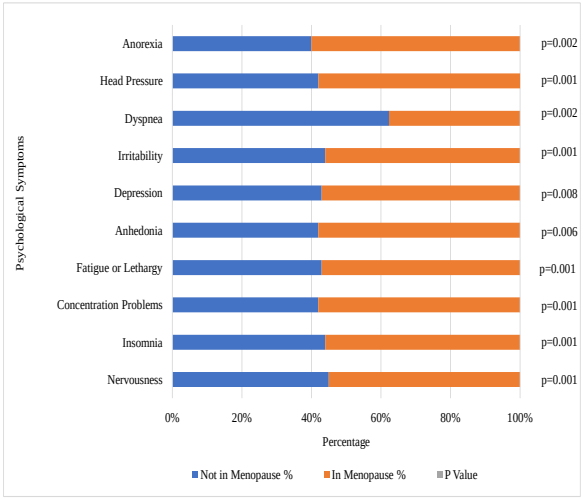


Figure 4.2: Psychological symptoms associated with menopause

The main psychological symptoms reported by the women were feeling nervous (61%), feeling depressed (53%), Anhedonia (52%), fatigue/lethargy (246, 51%), headaches (242, 51%) and irritability (241, 50%). The main psychological symptoms reported among menopausal women than the non-menopausal women were anorexia, anhedonia, lack of concentration, irritability, feeling depressed, insomnia and nervousness. Qualitative results indicated that menopause symptoms and their severity varied across women. At work, the main symptoms reported were irritability, mood swings, lack of concentration and forgetfulness. The following statement drawn from one of the key informant interview elucidated:

"…Menopause is becoming a serious workplace issue today. You find that those in this stage have issues with quality of work and increasing absenteeism. They often complain of differing health problems but most common ones are mood swings, forgetting and irritation at a simple provocation…"~Head of Nursing Department

There was a statistically significant relationship between nervousness (p=0.006), Insomnia (p=0.008), difficulty in concentrating (p=0.001), Dyspnea (p=0.001), fatigue/Lethargy (p=0.002), Anhedonia (p=0.001), Depression (p=0.002), irritability (p=0.005), Head pressure (p=0.001), Anorexia (p=0.002), and menopause. Palpitation, anxiety, excitement, dizziness and headaches were some of the psychological symptoms not associated with menopause (P>0.05) (Figure 4.3).

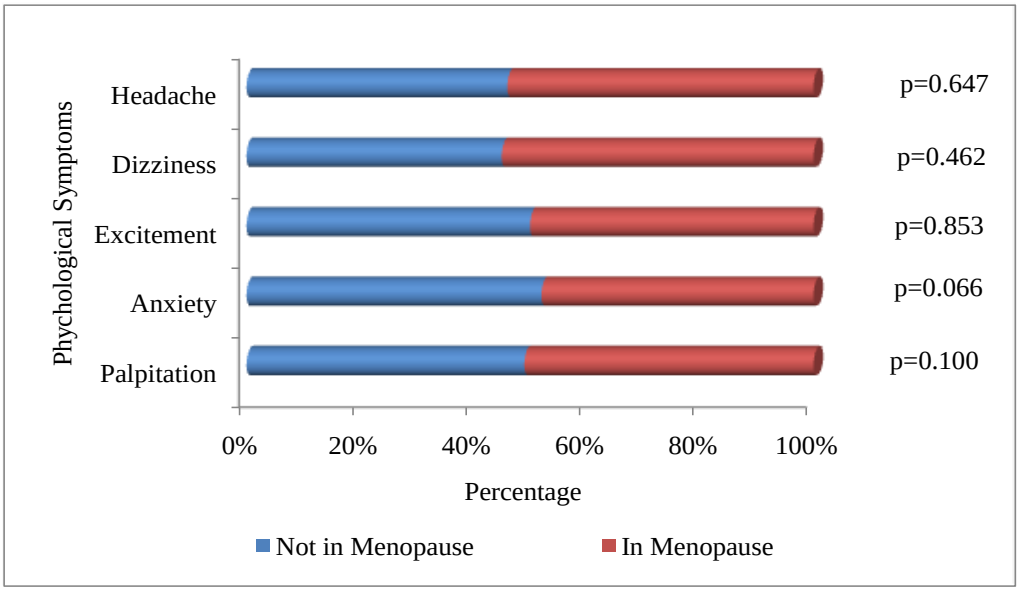


Figure 4.3: Psychological symptoms not associated with menopause

4.2.2 Orthopedic and Neurological Symptoms

Orthopedic and neurological symptoms reported and their associations with menopause are shown in Figure 4.4.

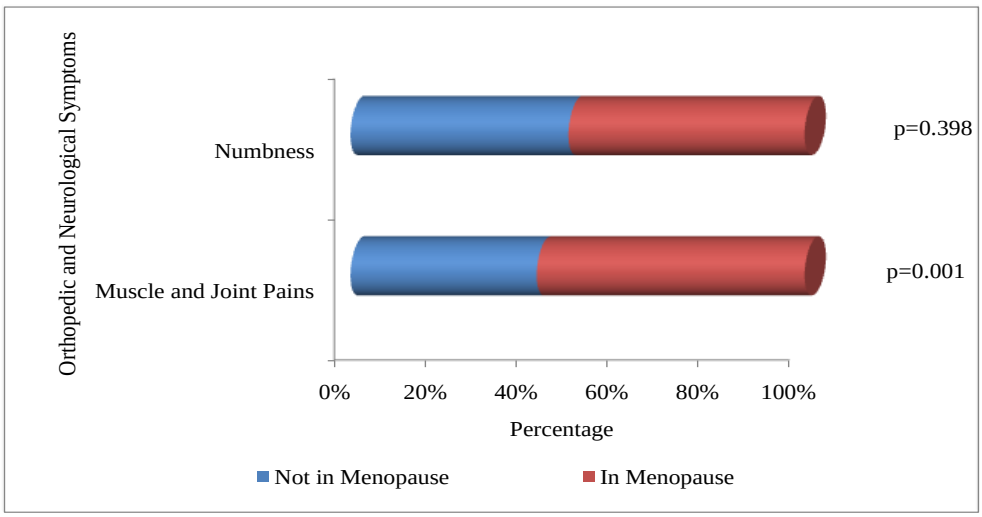


Figure 4.4: Orthopedic and Neurological symptoms and their relationship with menopause

Muscle and joint pains were reported by more menopausal women (140, 59%) than those who were not in menopause (98, 41%). There was a statistically significant

relationship between muscle and joint pains and menopause (p=0.001). The number of menopausal women reporting numbness of body part (48%) was almost equal to non-menopausal women (52%). There was no statistically significant relationship between body parts numbness and menopause (p=0.398).

4.2.3 Vasomotor and Gynecological Symptoms

Vasomotor and gynecological symptoms reported and their association with menopause is shown in Figure 4.5.

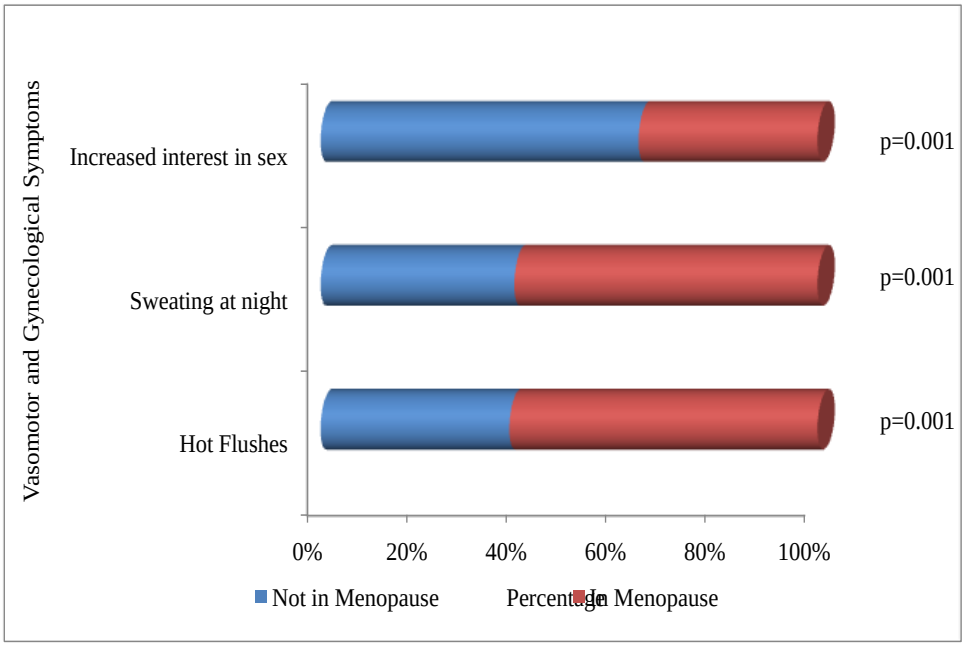


Figure 4.5: Vasomotor and Gynecological Symptoms and their relationship with menopause

