

**PERCEPTION AND UPTAKE OF PRECONCEPTION CARE AMONG WOMEN
AT REPRODUCTIVE HEALTH CLINIC: CASE OF KENYATTA NATIONAL
HOSPITAL NAIROBI CITY COUNTY, KENYA**

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DECLARATION

I, Madina G. Edalia, hereby declare that this thesis is my original work and to the best of my knowledge has never been presented for a degree or any award to any University.

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DEDICATION

I dedicate this study to the staff in reproductive health clinic who strive tirelessly to attend to their clients.

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LIST OF ABBREVIATION AND ACRONYMS

BMI	Body Mass Index
CDC	Centre for Disease Control
HOD	Head of Department
KDHS	Kenya demographic Health survey
KNH	Kenyatta National Hospital
MOH	Ministry of health
MM	Maternal Mortality
MS	Multiple Sclerosis
NICE	National Institute for health and care Excellency
NNM	Neonatal mortality
PCC	Preconception Care
RH	Reproductive health
SCI	Spinal Cord Injuries
SLE	Systemic Lupus Erythromatosis
SGA	Small for Gestational Age
SPSS	Statistical Package for Social Sciences
USA	United States of America

OPERATIONAL DEFINITIONS OF KEY TERMS

Autonomic Dysreflexia: Syndrome in which there is a sudden onset of excessively high blood pressure. It is common in people with spinal cord injuries and involves the thoracic nerves of the spine or above (T6 or above).

Autosomal trisomy: Chromosomal disorder with three instead of the normal two copies of an autosome (none sex chromosome) exists.

Extreme low birth weight: infant with a birth weight of less than 1000 g

Glycaemic Control: Regulation and maintenance of blood glucose levels within normal ranges.

Glycosylated hemoglobin: Hemoglobin to which glucose is bound.

Interconception care: Any intervention provided to women of childbearing age between pregnancies to improve health outcomes for women, newborns and children.

Macrosomic: A newborn with an excessive birth weight above 3.5kg.

Low birth weight Babies who are born weighing below 2.5kg regardless of gestational age

Preconception care: Provision of biomedical, behavioral and social health interventions to women and couples before conception occurs

Women of Reproductive age: Adolescent girls age 15 and older, and women up to age 49 years.

Small for gestational Age: A fetus that has not reached its growth potential

Teratogenic: A drug or other substance capable of interfering with the development of a fetus, causing birth defects

Uptake of preconception care: Number of clients who received PCC at least once, types of intervention, advised or treatment and lifestyle modification, screened for any diseases and treated .took Folic acid & vaccines, counseled on diet modification and cessation of illegal drugs and alcohol and cigarettes and safe environment

ABSTRACT

Numerous researchers and policy makers have highlighted the significance of women's preconception health care among high-risk populations. Provision of care to adolescent girls and women before and between pregnancies improves their overall health and health outcomes of the newborn. There is paucity of information regarding the uptake of pre-conception care and the effects thereof in regard to maternal and neonatal morbidity and mortality. The study's main objective was to assess the Perception and Level of Knowledge on Preconception Care Uptake among the Women of Child Bearing Age attending Reproductive Health Clinic at Kenyatta National Hospital. The specific objective is to determine the level of knowledge on preconception care among the women, assess the attitude of women towards PCC, determine the uptake of preconception care & assess the association between socio-cultural characteristics of women and the uptake of the preconception care. This was a descriptive cross sectional study where quantitative data were collected. The targeted population included the antenatal and postnatal women being attended to at this clinic. A structured questionnaire was subjectively administered to 224 women of reproductive age, whose characteristics met the research's inclusion criteria between December 2018 and March 2019. Content validity was ascertained by use of the test re-test method to ascertain reliability comparing with a Cronbach Alpha Reliability coefficient value. For analysis, SPSS version 22 was used, and Chi-square test was used to examine the relationship between response and predictor variables. There were 216 complete questionnaires analyzed, translating to 96.4% response rate. Only 19% (n = 40) were aware about preconception care. There was positive attitude with 75.5% of the respondents' stating that preconception care would improve the chances of having a healthy baby. Uptake was poor with only 23.1% had uptake of preconception care services despite the fact that 49.1% had received information on PCC. The majority of socio-cultural characteristics had no statistically significant relationship with PCC uptake. Some of the variables were statistically significant. There was a statistically significant relationship between: understanding PCC ($\chi^2 = 7.837$, $df = 2$ and $p (0.011)$); importance of preconception ($\chi^2 = 24.629$ $df = 2$ and $p (0.000)$); Involvement of a husband in PCC & uptake of PCC ($\chi^2 = 25.831$, $df = 1$, $p(0.246)$); PCC improving chances of having a healthy baby ($\chi^2 = 12.498$, $df = 1$, $p (0.000)$) and knowing all things a lady should do when pregnant to ensure the baby is fine & uptake of PCC ($\chi^2 = 43.145$, $df = 1$ & $p (0.000)$). The relationship between knowledge level and uptake of PCC is highly significant with $\chi^2 = 18.562$, $df = 1$ and $p (0.000)$. In conclusion women attending KNH reproductive clinic have limited knowledge about PCC. There was positive attitude towards PCC among women but poor preconception care practices. The findings of this study might contribute to preconception care implementation strategies and helps in policy development. This would engage women to develop proactive behavior seeking care with the potential to improve pregnancy and neonatal outcome.

CHAPTER ONE

INTRODUCTION

This chapter describes background information on Preconception care and its definitions. The chapter also constitutes problem statements, justification, objectives of the study and significance.

1.1 Background information

Preconception care is characterized as a prevention health approach, which adopts a set of interventions that identify and modify biomedical, behavioral and social risks to the woman's health or pregnancy outcome (Posner *et al.*, 2006). The key area of concern for the researchers, advocates and policymakers is women's preconception health and care for improving birth outcomes among high-risk populations (Slater, 2012). Consequently, the Centers for Disease Control and Prevention (CDC) have issued recommendations for improving preconception health and health care in the year 2012. Development of PCC guidelines and recommendations has been done all over the world including India, Netherlands, U.S.A and UK (NICE, 2012; The World Health Report 2013).