A higher proportion of women in menopause reported hot flushes (136, 62%) and night sweats (142, 61%) than in non-menopausal women. Hot flushes (p=0.001) and night sweats (p=0.001) had a statistically significant relationship with menopause. Loss of sexual interest was common in menopausal women (147, 62%) than in non-

menopausal women (88, 38%). However, increase in sexual desires was more common in non-menopausal women (141, 64%) than in menopausal women (79, 36%). Changes in sexual desires had a statistically significant relationship with menopause (p=0.001). Qualitative results revealed that hot flushes and joint pains are common among staff and affects their concentration at work as explained in the following statement from key informants' interview:

> *"....Hot flushes and back aches are very common among women in menopause. I also suffer from the same..."*~Hospital Administrator

4.3 Influence of Menopause on Work Productivity Impairment

4.3.1 Work Productivity Impairment Index

Results on the work productivity impairment are presented in Figure 4.2. Results indicated that overall WPAI index was 28%. Women in menopause had the highest WPAI index of 38%. Menopause women had a 20% WPAI more than that not in menopause.

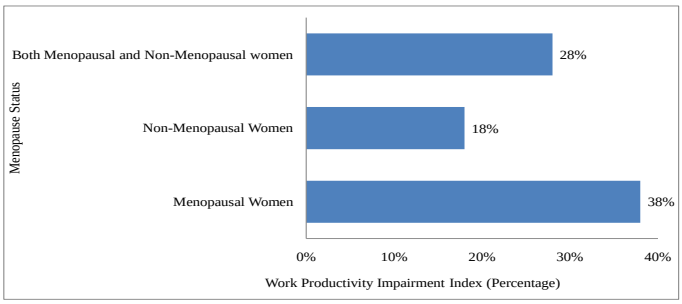


Figure 4.6: Work Productivity Impairment Index

4.3.2 Associations between menopause and Work Productivity Impairment

To examine association between menopause and WPAI was expressed in terms of percentage and categorized into five categories as follows: No effect at all for 0%, mild for 1-25%, moderate for 26-50%, severe for 51-75% and very severe for 76-100%. Results on the association between menopause and work ability impairment are presented in Figure 4.7.

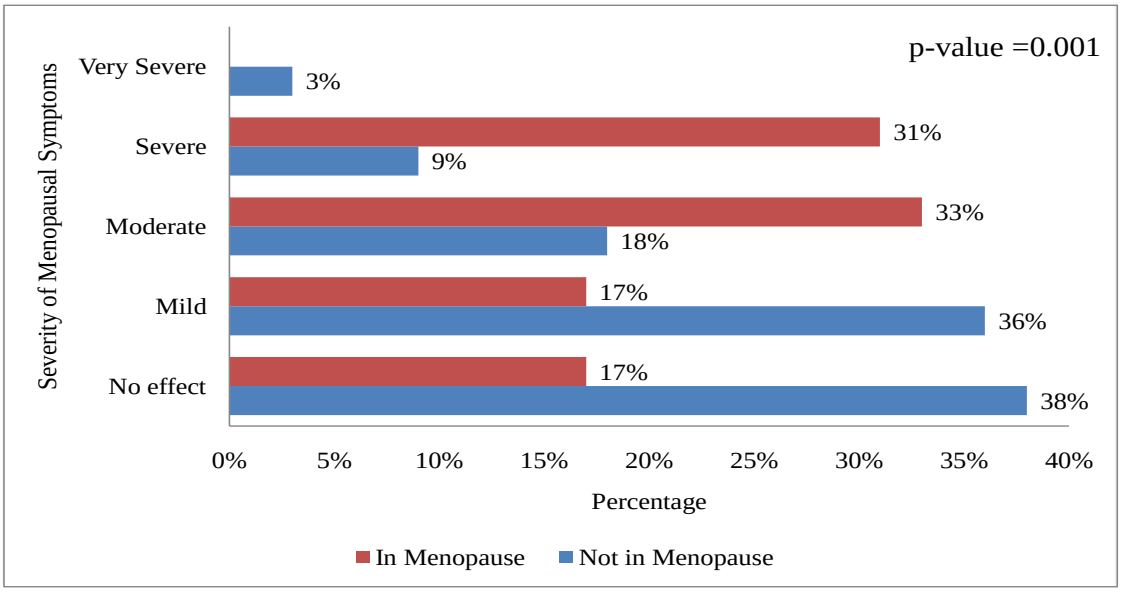


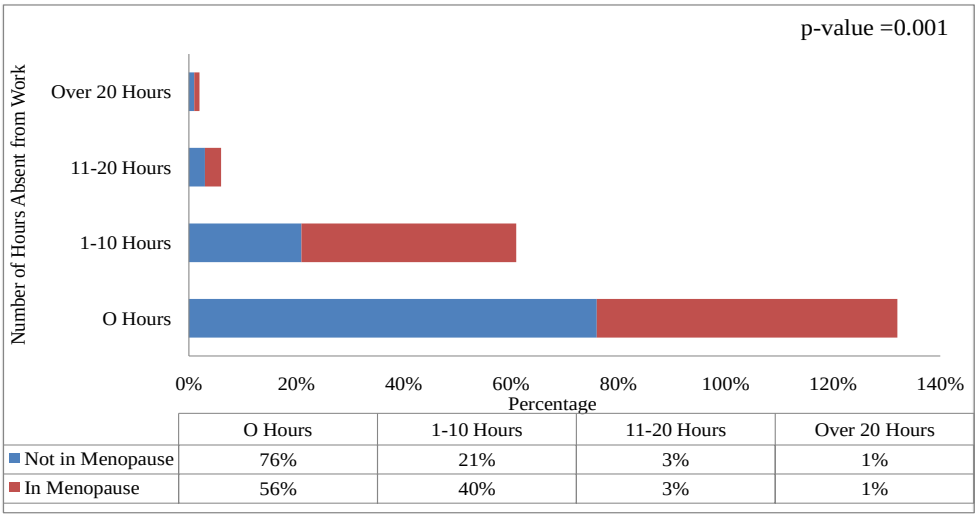
Figure 4.7: Association of Menopause on Work Productivity

Majority (72.6%) of the women had their work productivity impaired (mild to severe). A third (33%) of women in menopause reported impairment of moderate to severe compared to 13% of women not in menopause. Menopause had a statistically significant association with work ability impairment ($\chi 2=76.979$, $p=0.001$). Qualitative findings indicated that menopause impairs work ability, affects performance and quality of outcome depending on severity of symptoms. The following statement from one of the key informant interview expounds:

"...Depending on severity of the menopause problems, work performance has significantly been affected. Among those who report problems like lack of concentration and forgetfulness, I am keen to check their work and outputs to ensure it is without errors which at time is very hard..."~Head of department

4.3.3 Association between menopause and Work Absenteeism

Work absenteeism was measured in terms of percentage work time missed due to health-related problems. Results on work absenteeism are shown in Figure 4.8.



	O Hours	1-10 Hours	11-20 Hours	Over 20 Hours
Not in Menopause	76%	21%	3%	1%
In Menopause	56%	40%	3%	1%

Figure 4.8 Association of Menopause on Work Absenteeism

Work absenteeism was higher among respondents in menopause than those who were not in menopause. Time spent away from work due to health problem was higher for women in menopause than the rest. Menopause had a statistically significant association with work absenteeism ($\chi 2=21.549$, $p=0.001$) (Figure 4.8)

Qualitative results indicated high work absenteeism among menopausal staff due to health problems associated with menopause which affects facility performance because these women are the most skilled and experienced workforce as illustrated in the following statement from a key informant interview:

"…absenteeism is more common among staff who have reached menopause than the rest yet these are the most experienced, reliable and skilled staff I have. They request for sick offs very often…that definitely affect our performance"~Head of Nursing department

4.3.4 Menopause Symptoms predicting Work Productivity Impairment

All the symptoms which had a statistically significant relationship ($p<0.05$) with menopause were subjected to a regression analysis model to establish menopause symptoms predicting work productivity impairment and the results as shown in Table 4.2.

Table 4.2 Menopause Symptoms predicting Work Productivity

	Estimate	Std. Error	Wald	df	Sig.	95% CI	
						Lower	Upper
Psychological Symptoms							
Feeling tense or nervous	.402	.143	7.91	1	.005	.122	.682
Difficulty in sleeping	.025	.152	0.03	1	.868	-.273	.324
Difficulty in concentrating	.400	.187	4.61	1	.032	.035	.766
Feeling tired or lacking in energy	.009	.170	0.00	1	.959	-.324	.342
Loss of interest in most things	.158	.164	0.93	1	.336	-.164	.479
Feeling unhappy or depressed	-.201	.166	1.46	1	.227	-.527	.125
Irritability/irritation	.041	.173	0.06	1	.814	-.299	.381
Muscle and joint pains	-.100	.156	0.41	1	.521	-.406	.205
Breathing difficulties	.417	.163	6.59	1	.010	-.736	-.099
Loss of eating appetite	.457	.174	6.88	1	.009	.115	.798
Increase in eating appetite	.057	.214	0.07	1	.792	-.363	.476
Pressure or tightness in head	.132	.147	0.80	1	.370	-.156	.419
Vasomotor Symptoms							
Hot flushes	.191	.207	0.85	1	.356	-.215	.597
Sweating at night	.101	.207	0.24	1	.627	-.305	.507
Gynecological Symptoms							
Loss of interest in sex	-.191	.196	0.95	1	.330	-.576	.194
Increased interest in sex	-.285	.240	1.41	1	.235	-.757	.186

Nervousness had a statistically significant association with work productivity. A menopausal staff who reported a nervous feeling was 7.9 times likely to report work productivity impairment compared to one who was not feeling nervous (P=0.005, df=1, OR=7.909). Lack of concentration had a statistically significant relationship with work productivity. Menopausal staff who reported lack of concentration was 4.6 times more likely to have work productivity impairment than one who reported concentration (p=.032, df=1, OR=4.608).

Dyspnea had a statistically significant relationship with work productivity. A menopausal woman who reported dyspnea was 6.6 times more likely to report work ability impairment than one without dyspnea (p=0.010, df=1, OR=6.587). Anorexia had a statistically significant relationship with work productivity. A menopausal woman who reported anorexia was 6.9 times more likely to report work ability impairment compared to one who did not have anorexia(p=0.09, df=1, OR=6.880).

Symptoms such as hot flushes, insomnia, anhedonia and depression, sweating at night, loss of sex desire, increase in sex desire, had no statistically significant association with work productivity impairment (p>0.05).

According to qualitative results, influence of menopause on work ability differed across women due to variation in their severity and coping strategies adopted. Symptoms which reduced concentration, increased forgetfulness and affected team work such as loneliness, irritability, hot flushes, anxiety and mood swings decreased work productivity. The following statement from one of the key informant interview illustrates this point:

"…Menopause affects performance but this depends on how one is able to cope because it's a life transition stage. Some of my junior staff in this stage has bad moods swings and irritation. Assigning them to demanding responsibilities has been a difficult task…"~Head of Public Health Department

4.4 Menopause Coping Strategies

4.4.1 Physical and Psychosocial Coping Strategies

Physical and social coping strategies used by women and their relationship with menopause are shown in Figure 4.9

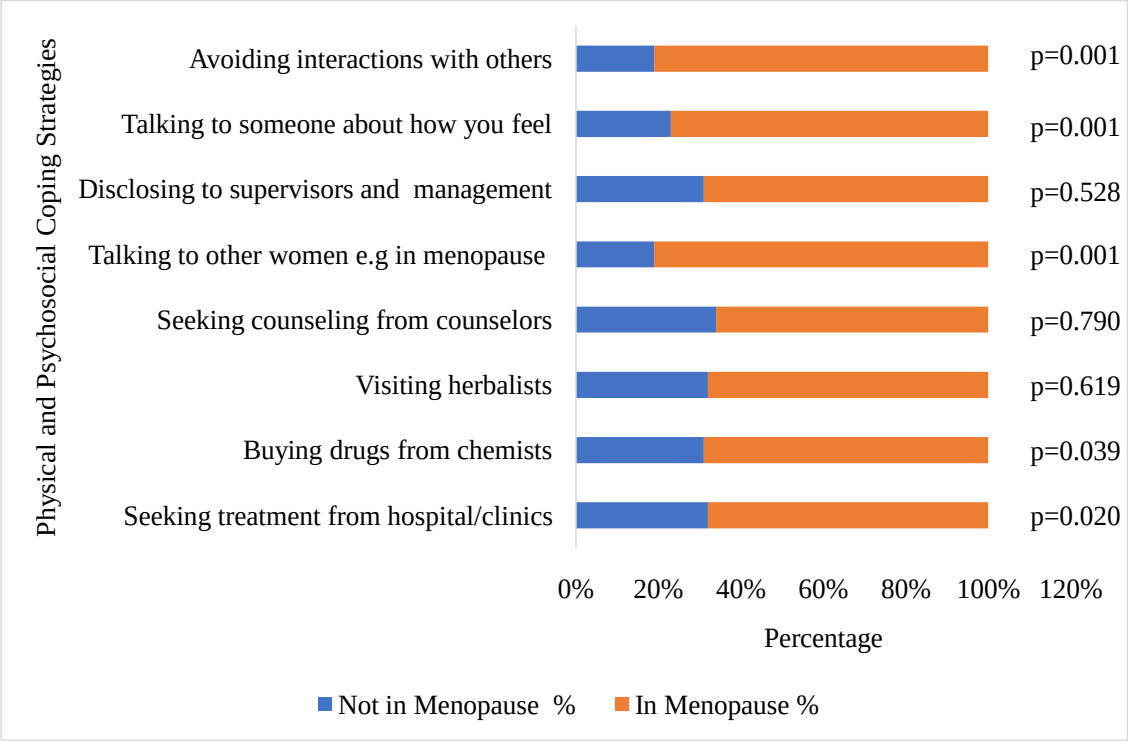


Figure 4.9: Physical and psychosocial coping strategies used and their relationship with menopause

In relation to physical coping strategies, menopausal women used over the counter drugs (68%) and hospital visits (68%) to treat symptoms presented more than non-menopausal women. Traditional medicine was the least used strategy. Hospital treatment (p=0.20) and over counter drugs treatment (p=0.039) strategies were associated with menopause. Qualitative results showed that health staffs have easy

access to treatment within the facility which they use to manage the problems associated with the transition. The following statement from one of the key informants' interview explains:

> *"…Women who are in this stage are well aware of menopause. As health professionals, they are able to seek appropriate treatment including buying of drugs to manage severe symptoms…"* Head of Nursing Department

In regards to psychosocial coping strategies, majority of the menopausal women coped with effect of menopause by talking to fellow women (81%) and avoiding interactions with others (81%). Majority of women not in menopause sought professional counseling (34%). Talking to other women and colleagues (p=0.001) and avoiding interactions with others (p=0.001) had a statistically significant relationship with menopause

4.4.2 Behavioral and Organizational Coping Strategies

Behavioral and organizational coping strategies used by womwn and their relationship with menopause are shown in Figure 4.10.

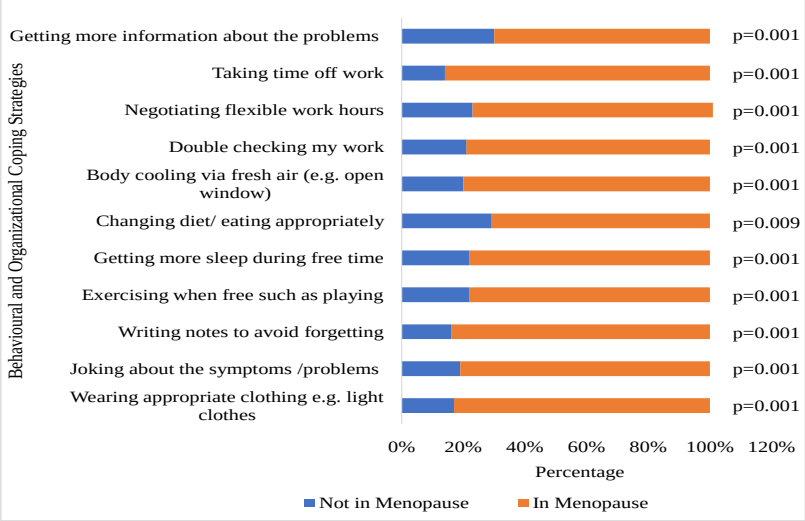


Figure 4.10: Behavioral and Organizational coping strategies used and their relationship with menopause

In relation to behavioral coping strategies, writing notes to avoid forgetting (84%), wearing appropriate clothes (83%), joking about the symptoms (81%) and body cooling to allow fresh air (80%) were the main behavioral coping strategies adopted by women in menopause. Change of diet and body cooling were the main coping strategies adopted by non-menopausal women. All the behavioral strategies had a statistically significant relationship with menopause ($p<0.05$).