Targeted interventions are used more in Africa, India, and the Middle East (WHO report, 2005). In Kenya and East Africa there is paucity of information on preconception care strategies in general, that mitigate on the adverse pregnancy outcomes to disabling maternal conditions prior to pregnancy. The ministry of health in addressing maternal child health, have strategized the need to accelerate attainment of MDG4, and MDG5 but there is no clear guidelines on how preconception health can be achieved for women of childbearing ages in Kenya. Access to PCC to all women of childbearing age is necessary

to addresses the medical, psychological and social impacts of pregnancy (CDC, 2013). Accurate knowledge regarding disabling conditions prior to pregnancy is a critical component for good pregnancy outcomes among women. Preconception care has a positive impact on maternal and child health outcomes (WHO, 2013). However, the benefits of these interventions are determined by the uptake of the information, attitudes and social-cultural factors surrounding the targeted women.

The WHO statistics reckon that Kenya recorded a maternal mortality (MM) rate of 400 per 100,000 births in 2013 (WHO/UNICEF, 2014). These maternal mortalities are largely due to direct obstetric complications such as puerperal sepsis, postpartum hemorrhage, pre-eclampsia and eclampsia, obstructed labor and indirect causes including HIV, malaria and anemia in pregnancy (Ziraba *et al.*, 2009). To successfully improve health outcomes, pre-conception interventions are key with targets on social cultural factors such as tobacco and alcohol use (D'Angelo *et al.*, 2007 & Liu, *et al.*, 2006). Research has shown those risk factors of health and social impact on outcomes like stillbirth. There is a need to explore a more holistic approach that can realize the benefits anticipated from single component interventions (Andersen, 2008).

1.2 Problem Statement

The maternal mortality and morbidity remain significant in KNH, as indicated in the table 1.1. Generally, Kenya's MM rate stood at 400 per 100,000 births in 2013 (WHO/UNICEF, 2014). The maternal mortality rate for major Nairobi slums such as Kibera and Mathari, for the 2005, was 706 maternal deaths per 100,000 live births Ziraba *et al.*, (2009). One in every eight babies in Kenya is born prematurely (KDHS, 2008/9), approximately 183,600 premature babies are born in Kenya yearly while 14, 595 die in

the same period 2010 (MOH, 2014). The trend in LBW, prematurity, neonatal death and MM in Kenyatta national hospital remains high as indicated in table 1.1 while the uptake of PCC remains low in both rural and urban towns, 25%, 35% respectively, Okemo *et al.*, 2020. Such maternal and perinatal complications can be minimized through preconception care. Unfortunately, these complications occur despite the provision of PCC at the KNH outpatient departments. The new trend is emphasis on the health of women before pregnancy. This study therefore seeks to assess PCC among women of childbearing age at the reproductive health clinics in Kenyatta National Hospital to ascertain their knowledge, uptake, attitude and the cultural practices, in order to identify why the PCC provided does not alter the outlook.

Table 1.1: Trend of Maternal & Neonatal Mortality, Prematurity and LBW at KNH

Conditions	Extreme Low birth weight	Low birth weight	Prematurity	Congenital malformation	Neonatal mortality	Maternal mortality
2008	72	606	548	145	1173	116
2009	56	400	526	114	1280	120
2010	54	505	128	128	1027	115
2014	152	876	1233	237	1485	127

Source: Statistic Unit KNH Health information Department 7/05/2015

1.3 Justification of the Study

Appropriate preconception care promotes the health of women before conception thus reducing preventable adverse pregnancy outcomes. Kenyatta National Hospital as a national referral hospital should be able to provide quality Reproductive Health services which is a pillar to safe motherhood. This should include sensitization on PCC to all

women clients of childbearing age and risk assessment and increase awareness about PCC as part of primary care visits in order to improve pregnancy outcomes as recommended by (MOH, 2013). Despite the existing National guidelines on preconception care in the country, uptake of preconception remains low. Therefore, identification of the barriers to preconception care will enable better uptake of preconception care for women hence contribute in achieving SDG aiming at reducing maternal mortality ratio to less than 70,000 per 100000 live births in 2030. This study has not been done before in Kenyatta National Hospital hence will provide baseline data for future reference.

1.4 Research Questions

- i. What is the level of knowledge among women at reproductive health clinic KNH, regarding preconception care given?
- ii. What is the attitude of the women towards preconception care at the clinic?
- iii. What is the level of uptake preconception care among women at the clinic?
- iv. What is the association between socio-cultural characteristics on the preconception care given to women at the clinic?

Null Hypothesis

- (i) There is no association between level of knowledge and preconception care uptake by women of reproductive age attending the reproductive health clinic in KNH.
- (ii) There is no association between socio-cultural characteristics of women of childbearing age and the uptake of preconception care at the clinic.

- (iii) There is no association between attitude of women and preconception care uptake by women of reproductive age attending the reproductive health clinic in KNH.

1.5 Objectives of the Study

1.5.1 Main Objective

The overall objective that guided the investigations was to determine the Level of Knowledge on Preconception Care, assess the attitude of women toward PCC & Uptake of PCC by Women of Child Bearing Age attending Reproductive Health Clinic at Kenyatta National Hospital

1.5.2 Specific Objectives

The Specific objectives of the study were to:

- i. Determine the level of knowledge on preconception among women at the reproductive health clinic in KNH.
- ii. Assess the attitude of women towards PCC given to women at RH clinic.
- iii. Determine the uptake of preconception care given to women at RH Clinic.
- iv. Assess the association between socio-cultural characteristics of women and the uptake of the preconception care at the clinic.

1.6 Significance of the Study

The study findings will help in integrating components of preconception care into existing local public health “well women’s health care” and related programs as a matter of policy. This in theory will strengthen and improve quality of healthcare delivery hence, reversing the high maternal morbidity and mortality trends (Ukachukwu, 2009).

1.7 Limitation of the Study

The study involved the female clients seeking Reproductive health services at Kenyatta National Hospital Reproductive clinics between the ages 15 to 49 years. Consecutive sampling method though the best among the non-probability method in controlling sampling bias, some, confounding factors may interfere with the study sample. Given the variabilities in stage of pregnancy at admission, there may also be a recall and documenting bias on whether or not the participants received PCC from a health provider.

1.7.1 Delimitation of the Study

The data used in the study was mainly primary data. In order to limit any negative impact on the study the researcher while using the secondary data endeavored to authenticate the source. The researcher ensured strict adherence to inclusion and exclusion criteria. According to Gay (1995) when the study is essentially descriptive in nature, a sample of 10% to 30% is sufficient for the result to be assumed to have external validity. There was no causal interpretation of the result

1.8 Conceptual Framework

The conceptual framework focuses on the determinant variables associated with preconception care. In this research, the explanatory variables have been classified as; knowledge among women, women attitude and social cultural practices.