In regards to organizational coping Strategies**,** taking time off work (86%) is the main organizational coping strategy adopted by menopausal women. Double checking work and negotiating flexible hours is also common among menopausal women. Getting more information about the problem is the main strategy adopted by women not in menopause. Taking time off work ($p=0.001$), double checking work ($p=0.001$), negotiating flexible work hours ($p=0.001$) and getting more information about the problem ($p=0.040$) were associated with menopause.

Qualitative results showed that health facilities do not have institutionalized strategies such as formal sensitization trainings and staff supportive programmes for helping menopausal women cope with the transition. Few supervisors offered supportive supervision and counseling support to affected women as mitigation strategies for reducing work impairment. The following statements drawn from a key informant interview:

> *"…We try to help them but they are not open to us as their supervisors. They fear that their weakness that would call for an early retirement. I assign them to lighter duties but it not always possible because there is no policy to guide us which brings frictions among other junior colleagues who do not understand…"*~Head of Facility

4.5 Summary of Results

The study compromised of 478 respondents 239 were in menopause as study group and 239 are not in menopause as control group. The mean age at menopause was 48.5 years or women at age 40-60 years. More than half were in age 40-49 years.

The main psychological symptoms reported among menopausal women than the non-menopausal women were anorexia, anhedonia, lack of concentration, irritability, feeling depressed, insomnia and nervousness. Qualitative results indicated that menopause symptoms and their severity varied across women. The main symptoms reported at work were mood swings, irritability, forgetfulness and lack of concentration. Symptoms that had statistically significant relationship with menopause were nervousness, insomnia, difficulty in concentrating, dyspnea, fatigue/lethargy, anhedonia, depression, irritability, head pressure and anorexia. Palpitation, anxiety, excitement, dizziness and headaches were some of the psychological symptoms not associated with menopause.

Results indicated that overall WPAI index was 28%. Women in menopause had the highest WPAI index of 38%. Menopause women had a 20% WPAI more than that not in menopause. Menopause had association with work ability impairment p=0.001. Qualitative findings indicated that menopause impairs work ability; a Menopause had a statistically significant association with work absenteeism, affects performance and quality of outcome depending on severity of symptoms.

Muscle and joint pains were reported by more women in menopause than those who were not in menopause. There was relationship between muscle and joint pains and menopause. Hot flushes and night sweats had a statistically significant relationship with menopause. Loss of sexual interest was common in menopausal women than in

non-menopausal women. Changes in sexual desires had a statistically significant relationship with menopause.

Menopause symptoms predicting work ability impairment were nervousness, lack of concentration, dyspnea and anorexia. There were several coping strategies adopted by menopausal women to cope with menopause at workplace including physical, psychosocial behavioral, organizational and informational coping strategies.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents summary of the study to include discussion of findings, conclusions and recommendations of the study.

5.1 Discussion

5.1.1 Menopause Symptoms

The study has shown that mean age of menopause among health care workers to be 48.5 years. This finding is consistent with other studies within the Sub-Saharan Africa and globally (Amanda et al., 2013). In developing countries, especially in Sub-Saharan Africa, the mean age at menopause ranges from 48-51 years whereas in India, the mean age at menopause is 49.3 years (Madhukumar et al., 2012) the little deviations in mean age at menopause across the region may be due to regional and community variations in which the study was conducted.

The study has shown that the symptoms of menopause presented vary differently in severity among women. This was consistent with a study done by Chichester et al. (2011) who reported symptoms of menopause to vary in severity among women. Most women experience menopausal symptoms as part of their life transition.

The main psychological symptoms reported by the women included anorexia, mood swings, anhedonia, forgetfulness, lack of concentration,

Irritation, depression, insomnia and nervousness. These symptoms were also reported by Geukes et al. (2012) which indicated anorexia, forgetfulness, insomnia and irritation to be dominant symptoms among women in menopause. A study by

Chichester et al., (2011) linked increase in psychological symptoms to estrogen dominance resulting from lack of progesterone common among menopausal women. Similar to a study done in India to assess prevalence of menopausal symptoms and their effect on quality of life by Bairy et al., (2009) joints and muscle pains was also to be a common symptoms presented by menopausal women. The main vasomotor symptoms presented by women in menopause were hot flushes and night sweats. Hot flushes and night sweating can significantly contribute to sleep disturbances which results to loss of concentration, dizziness, lethargic and irritability are commonly reported by women in menopause.

Menopause has also been reported to cause women presenting with sleep disturbance getting more sleep during the day, especially at free time. Past studies (Madhukumar et al., 2012; Melissa, 2012) have shown that a significant number of menopausal and postmenopausal women suffer from vasomotor symptoms, including backache, aches, lack of concentration and many women do link these symptoms with menopause.

Contrary to the results of this study, most women are well aware of the symptoms which could be associated with their exposure as health care professionals. However, the results were not adequately conclusive because the study did not focus on assessing health professionals' knowledge towards menopause transition.

Loss of sexual interest has been attributed to menopause. The findings were similar to that of Ama and Ngome (2012) who found premenopausal women to lack interest in sex. This is contrary to Madhukumar et al. (2012) who found some of the menopausal women to report increase in sexual desires after the transition. Loss of sexual interest has been closely associated with vaginal dryness (Melissa, 2012).

5.1.2 Influence of Menopause on Work Productivity

In this study, women in menopause have been shown to have more work impairment (moderate to severe) in their capacity to function at work compared to those who were not in menopause. This result was similar to past studies done by Amanda et al. (2013) and Williams et al. (2009) in which menopausal women were reported to have stopped working and or sought early retirement.

Menopause problems have significant effect on women work ability and overall quality of life (Sagdeo et al., 2011). The study showed that women affected by the menopause problems reported negative influence on their physical, social and sexual life. This was articulated in a study by Ama and Ngome (2012) who showed a significant relationship between severe menopause symptoms and decrease in the quality of life.

Psychological symptoms were the main symptoms shown to have serious negative impact on women work abilities. Some of these symptoms included nervousness, lack of concentration and anorexia, irritability and lack of concentration to cause discomfort among women at work hence limiting their productivity. The study also showed that vasomotor symptoms especially hot flushes, affected concentration, and hence reducing work productivity.

The study showed no association between muscle and joint pains, loss of sexual interest and work productivity among menopausal women. This was contrary to a study by Geukes et al., (2012) who found back aches and joint pains to reduce work productivity. The difference in findings can be attributed to difference in context of study; this study focused on health care professionals who were more aware of

symptoms and able to access appropriate therapies compared to the general populations.

The study has linked menopause with increase in work absenteeism. Women in menopause were shown to ask for more time off at work (sick off, leaves) due to health reasons which affected their performance. This was similar to a study by Whiteley et al. (2013) who reported higher staff absenteeism among women in menopause due to health problems related to menopause.

Although this study did not examine determinants of work productivity impairment, Whiteley et al. (2013) showed that some factors aggravate menopause symptoms and make it difficult for women to be optimally productive in their work such as working poorly ventilated environments and high visibility work duties (especially for women presenting with hot flushes) such as long training and formal presentations (Whiteley et al., 2013). This is a significant study gap which has not been well researched across available body of literature. The demonstrated influences of menopause on work productivity impairment underscore the need for recognition of menopause as a work place issues to facilitate adoption of appropriate mitigation strategies.

5.1.3 Coping Strategies on Menopause

The study has shown that coping strategies are wide in range and affect women in menopause in their working and personal life.

Coping strategies adopted by menopausal women ranged from treatment, social, behavioral, organizational to information strategies. The main treatment strategies adopted included hospital treatment and buying over-counter drugs to manage symptoms such as headaches, joint or muscle pains and gynecological problems. This was influenced by their professions as health care providers which make them more

aware of the transition and management of the symptoms compared to women in other professions.

This was well supported by Amanda et al., (2013) who found severity in symptoms experienced and differing level of knowledge on menopause to influence the type of coping strategies adopted in coping with the transition.

Coping strategies from treatment were also reported by Madhukumar et al. (2012) and Ayers et al. (2012) on the use of over counter drugs to be mainly used to treat and manage the symptoms. This was also well confirmed by the finding that few of the health care professionals sought traditional medicine treatment.

A study by Njoku and Ngome (2013) and Adoyo et al., (2014) found women to be unable to identify and adopt appropriate strategies to mitigate the symptoms and their effects. In this study, the women, being knowledgeable and exposed to health problems were reported to be well aware of the various coping options for the different symptoms.

However, in the study many women were reluctant to discuss and or divulge menopausal status and associated problems at work due to fear of stigmatization, ridicule, and desire for poise and control by their colleagues and work mates.

Women experiencing severe hot flushes were reported to be stressful in environment constant with harassments and those highly visible environments such as presentation (Geukes et al., 2012).

The findings showed that many women in menopausal transition choose to confide to their close friends compared to their work mates and supervisors which could be primarily due to lack of proper supportive policies and programmes specific for menopausal women. The study showed lack of adequate workplace staff support

programmes such as sensitization trainings and seminars specific to menopausal women.

The results indicated that health facilities have not recognized menopause as a work place issue which has poised a challenge in mitigating its influence. There exist no formal counseling sessions, support programmes and awareness interventions tailored to menopause and its influence on menopause among women. The study showed variation in supervisory supportive services provided to menopause women who varied from assigning the women to lighter work roles, giving them privileges for more flexible work hours and talking to their juniors.

However, there is not consistent application of these supportive supervision strategies due to lack of institutionalized strategy and guidelines. This finding was supported by findings from Smith et al. (2011) who showed work places to lack proper measures for supporting menopausal women and mitigating associated work productivity effects. These findings indicates the need for institutionalization and adoption of appropriate coping strategies in facilities and organization to help manage and mitigate influence of menopause and its associated impact on individual life and work productivity.

5.1.4 Delimitation and Limitation of the Study

Due to sensitivity of menopause stage, women feared disclosing their age and status. The researcher provided assurance to the respondents that the information provided was confidential and would not be disclosed to anyone else. However, some respondents declined completely to accept their status and or declined participation in the study. There occurred difficulty in accessing respondents who were in night shifts, nights offs, day offs, leave and those with tight schedules especially top management.

To overcome this limitation, the researcher prepared an interview schedule based on the availability and convenience of the selected respondents to include time which had minimal interference with their work and activity schedules such as lunch time and after work. Respondents in night shift were issued with self-administered questionnaires through their immediate supervisors. This was associated with higher non-response rates which was not significant enough to adversely affect sample sizes

5.2 Conclusions

5.2.1 Menopausal Symptoms

Menopausal symptoms differed across women. Menopause mean age was 48.5 years. The main symptoms reported by menopausal women were anorexia, anhedonia, lack of concentration, irritability, depression, insomnia, hot flushes, night sweating, nervousness, muscle and joint pains, and loss of sexual desire. These symptoms were significantly associated with menopause.

5.2.2 Influence of Menopause on Work Productivity Impairment

Menopause has adverse effect on a woman's work ability but varies across individuals. Menopause is associated with higher work absenteeism and productivity impairment. Due to the invaluable experience and skills of menopausal women, absenteeism and work productivity impairment adversely affect facility performance. Physiological symptoms, which include nervousness, anorexia, and lack of concentration and breathing difficulties, impair work productivity. Vasomotor, neurological and orthopedic symptoms had no statistically significant relationship with work productivity impairment.

5.2.3 Work Productivity Impairment Coping Strategies of Menopausal Women

Women in menopause adopt various coping strategies to reduce work productivity impairment associated with menopause. Effective coping strategies adopted included medical treatment, taking time off work, writing notes to avoid forgetting, joking about symptoms, talking to other women, cooling their bodies by allowing more fresh air in the room, double checking their work and negotiating more flexible work hours.

5.3 Policy Recommendations

5.3.1 The Government (National and County), facility management and relevant stakeholders should develop and distribute supportive informational resources such as bulletins and newsletters to all staff on main menopause symptoms, problems and their management to equip and support the staff relevant knowledge, updates, skills and capacity for properly managing the menopause transition

5.3.2 County government in consultation with relevant stakeholders, to develop, implement and institutionalize policy guidelines to recognize menopause as a work place issue to facilitate adoption of acceptable programmes, guidelines, interventions and facilitate mobilization of resources for managing and mitigating influence of menopause on personal life and overall work productivity impairment

5.3.3 The facility management in consultation with relevant stakeholders especially staff representatives to implement and institutionalize work place supportive programmes and coping strategies such as sensitization trainings and seminar sessions, supportive performance management approaches, counseling sessions, supportive supervision and leadership and formation of supportive

groups for menopausal women. This will promote timely identification, intervention and prevention of menopause related problems hence, improving their productivity and organizational performance

5.4 Recommendation for further research

The study recommends further study on the Influence of menopause on work productivity on non-health professionals. This study has shown substantial influence of menopause on health professionals who are presumed to have better knowledge on health issues, including health problems related to menopause. In this context, the study recommends the hypothesis that the influence among non health professional who have limited knowledge in the health issues to be considerably higher with greater impact on their work productivity and hence quality of life. A study to test this hypothesis and theoretical assumption is therefore essential and useful in guiding workplace interventions for supporting the women during the transition while strengthening their capacity for good performance and work productivity.

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APPENDICES

Appendix I: Consent Form

Researchers' Statement

Goodmorning/afternoon, my name is Edith Mwangi. I am a masters student at Kenyatta University. Today I am here to carry out a study on effect of menopause on work productivity in Kiambu County. This form will give you information you need, so that you can make a decision on whether to participate or not to in the study. There are no wrong or right answers. You will be given time to consider if you would like to be in the study. Please read the form well and ask where you don't understand. Please be honest and truthful in answering the questions. I assure you that the information you give will be totally confidential and you will not be required to identify yourself by name.

Purpose

The information obtained from this study will be used to inform policy and programmatic intervention aimed at improving work productivity among menopausal women in Kiambu County.

Procedure:

You will be interviewed using a self-administered questionnaire (You will be assisted in case you are unable to read or write). The interview will last for about half an hour and participants will be required to give answers to all the questions. Participants will have the opportunity to make suggestions and give information on this study.

Risks

People in the county could learn of your involvement in the study. To protect you from this risk, all information you will give us will be kept confidential within our research team. All the data will be stored in a password protected computer.

Benefits

There is no financial compensation or other personal benefits from participating in the study. However, your participation and/or answers to the questions may provide useful insights into developing and implementing strategies for helping manage problems related to menopause among women in Kenya.

Confidentiality

No names will be used on any of the reports from the study. All the respondents will be given different identification numbers and the information relating to each participant will be strictly confidential, available only to the study team. Notes and any other recordings done will be destroyed once summary is prepared.

Voluntary participation

Your participation is voluntary, and you may therefore refuse to answer any question or stop the interview at any time without suffering any consequences.

Instructions

When you sign below, it shows that you have agreed to participate in the study. If you do not understand any part of the information that has been read to you/you have read, be sure to ask questions. Do no sign until you have understood all that is expected or required.

If you require further information, please contact:

Chairman, Kenyatta University Ethics Review Committee
P.O BOX 43844-00100, Nairobi
Email: chairman.kuerc@ku.ac.ke, **Tel:** 8710901/12

Appendix 2: Survey Questionnaire

SURVEY QUESTIONNAIRE

Introductory statement

Goodmorning/afternoon,

My name is Edith Mwangi, a masters student at Kenyatta University. You have been selected to participate in this study which aims at understanding work experiences among health care workers aged 40-60 years in Kiambu County. The study participants will comprise women aged 40-60 years. The purpose of this study will be purely for academic purposes and also to inform policy initiatives and programmatic interventions for supporting health care workers aged 40-60 years at their work places. The information you give will be treated with uttermost confidentiality and privacy will be maintained. Names of the participants will not be indicated in this questionnaire and or revealed at any point of this study. There are no wrong or right answers. Please be honest and truthful in answering the questions. I assure you that the information you give will be totally confidential and you will not be required to identify yourself by name. Feel free to participate or ask for further information where necessary.

Name of Hospital_____

PART A: BACKGROUND CHARACTERISTICS

1. What is your age in years? _____ Years
2. What is your marital Status? [1] Married [2] Divorced [3] Separated [4] Never Married [5] Living with a partner [6] Widowed [7] Single by choice
3. What is your highest academic qualification? [1] Certificate [2] Diploma
   [3] Higher Diploma [4] Degree [5] Masters [6] PhD
4. Which is your profession? [1] Doctor (MOs and Consultants) [2] Nurse
   [3] Pharmacist [4] Lab-Tech [5] Clinical Officer [6] Physiotherapist
   [7] Radiologist [8] Nutritionists/Dieticians [9] Anesthetists
   [10] Dentists/Dental technologists
   [11] Occupational therapist [12] Health Records Officer [13] Public Health Officers [14] Others (Specify) _____
5. At what age did your menstrual period begin?_____ **Years [ ] Never**

6. Currently, do you receive your monthly menstrual periods? [1] Yes [2] No
   (If **Yes**, Please Skip to Question **10**)
7. If **No** in **Question 6** above, at what age did your menstrual cycle stop?_____ **Years**
8. For how long have you stayed without receiving your monthly menstrual periods from the time it stopped? [1] Less than 6 months [2] 6-12 months
   [3] More than one year
9. Were you using any modern family planning method before your menstrual periods stopped? [1] Yes [2] No
10. Do you smoke (whether frequently or sometimes)? [1] Yes [2] No
11. Do you take alcohol (including wines and spirits)? [1]Yes [2] No
12. Have you had any surgery on your lower abdomen? [1]Yes [2] No
13. If **Yes** in **Question 12** above, please name the surgery you underwent:_____
14. Do you suffer from any chronic medical condition? [1] Yes [2] No
15. If **Yes** in **Question 14** above, which condition do you suffer from? _____