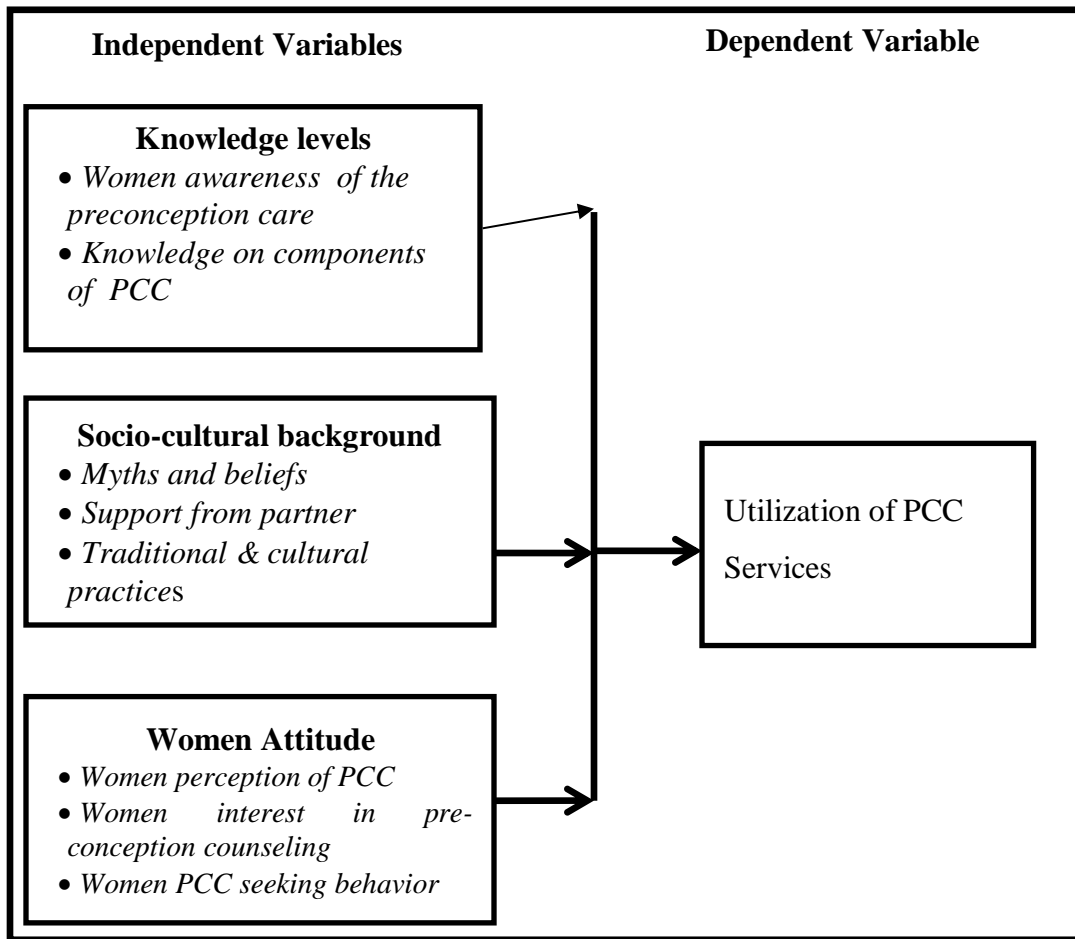


Figure 1.1: Behavioural Model on Utilization of Health Services

CHAPTER TWO

LITERATURE REVIEW

2.1 Preconception Care

Preconception care refers to care provided to women in the child bearing age before the pregnancy, to have a safe motherhood and healthy baby (Rogers, 2005). The practise entails measures that can be taken prior to conception to promote the welfare of the expectant mother and her child. A significant link has been discovered between individuals' health at birth, infancy, and early childhood and their later-life health, educational attainment, and overall well-being, according to research from a range of aspects. Preconception care includes risk analysis, promotion of health, health education, and intervention (Blencowe *et al.*, 2010). It is a key opportunity for preventing congenital disorders.

Preconception care visit includes the following, Comprehensive Medical Examination and Risk assessment. Comprehensive Medical Examination includes screening for Body Mass Index(BMI) that is a measure of risk for Cardiovascular diseases, Blood Pressure, Laboratory tests BGRhesus factor,Haemoglobin level testing, Random blood sugars,Urine analysis, Clinical Breast examination, Breast self-examination, Oral Health screening

Risk assessment. such as Genetic counseling in case of pregnancy outcomes with autosomal trisomy, congenital anomalies in general. Identified mothers may have to be referred for specialized care for further investigations and genetic counseling in specialized centers (Liu *et al.*, 2004). The role of the health staff is to ask, assess, advise,

assist and provide for preconception health needs tailored to the individual woman (Botto *et al.*, 2004).

2.2 Importance of Preconception Care

Preconception care can take various forms, e.g., general individual preconception care or specialized individual preconception care. PCC care is associated with improved pregnancy outcomes and makes a useful contribution to reducing maternal and childhood mortality and morbidity.

Pre conception care optimizes general health and risk awareness in high-income countries. It has been documented by (Botto *et al.*, 2004) that preconception care addresses the relatively higher levels of maternal and childhood mortality and morbidity in socially marginalized and economically deprived families and communities. Similar effects may also be achieved to a larger extent in low income countries. Identification of risk factors that could potentially affect perinatal outcome will be done, and the woman is advised of her risks (Ray *et al.*, 2004). Preconception care was linked to a lower risk of preterm labor (OR = 0.298; P = .009; 95 percent CI = 0.120-0.743), low birth weight (OR = 0.406; P = .043; 95 percent CI = 0.169-0.971), maternal irregularity (OR = 0.399; P = .001; 95 percent CI = 0.241-0.663), and neonatal complications (OR = 0.460; P = .003; 95% CI = 0.275-0.771) Jourabchi Z *et al.*, (2019).

Normally, to predict exactly when conception has taken place is uncertain and therefore requires a wider perspective and approach. It is necessary to take into account all the influential factors that contribute to better outcome in pregnancy including the health of the parents. This signifies that PCC ought to be available to males and females of reproductive age (Rogers, 2005; Blencowe *et al.*, 2010). Across the world, researches

have shown that PCC occurs too late. The risk of premature babies with low birth weights are also influenced by poor health conditions like obesity and alcohol (Blencowe *et al.*, 2010, Polit & Beck, 2008). PCC leads to increase in public health risk awareness with high chances of healthy lifestyle in future life (Ray *et al.*, 2004).