PART B: MENOPAUSAL SYMPTOMS

16. Please indicate whether you experience any of the symptoms listed in the table below. If Yes, on a scale of **0-3** where **0** means "**Not at all"**, **1** means "**A little**", **2** Means "**Quite a bit**" and **3** means **"Extremely"**, please indicated the extent to which you are bothered at the moment by any of these symptoms by placing a tick in the appropriate box:

Whether symptom is present			**Extent of being bothered by the symptom**			
Symptoms	**Yes**	**No**	**Not at all 0**	**A little 1**	**Quite a bit 2**	**Extremely 3**
Heart beating quickly or strongly						
Feeling tense or nervous						
Difficulty in sleeping						
Attacks of anxiety, panic						
Difficulty in concentrating						
Feeling tired or lacking in energy						
Loss of interest in most things						
Feeling unhappy or depressed						

Feeling excited						
Crying spells						
Irritability/irritation						
Feeling dizzy or faint						
Pressure or tightness in head						
Parts of body feel numb						
Headaches						
Muscle and joint pains						
Loss of feeling in hands or feet						
Breathing difficulties						
Hot flushes						
Sweating at night						
Loss of interest in sex						
Increased interest in sex						
Loss of eating appetite						
Increase in eating appetite						
Others (Please Specify):						

17. If you have experienced any of the symptoms/experiences listed in Question 14 above, in your own view, do they affect and or reduce your work ability in any way?

    [1] Yes [2] No (If **No,** please **skip** to Question **19**)

18. If **Yes** in **question 17** above, which of the following activities have you engaged in within the last one month to help reduce the effect of the symptoms/experiences on your work ability?

I am engaged in the following activity:	**Yes**	**No**
Seeking treatment from hospital/clinics		
Buying drugs from chemists		
Visiting herbalists		
Seeking counseling from counselors		
Cooling your body down by allow more fresh air (e.g., put fan on, open window)		
Talking to other women going through/who have gone through menopause		
Disclosing to supervisors and or line managers		
Wearing appropriate clothing e.g. light clothes		
Joking about the symptoms/problems/trying to look on the bright side		

Getting more information about problems/symptoms		
Talking to someone about how you feel		
Double checking my work		
Writing notes/making lists to avoid forgetting		
Exercising when free such as playing, running		
Getting more sleep during free time		
Changing diet/ eating appropriately		
Avoiding interactions with others		
Negotiating/ changing working hours (e.g., flexible/fewer hours)		
Taking time off work		
I am doing nothing about it		
Others (Please specify)		

PART C: WORK PRODUCTIVITY AND ACTIVITY IMPAIRMENT

The following questions will ask about effects of your health problems on your ability to work and perform assigned duties. The next questions are about the past seven days, not including today. By health problems we mean any physical or emotional problem or symptom (Please fill in the blanks).

19. During the past seven days, approximately, how many hours did you miss from work because of your health problems? (Include hours you missed on sick days, times you went in late and left early because of your health problems). _____**Hours**
20. During the past seven days, approximately, how many hours did you miss from work due to any other reasons (reasons which are not health problems) such as going for vacation; holidays and time off to attend to your personal issues? _____**Hours**
21. During the past seven days, how many hours did you actually work?_____ **Hours**
22. On a scale of **0 to 10**, where **0** means "*health problems had no effect at all on your work*" and **10** means that *"health problems completely prevented you from doing your work"*, please **circle** the best option on the scale below which best describes the extent to which health problems affected your work ability while at work during the past seven days? (Think about days you were limited in the amount or

kind of work you could do, days you accomplished less than you would like or days you could not do your work as carefully as usual. The arrows show direction of effect of problem on work ability).

0	1	2	3	4	5	6	7	8	9	10
Health Problems had no effect on My work ability	Increasing effect on Work →									Health Problems completely prevented me from doing my work ability

THANK YOU FOR YOUR TIME AND COOPERATION

Appendix 3: Key Informant Guide

You have been selected as a key informant to participate in this study which aims at determining effects of menopause on work productivity among women in Menopause in Kiambu County. The purpose of this study is to inform policy initiatives and programmatic interventions for improving work productivity among menopausal women. The information you give will be treated with uttermost confidentiality and privacy will be maintained. Names of the participants will not be revealed. Please, fill free to participate or ask for further information where necessary.

Hospital_____ Position_____

Questions

1. What are the socio-demographic characteristics of menopause among working women in this hospital?
2. What are the main problems/symptoms reported by menopausal women working in this hospital?
3. In your own view, what is the status of awareness and perceptions towards menopause and its management among women in this hospital?
4. What are the major effects of menopause on work productivity of working women in this hospital?
5. What are the main coping strategies used by women to reduce effects of menopause symptoms on their work productivity in this hospital?

Appendix 4: Work Productivity Impairment Tool

The following questions ask about the effect of your health problems on your ability to work and perform regular activities. By health problems we mean any physical or emotional problem or symptom. Please fill in the blanks or circle a number as indicated.

1) Are you currently employed? (Working for a pay) [1] Yes [2] No
(If NO**,** check '**No'** and skip to question **6)**.

The next questions are about the past seven days, not including today.

2) During the past seven days, how many hours did you miss from work because of your health problems? Include hours you missed on sick days, times you went in late and left early, etc., because of your health problems. Do not include time you missed to participate in this study. _____Hours

3) During the past seven days, how many hours did you miss from work because of any other reason, such as vacation; holidays and time off to participate in this study? _____Hours

4) During the past seven days, how many hours did you actually work?
_____Hours (**If '0', please skip to question 6**)

5) During the past seven days, how much did health problems affect your productivity while you were working? Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. If health problems affected your work only a little choose a low number. Choose a high number if health problems affected your work a great deal.

Health problems had no effect on my work — 0 1 2 3 4 5 6 7 8 9 10 — Health problems completely prevented me from working

CIRCLE A NUMBER

6) During the past seven days, how much did health problems affect your ability to do your regular daily activities, other than work at a job? By regular activities, we mean the usual activities you do, such as work around the house, shopping, childcare, exercising, studying, etc. Think of the amount of time you were limited in the amount or the kind of activities you could do and the times you accomplished less than you would like. If health problems affected your activities only a little, choose a low number. Choose a high number if health problems affected your activities a great deal.

Health problems had no effect on my work — 0 1 2 3 4 5 6 7 8 9 10 — Health problems completely prevented me from working

CIRCLE A NUMBER

Appendix 5: Greene Climecteric Scale

Greene Climacteric Scale

The Greene Scale provides a brief measure of **menopause symptoms**. It can be used to assess changes in different symptoms, before and after menopause treatment. Three main areas are measured: 1. Psychological (items 1-11). 2. Physical (items 12-18). 3. Vasomotor (items 19, 20).

Please indicate the extent to which you are bothered at the moment by any of these symptoms by placing a tick in the appropriate box:

Symptoms	Not at all 0	A little 1	Quite a bit 2	Extremely 3
1. Heart beating quickly or strongly				
2. Feeling tense or nervous				
3. Difficulty in sleeping				
4. Excitable				
5. Attacks of anxiety, panic				
6. Difficulty in concentrating				
7. Feeling tired or lacking in energy				
8. Loss of interest in most things				
9. Feeling unhappy or depressed				
10. Crying spells				
11. Irritability				
12. Feeling dizzy or faint				
13. Pressure or tightness in head				
14. Parts of body feel numb				
15. Headaches				
16. Muscle and joint pains				
17. Loss of feeling in hands or feet				
18. Breathing difficulties				
19. Hot flushes				
20. Sweating at night				
21. Loss of interest in sex				
Score:				

Greene, J. G. A factor analytic study of climacteric symptoms. Journal of Psychosomatic Research (1976), 20, 425—430

Appendix 6: Proposal Approval from Kenyatta University Graduate School

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 19th April, 2016

TO: Ms. Mwangi E. Wamaitha
C/o Department of Health Management & Informatics
KENYATTA UNIVERSITY

REF: Q140/CTY/PT/23831/13

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board at its meeting of 13th April, 2016 approved your Research Proposal for the M.P.H. Degree, Entitled "Effect of Menopause on Work Productivity among Health Workers in Public Hospitals in Kiambu County, Kenya".