2.3 The Neonatal Anomalies that Arise Due to Lack of Preconception Care

Complications that arise during pregnancy can result to adverse maternal and child health outcomes, particularly in neonatal period. Certain risk factors and health problems are often present before pregnancy according to Ray *et al.*, (2004). Therefore, providing a continuum of care for adolescent girls and women before conception can help to reduce risk factors such as poor nutritional or partner violence and address health problems like chronic medical conditions or infectious diseases (Bhutta *et al.*, 2014). Fetal malformations in expectant mothers with uncontrolled diabetes are associated with elevated glycosylated hemoglobin (Mills 2014). Small for Gestation Age and macrosomic babies are some of the issues that rise from lack of preconception care (Botto *et al.*, 2004). Significantly improvement has been achieved with PCC on the congenital malformations, perinatal mortality and preterm delivery because it includes supplementation of folic acid, normalization of blood glucose and detection/treatment of diabetic complications (Wahabi *et al.*, 2010).

2.4 The Maternal Complications that Arise Due to Lack Of Preconception Care

Complications during pregnancy and childbirth are the leading cause of death in developing countries. WHO (2017) reports indicated that approximately 810 women died each day in 2017 from pregnancy and childbirth related factors deemed preventable. Between the years of 2000 and 2017, the global maternal mortality ratio (deaths per

100,000 live births) fell by about 38%. Poor maternal conditions is forth leading cause of death in the world . Some debilitating illnesses are common in women of childbearing age and in pregnancy in general (Chatterjee *et al.*, 2008)

Delgado (2008) states that excessive weight gain dangerous substance exposure and engaging in high risk behaviors are potential in increasing adverse pregnancy outcomes. Preconception care minimizes the risks and maintain women in best health possible before the crucial time of fetal development. Reduction or cessation of smoking and consumption of alcohol during pregnancy coupled with folic acid supplementation improve maternal and child health.

2.5 Knowledge among Women on Preconception Care

Frey & Files (2006) in their study on importance of women optimizing their health before conception found that 98.6% affirmed that optimization of their health prior to and during pregnancy. The same percentage of women also affirmed that the best time to receive information about PCC is before conception (Frey & Files, 2006). However, there are low levels of PCC knowledge and behavior exhibited (Keith *et al.*, 2006).

A study done by diabetes and pregnancy group 2005 among French women on the knowledge about preconception care among women of childbearing age found that the subjects had limited knowledge concerning the risks associated with pregnancy (Kendrick, 2004).

In a study conducted at Hindu Saradha College of Education in 2010, in a sample of 100, 37% had inadequate knowledge on preconception care, 61% had a moderate knowledge

and two percent were had adequate knowledge. This creates need to emphasise on awareness regarding preconception care among the unmarried students.

Elsinga *et al.*, (2008) found that women who participated in the study and received preconception counseling, improved their knowledge on pregnancy-related risk factors, changed their behavior, and thus halted adverse pregnancy outcomes. Women who receives PCC are highly likely to accept and practice healthy behaviors which amounts to better pregnancy outcomes (Polit & Beck, 2008).

In a study done by Reda M Nabil & Mona Abd El Kareem in 2021 in Egypt to assess knowledge and behavior towards preconception, 54% of the respondents had average knowledge score and 22.7% had poor knowledge score He recommended health education to the women attending outpatient reproductive health clinic.

2.6 Sociocultural Influences on Preconception Care Utilization

According to Craig *et al.*, (2008), social marketing makes PCC more appealing to women as well as their partners, regardless of the conception state. Culture is another factor that shapes the status of girls and women in societies. This has implications for gender and the general sexual and reproductive health of women. Culture and religious believes or taboos especially on pre-marital relations may hinder women from seeking PCC (Hennink M, Cooper P, Diamond 1998).

Women status in general affect the general acceptance of coercive behavior, non-volitional sex, sexual and other violence against women, like FGM, and the marriages of under-age girls. Uses of PCC are influenced by educational level, employment status, marital status and income. Level of education is directly proportionate to health care

seeking behavior i.e., the higher the education level the more likely a woman will seek health care services leading to better healthcare outcomes (Wickrama & Lorenz, 2002).

Income is a pre-requisite to access to healthcare through either affordability and/or reaching to the point of care and therefore a factor to health status (Buor, 2004). Maternal health care services positively correlates with formal employment among women. This implies that earning contributes to maternal healthcare services utilization through empowerment. This was more so where the health services were being paid for. In instances where the services are offered almost free the trend changes with women who are not working utilizing more maternal health services than earning mothers (Kamal, 2013), whereas Obi, A. I., & Okojie, H. O. (2016) ,stated that utilization of preconception care is affected by socio-cultural perception .

Yesuf *et al.*, (2013), in Ethiopia states that marital status is a factor to women's health. Women may spend more time caring for their family members putting strain on their health. He also found that Ante natal care use is based on economic status is consistent with a study from Nigeria.

Family structure, preconceptions of adolescent development, and restricted sex education programming deny many young people important details that could improve their reproductive performance. During the PCC, more than half of the women reported negative reproductive outcomes. (Anderson *et al.*, 2006).

Scharlet (2000) conducted a study in the US and Netherlands on sexuality among adolescents and realised that many parents overlooked their children's sexuality, often viewing the stage as full of impulsive behavior.

A Kenyan study conducted in Machakos by Omondi *et al.*, (2021) discovered that 70.8 percent of those surveyed had no cultural beliefs or practices influencing their use of preconception care, while 89.2 percent were not compelled to use preconception care by anyone.

2.7 Attitude of Women Towards Preconception Care

Attitude has a major influence on whether the women will seek preconception care or not and this is influenced by the social structure and objects around them. An individual can adjust or change their attitudes depending on the environment around them, their social structure and the people around them Jones (1984). He explained further that attitude is influenced by behaviour and social groupings.

Wallace & Hurwitz, (1998) conducted a knowledge and attitude study on PCC and primary health care team , found out that less than forty percent of women considered preconception care to be essential while more than ten percent indicated that PCC is not important. Further, women were interested in pre-conception counseling. On the contrary, a study by Sapiano *et al.* (2013) on the women's attitude towards preconception care, discovered a lack of awareness on the importance of pre-pregnancy planning to avoid pregnancy-related complications. He stressed the importance of more awareness on the subject.

De Jong-Potjer, *et al.*, (2006), in his research stated that the women who benefited most from preconception had at least a basic educational and those who perceiving their subjective risk as high. The groups were documented to have a significant reduction in anxiety levels after the preconception care session. Files *et al.*, (2009) concluded there is an understanding on the PCC importance among majority of women but these issues are

not discussed with the physicians. He was investigating women's attitudes towards preconception care.

Denkta *et al.*, (2012) in their research work reported the women interviewed had a positive attitude towards preconception care ,although were reluctant seeking the care .

A study done in low-income Mexican American population, there was expression of interest on PCC in the hence positive effect on pregnancy (Frey *et al.*, (2009).

Okemo *et al.*, (2021) in his study on determinants of preconception care among pregnant women in an urban and a rural health facility in Kenya, found that attitude towards PCC impact strongly on its utilization.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

This was carried out using descriptive cross-sectional way and utilized a quantitative method. It involved a one-time interaction with groups of people (cross-sectional study). It is intended to present facts concerning the nature and status of a situation, as it would exist at the time of the study.

The study aimed to discover and explain the relationship between women of reproductive age's knowledge level, attitude, and socio-cultural characteristics and their association with PCC uptake. The data was examined, and p-values less than 0.05 were deemed significant.

3.2 Research Variables

3.1.1 Independent Variables

These included; knowledge level among women, attitude towards preconception and socio-cultural characteristics.

3.2.2 Dependent Variables

Preconception care uptake

3.3 Study Area

The study took place at Kenyatta National Hospital's reproductive health clinic. The facility is classified as a National Referral, Teaching, and Research Hospital. It has 22 outpatient clinics and 50 wards with a high flow of patients daily. Reproductive health clinic serves women prenatally and for postnatal follow up care. The clinic also serves

couples with infertility problems and gynecological conditions. Clients who require preconception care are referred from other clinics within the hospital or from other external health facilities. The clinic is manned by obstetricians, senior registrars, nurses, health information staff and counselors. The clinic attends to about 150 clients daily.

The findings are presumed representative of the general population regarding their occurrences. The clinic serves all women who are attending the clinic and require reproductive health services and would be beneficiaries of preconception care. The information gathered represents the diverse needs of women within the population regarding preconception care.

3.4 Target Population

The investigations centered on women of reproductive age (from 15 to 49 years) who were clients at the Kenyatta National Hospital's reproductive health clinic.

3.4.1 Recruitment of Research Participants

Women attending the reproductive health clinic were recruited into the study and they were the research participants. Identification of the participants was done by the research assistants in line with the consecutive sampling. This was aimed at ensuring general representation of the population. Research assistant obtained consent from the participants to be recruited into the study. Consenting process involved explanation of what the study entails in a language understood by the participants, and the clients signing of the consent form when fully understood.

During the recruitment into the study, the researcher ensured individual autonomy in selecting the participants. The participants selection was equitable and was not be done

based on convenience or vulnerability. The researcher ensured those who are taking part were mentally sound and able to give informed consent. They were given full information on the research and the benefit of scientific knowledge and practice gained. The participants were informed that the research does not involve invasive procedure hence no risk of harm. Participants were recruited based on informed choice and for the minor who could not consent the guardian took the responsibility. It was necessary to fulfill an ethical imperative of beneficence by conducting comprehensive investigation to confront such issues. The research findings would benefit the participants in form of advancement in scientific knowledge and practice.

3. 5 Sampling Technique

Consecutive non probability sampling was used to select respondents from the reproductive health clinic. The respondents were recruited as they walk in to the clinic. Once their vital signs were taken and confirmed were acceptable, they were directed to the appropriate doctors room. This was when the respondents were explained to and consent was obtained, In a month approximately twenty clients were recruited and the same process was repeated for three consecutive months until the sample size was achieved. This sampling technique was considered as the best of all non-probability samplings because it included all subjects that were available that made the sample a better representation of the entire population. The sampling method was applied since there were few clients who met eligible criteria. Recruitment of the participants was expected to be difficult due to high rate of missed clinic appointments.

3.5.1 Inclusion Criteria

- i. Women aged 15 to 49 years.

- ii. Women who were attending the clinics at time of data collection.
- iii. The women who have consented to participate in the study.

3.5.2 Exclusion Criteria

- i. Women below 15 and above 49 years of age,
- ii. Women who are not attending the clinics at time of data collection, and
- iii. The women who have not consented to be study participants
- iv. Women who fell ill during the interview or needed emergency medical attention.

3.6 Sample Size Determination

3.6.1 Sample size calculation for clients attending reproductive health clinics

Fisher *et al.*, (1998) formula was used to arrive at the desirable sample size.

$$n = z^2 p (1-p) / d^2$$

Z is the value for the corresponding confidence level (1.96 for 95% confidence)

d is margin of error (0.05 = ± 5%)

p is the proportion of estimated study participants to have a particular characteristic. Since the proportion of women of reproductive age on preconception care is unknown, p was taken as 0.5 by convention and q (1-0.5) = 0.5, hence:

Therefore,

$$\mathbf{N = (1.96)^2 * (0.5) * (0.5) / (0.05^2) = 384}$$

Finite Population Correction for Proportions

The size of the sample was adjusted for correction factor using the formula below. This was done because the sampling frame of 540 was not greater than 10,000.

$$nf = n / (1 + n/N),$$

Where:

nf = desired sample size

n = calculated sample size,

N = estimate of population in study area

Therefore,

$$nf = 384 / (1 + 384/540)$$

$$= 384 / 1 + 0.7111$$

nf = 224 women

3.7 Pre-testing

The data collection tool was pre-tested on a convenience sample of 22 clients (which was 10% of calculated sample size) at Mbagathi District Hospital, which is a Sub-County referral hospital. This site was chosen because the clients attending the clinics at Mbagathi share similar characteristics as those attending clinics in KNH as they are from similar social background.

3.7.1 Validity

The 22 clients were asked to assess the questions for clarity of language and general layout of the questionnaire. Problems detected with grammar, comprehension, instructions, content and ease of answering the questions were corrected before the questionnaire was finally adopted as proposed by Bowling. The questionnaire was subjected to panel of supervisors who included the two supervisors for my research work and one reproductive health specialist at the KNH clinic for validation.