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking Forms per semester. The form has been developed to replace the progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Department of Health Management & Informatics

Supervisors:

1. Dr. Peterson Warutere
   C/o Department of Environmental Health
   KENYATTA UNIVERSITY
2. Dr. Anthony Wanyoro
   C/o Department of Obstetrics & Gynecology
   KENYATTA UNIVERSITY

RM/cao

Appendix 7: Research Approval from Kenyatta University Ethical Review Committee

KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE

Email: chairman.kuerc@ku.ac.ke
secretary.kuerc@ku.ac.ke
ercku2008@gmail.com
Website: www.ku.ac.ke

P. O. Box 43844 - 00100 Nairobi
Tel: 8710901/12
Fax: 8711242/8711575

Our Ref: KU/R/COMM/51/754

Date: 20th June, 2016

Mwangi Edith Wamaitha
Kenyatta University,
P.O Box 43844,
Nairobi

Dear Mwangi,

APPLICATION NUMBER PKU/525/I617– "EFFECTS OF MENOPAUSE ON WORK PRODUCTIVITY AMONG HEALTH WORKERS IN PUBLIC HOSPITALS IN KIAMBU COUNTY, KENYA."

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic, **"Effects of menopause on work productivity among health workers in public hospitals in Kiambu County, Kenya."** received on 11th May, 2016 and discussed on 14th June, 2016.

2. APPLICANT

Mwangi Edith Wamaitha, Department of Health Management and Informatics

3. SITE

Kiambu County, Kenya

4. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines **AND APPROVED that the research may proceed for a period of ONE year from 20th June, 2016.**

5. ADVICE/CONDITIONS

i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.
If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

KENYATTA UNIVERSITY
20 JUN 2016
ETHICS REVIEW COMMITTEE
P. O. Box 43844-00100 NAIROBI

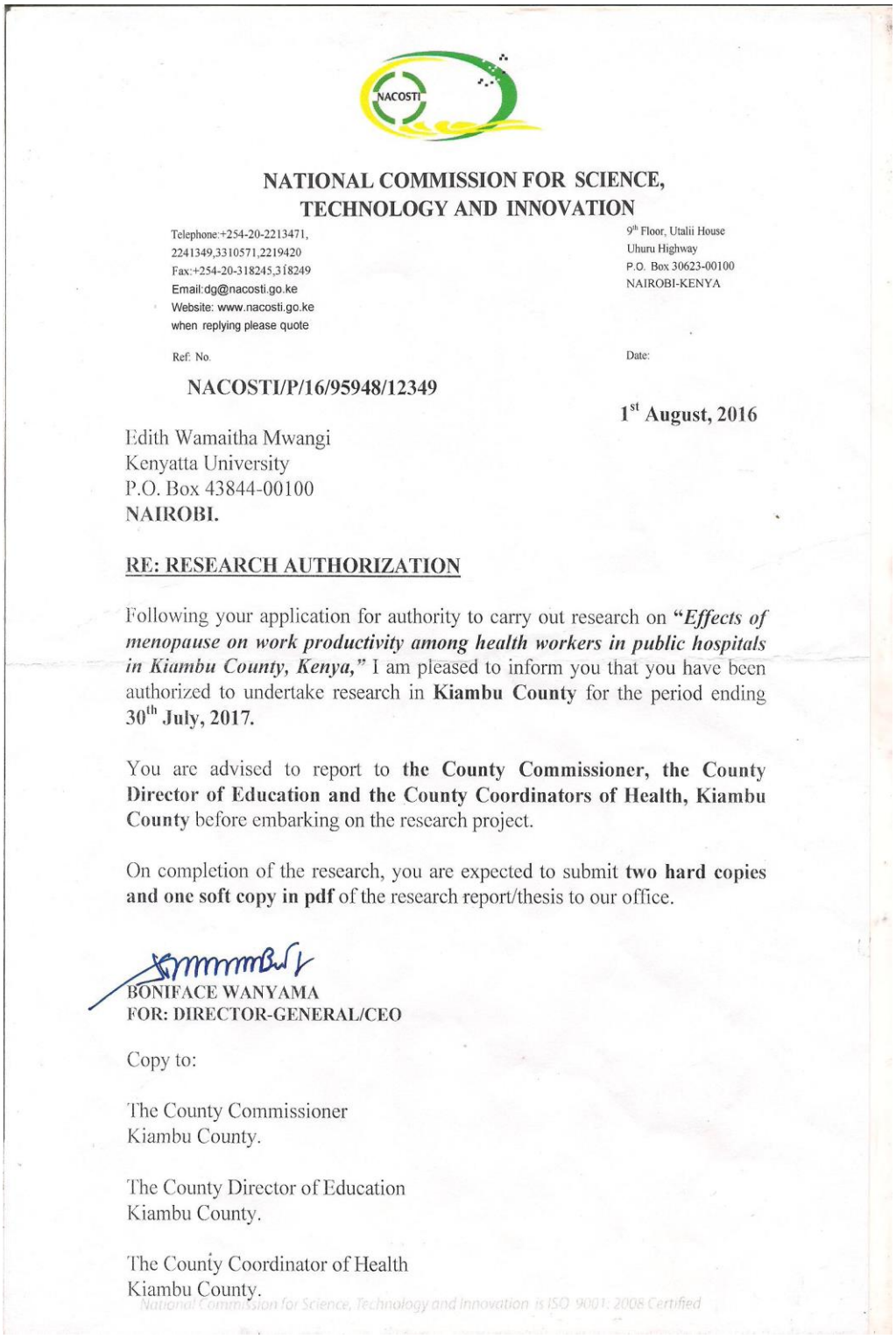
DR. TITUS KAHIGA
CHAIRMAN ETHICS REVIEW COMMITTEE

I ......Edith W. Mwangi... accept the advice given and will fulfill the conditions therein.

Signature.............................. Dated this day of......28/06.............. 2016.

cc. Vice-Chancellor
DVC-Research Innovation and Outreach

Appendix 8: Research permit from NACOSTI



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

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. NACOSTI/P/16/95948/12349

Date: 1st August, 2016

Edith Wamaitha Mwangi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Effects of menopause on work productivity among health workers in public hospitals in Kiambu County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Kiambu County** for the period ending **30th July, 2017.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Coordinators of Health, Kiambu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kiambu County.

The County Director of Education
Kiambu County.

The County Coordinator of Health
Kiambu County.

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

Appendix 9: Research Approval from Kiambu County Commissioner

OFFICE OF THE PRESIDENT

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT
COUNTY COMMISSIONER, KIAMBU

Telephone: 066-2022709
Fax: 066-2022644
E-mail: countycommkiambu@yahoo.com
When replying please quote

County Commissioner
Kiambu County
P.O. Box 32-00900
KIAMBU

Ref.No: **ED.12/1/VOL.IV/101** **31st August, 2016**

Edith Wamaitha Mwangi
Kenyatta University
P.O. Box 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Reference is made to National Commission for Science, Technology and Innovation letter Ref No. **NACOSTI/P/16/95948/12349** of **1st August, 2016**.

You have been authorized to conduct research on ***"Effects of menopause on work productivity among health workers in public hospital in Kiambu Count, Kenya".*** The data collection will be carried out in ***Kiambu County*** *for a period ending* ***30th July, 2017.***

You are requested to share your findings with the County Education Office upon completion of your research.

J. A. Ratemo
FOR: COUNTY COMMISSIONER
KIAMBU COUNTY

Cc County Director of Education
KIAMBU COUNTY

National Commission for Science, Technology and Innovation
P.O. Box 30623-00100
NAIROBI

County Coordinator of Health
KIAMBU COUNTY

All Deputy County Commissioner (***For information and record purposes***)
KIAMBU COUNTY

"Our Youth our Future. Join us for a Drug and Substance free County".

Appendix 10: Research Approval from County Director of Education, Kiambu County

MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY
State Department of Education

Telephone:Kiambu (office) 020-2044686
FAX NO. 020-2090948
Email:directoreducationkiambu@yahoo.com
When replying please quote
KBU/CDE/HR/4/11/ (144)

COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY
P. O. Box 2300
KIAMBU
1st September, 2016

Edith Wamaitha Mwangi
Kenyatta University
P.O. Box 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Reference is made to the National Commission for Science, Technology and Innovation letter Ref. No. NACOSTI/P/16/95948/12349 dated 1st August, 2016.