3.7.2 Reliability

This was verified by test-retest method at two different times. The study was dealing with stable measurements; hence similar results. Reliability coefficient of 0.76 was obtained. The higher degree of stability indicated the higher degree of reliability.

3.7.3 Data Analysis and Presentation

The researcher cleaned the data collected through editing and coding, which summarized the large quantities of information. The data was then exported to a Statistical Package for Social Sciences (SPSS) Version 22 for thorough analysis, where descriptive and

inferential statistics were generated. The outcomes of analysis was presented in the form of percentage frequency distribution and charts, which expressed the relative frequency of the survey responses. Further, a chi-square test was produced to test whether the categorical variables differed significantly from each other.

3.8 Ethical Considerations

The study upheld academic ethics by acquisition of research permit prior to research process. Approval was sought from Kenyatta University and KNH/UON Ethics Research Committee to carry out this study. Permit from HOD Reproductive health department Kenyatta National hospital and NACOSTI. Informed consent was sought from the voluntarily participating respondents. Ethics was further observed by respecting the respondents and observing all ethical principles and treating information provided with utmost confidentiality.

The consent process involved exchanging information and communication between the researcher and the potential research subject, with regards to propose of the study, possible risks and benefits, right to voluntary participation and withdrawal from the study without victimization. Further, the research participants of 18 years and above signed the informed consent form to confirm their acceptance to participate in the research, while those below the age of 18 years had their guardians sign their form.

For those who were not able to avail the same in two consecutive visits they were allowed to give consent by signing the consent form for the minor based on KNH-UoN ERC guidelines as outlined in appendix 1 (NAS COP, 2006) (WHO 2013).

CHAPTER FOUR

RESULTS

4.0 Introduction

The chapter presents the research outcomes and possible interpretations. Specifically, the findings in the subsequent sections include response rate, background information and the objectives, presented in descriptive and inferential statistics.

4.1 Response Rate

The Principal investigator (PI) and two research assistants administered 224 questionnaires. Data was collected from 224 of the participants. However, during scrutiny 8 questionnaires were not complete and therefore rejected. 216 participants completed questionnaires and were analyzed translating to 96.4% response rate. The response rates are rated as very good according to Mugenda (2008) assertion that a 50% response rate is adequate, 60% good and above 70% may be rated as being very good. The sample studied was representative of the targeted population.

4.2 Socio-demographic Characteristics

The researcher found that (43.5%) were in the 30-39 years age category, whereas 33.3% were in the 20-29 years age category; 8.3% of the respondents are below 20 years of age and 14.8% is above the age of 40 years. Majority of the respondents were mature mothers, and within the child bearing age. On the education levels, 40.7% had college level education, 27.8% had attained secondary school education, 16.7%, university graduates and 14.8% had primary school level of education.

Majority of the respondents (66.7%) were married and had child conception opportunities in a family setting. The results indicate that majority of the research participants identified with Christians (89.8%), while Muslims and other forms of religions accounted for 8.3% and 1.9% respectively. Regarding economic activity, 39.8% of the respondents were in formal employment, 29.6% in business, 15.3% were self-employed, while 8.8% were unemployed and 6.5% were farmers.

The Socio-demographic characteristics of the respondents are as illustrated in table 4.1.

Table 4.1: Socio-demographic characteristics of the respondents

Variable	Frequency (%)
Age (years)	
15-19	18 (8.3)
20-29	72 (33.3)
30-39	94 (43.5)
40-49	32 (14.8)
Education level	
Primary	32 (14.8)
Secondary	60 (27.8)
College	88 (40.7)
University	36 (16.7)
Marital status	
Single	72 (33.3)
Married	144 (66.7)
Religion	
Christian	194 (89.8)
Muslim	18 (8.3)
Missing	4 (1.9)
Economic activity	
Formal employment	86 (39.8)
Business	64 (29.6)
Self employed	33 (15.3)
Farmer	14 (6.5)
Unemployed	19 (8.8)

4.3 Knowledge Among Women On Preconception Care

4.3.1 Knowledge on Preconception Care

The various responses regarding knowledge of the women about preconception care has been summarized in figure 4.1, and figure 4.2 In figure 4.1, only 19% (n = 40) knew about preconception care, whereas 69% (n = 150) were not aware while 12% (n = 26) were not sure.

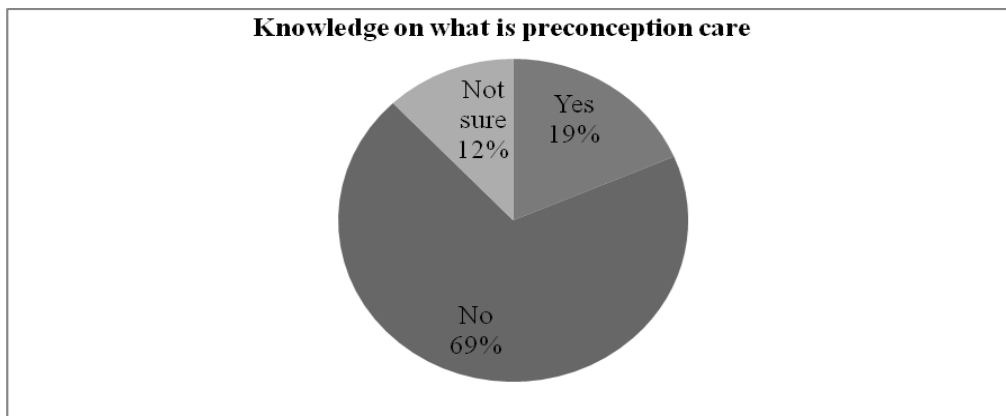


Figure 4.1: Knowledge on Preconception Care

Regarding knowledge on preconception care of the (42%) indicated that PCC is important while majority. (47%) were not sure while a few 11% (n = 24) did not understand what preconception care is. Majority of the women had no information that could help them understand preconception care thus would not be sure about its importance.

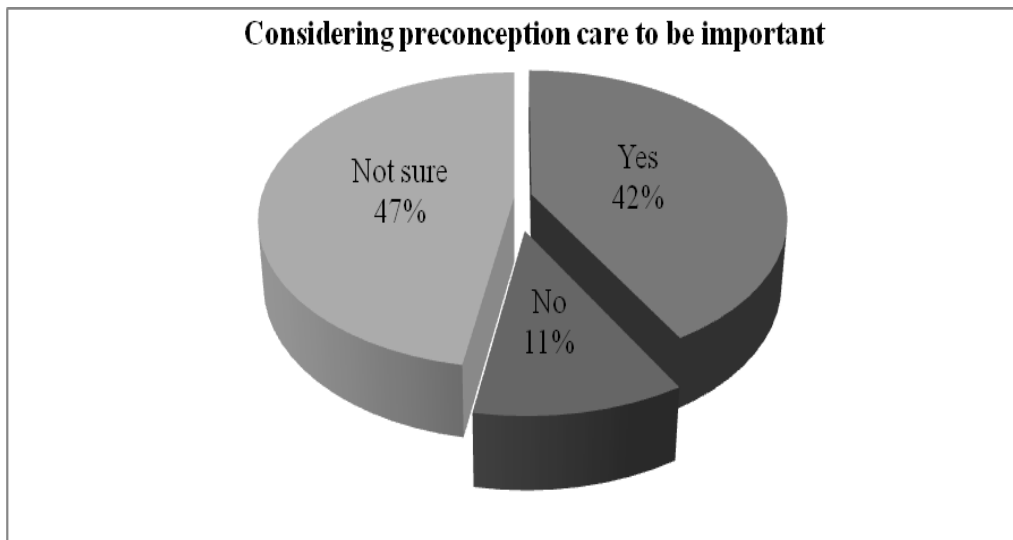


Figure 4.2: Knowledge on Importance of Preconception Care

4.3.2 Exposure to Periodic Risk Assessment

A significant proportion of the respondents (40.7%) had been referred for specialized care. About 18.5% of the mothers had pregnancy outcomes with hereditary diseases, whereas 33.3% of the mothers had children born with congenital anomalies. Surprisingly, only 9.3% of the mothers had been referred for genetic counseling, yet these are conditions that require genetic counseling.

Table 4.2: Exposure to Periodic Risk Assessment

Variable	Frequency (%)	
	Yes	No
Pregnancy outcome with hereditary disease (<i>child born with hereditary disease</i>)	40 (18.5)	176 (81.5)
Child born with congenital anomalies	72 (33.3)	144 (66.7)
Genetic counseling	20 (9.3)	196 (90.7)
Referred for specialized care	88 (40.7)	128 (59.3)

4.3.3 Knowledge on Health Promotion

Majority (62%, n = 134) of the respondents were aware that their health condition can affect child bearing with the source of information mainly from the clinic (38.9%, n = 84) and the hospital (24.1%, n = 52).

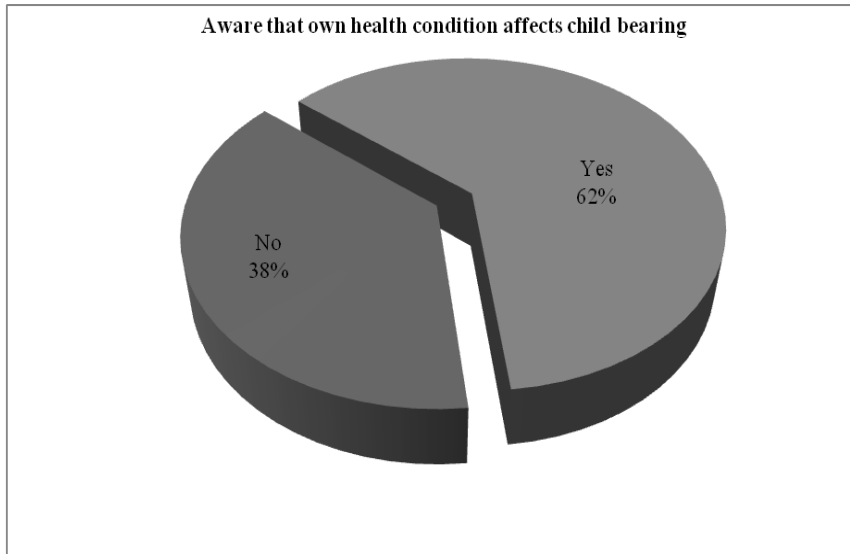


Figure 4.3: Knowledge on Effect of Own Health on Childbearing

Figure 4.4: Sources of Information on How Own Health Condition Affect Child Bearing Below are the sources of information for the respondents

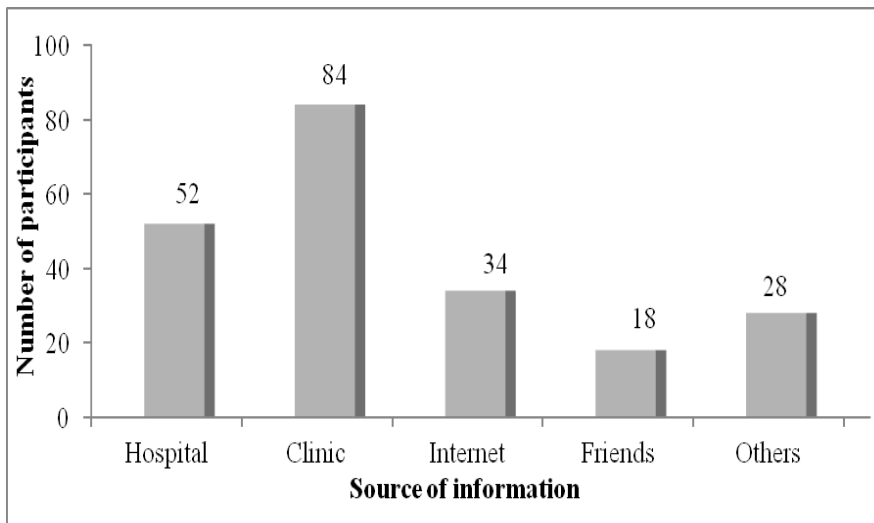


Figure 4.4: Sources of Information on How Own Health Condition Affect Child Bearing

4.3.4 Respondents Sources of Information

With the source of information mainly from the clinic (38.9%, n = 84) and the hospital (24.1%, n = 52).

4.3.5 History and Knowledge on Domestic Violence

History of domestic violence was reported in 31% (n = 68) of the respondents and 33% (n = 72) knew that domestic violence may affect pregnancy outcomes.