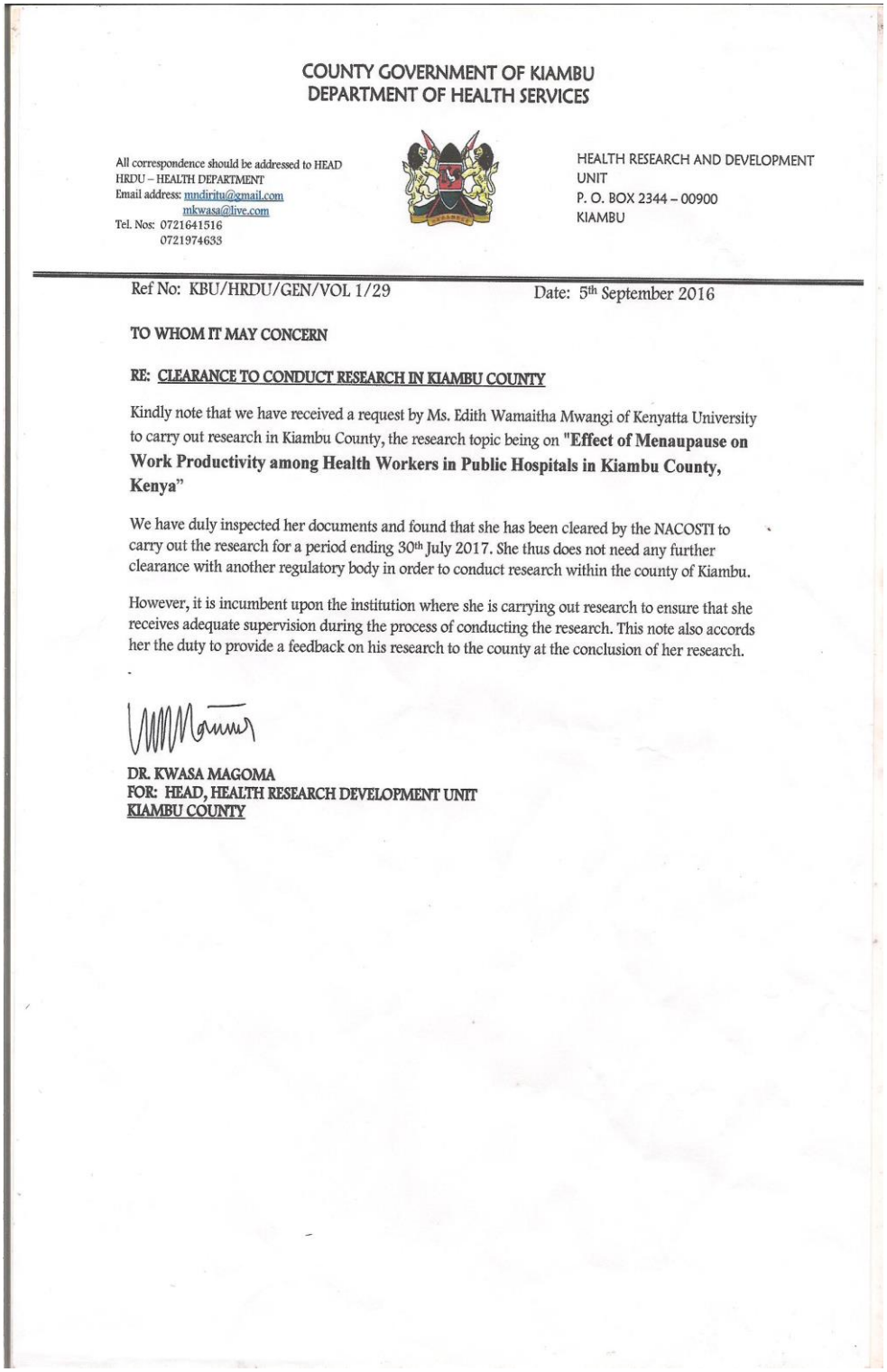
Authority has been granted to you to do research on ***"Effects of menopause on work productivity among health workers in public hospitals"*** for a period ending 30th July, 2017.

Please accord her the necessary assistance.

COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY
P.O BOX 2300-00900 KBU.
TEL 020-2044686
FAX 020-2090948

JAMES NG'ANG'A
For: COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY

Appendix 11: Research Approval from Department of Health Services, Kiambu County



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
Tel. Nos: 0721641516
0721974633

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

Ref No: KBU/HRDU/GEN/VOL 1/29 Date: 5th September 2016

TO WHOM IT MAY CONCERN

RE: CLEARANCE TO CONDUCT RESEARCH IN KIAMBU COUNTY

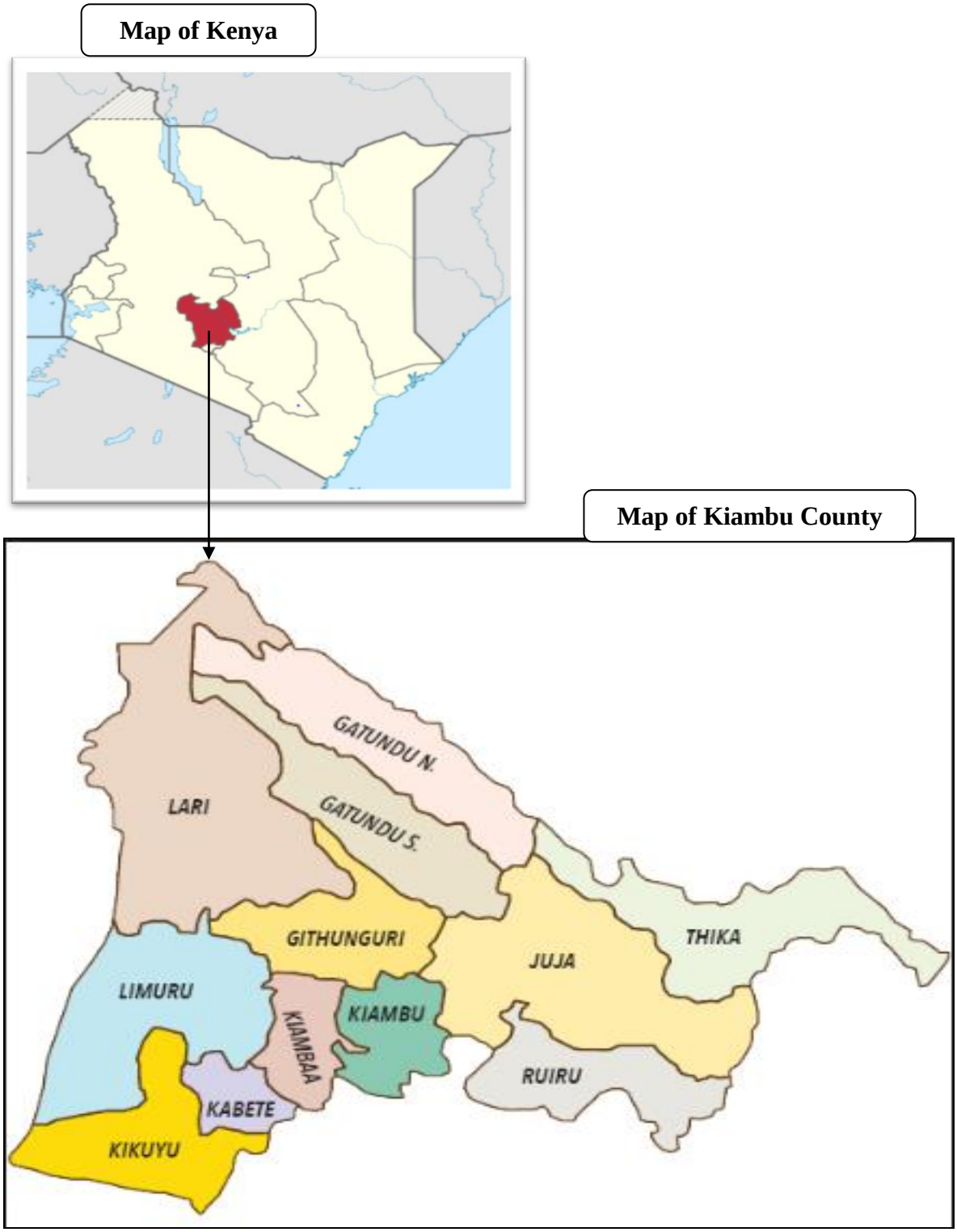
Kindly note that we have received a request by Ms. Edith Wamaitha Mwangi of Kenyatta University to carry out research in Kiambu County, the research topic being on **"Effect of Menaupause on Work Productivity among Health Workers in Public Hospitals in Kiambu County, Kenya"**

We have duly inspected her documents and found that she has been cleared by the NACOSTI to carry out the research for a period ending 30th July 2017. She 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 institution where she is carrying out research to ensure that she receives adequate supervision during the process of conducting the research. This note also accords her the duty to provide a feedback on his research to the county at the conclusion of her research.

DR. KWASA MAGOMA
FOR: HEAD, HEALTH RESEARCH DEVELOPMENT UNIT
KIAMBU COUNTY

Appendix 12: Map of The Study Area, Kiambu County



Source: Google Maps