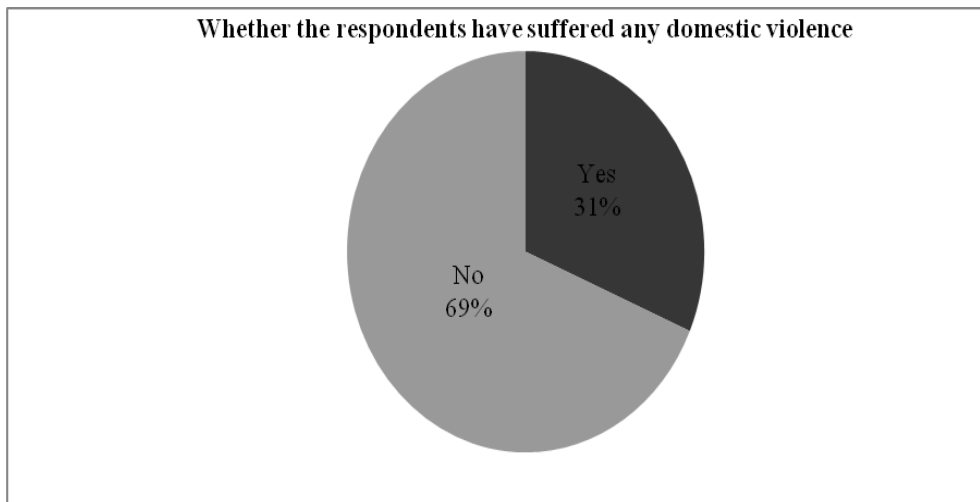


Figure 4.5: Exposure to Domestic Violence

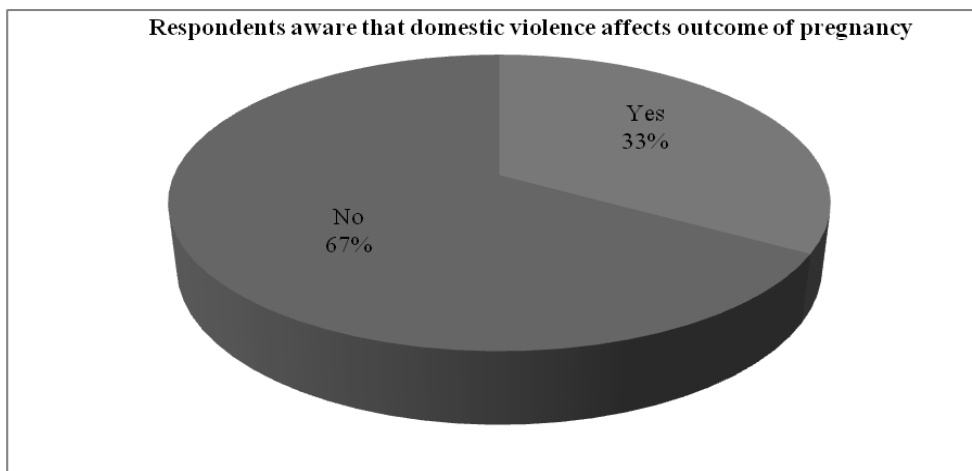


Figure 4.6: Awareness of Effects of Domestic Violence on Pregnancy

4.3.5. Knowledge Awareness of the Effects of Social Habits Other Health Conditions on Pregnancy

Table 4.3: Rating How Respondents Agree to the Statements Relating to the Knowledge on Preconception Care

VARIABLES	Disagree	Unsure	Agree	Mean	Std. dev	p-value
Preconception care is meant only for those who have health problems	19% (n-41)	12% (n-26)	69% (n-49)	72	54.79	0.001
Domestic violence affects the health of the women and unborn child	12% (26)	55% (119)	33% (71)	72	37.97	0.001
A female has decided to have a child, should she visit an obstetrician before conception?	12% (n-26)	56% (121)	32% (69)	72	38.84	0.001
Folic acid should be taken before pregnancy	6.5% (14)	25% (54)	68.5% (148)	72	56.17	0.001
Smoking while pregnant does not harm the baby (included also second hand smoking)	60% (130)	28% (61)	12% (26)	72.3	43.21	0.001

Majority of the respondents were aware that alcohol (63.0%) and smoking (51.9%) were health risks to pregnancy. Awareness on other health risks was on substance abuse (48.1%), daily habits (43.5%), exercises (38.0%), domestic violence (31.5%), obesity (29.6%) and psychological and mental conditions (22.2%). On type of health information on pregnancy, 79.6% of the respondents had been given information on HIV and its effects on pregnancy outcomes, 74.1% on sex practice and HIV prevention birth spacing, 68.5% on nutritional supplements and 61.1% on birth spacing. On the contrary, less than

a half (41.7%) of the respondents have been informed on dangerous diseases to pregnancy and only 26.9% were informed about genetic diseases.

Table 4.4: Rating how respondents agreed to the statements relating to the knowledge on preconception care

VARIABLES	Disagree	Unsure	Agree	Mean	Std.dev	p-value
Maintaining own good health before pregnancy is an important achievement	5% (11)	5% (11)	90% (194)	72	86.27	0.001
Drinking alcohol in the early stages of pregnancy is not harmful to the baby.	63% (136)	22% (48)	15% (32)	72	45.72	0.001
Both partners should have full knowledge of their family history and genetic history before conception	25% (54)	49% (106)	26% (56)	72	24.06	0.001
Recreational drugs e.g., marijuana and cocaine, should be avoided before conception	14% (31)	26.6% (58)	58% (127)	72	40.4	0.001
A woman's immunization should be up to date before she becomes pregnant	17% (37)	68% (147)	15% (32)	72	53.07	0.001
The age of the mother is not important in conception.	7% (15)	55% (119)	38% (82)	68.67	42.52	0.001

Table 4.4 shows that the majority 90% (n-194) agrees with the statement that maintaining good health before pregnancy an important achievement and with a standard deviation of 86.27 meaning the responses were more spread out. The results further show that the

majority 63% (n-136) disagree with the statement that drinking alcohol in the early stages of pregnancy will not harm the baby, with a standard deviation of 45.72 meaning the numbers were close to average. In addition, the results show that the majorities 49 % (n-106) were unsure about the statement that partners should review their family history and genetic history with their doctor before conception, and has a standard deviation of 24.06 meaning the response results were closer to the average. The results further shows that the majority 58% (n-127) agree with the statement that recreational drugs e.g., marijuana and cocaine, should be avoided prior to conception with a standard deviation of 40.4 meaning the response results were close to the average. The results shows that the majority 68% (147) were unsure about the statement that a woman's immunization should be up to date before she becomes pregnant and has a standard deviation of 53.07 meaning that the results were spread out. The results further shows that the majority 55% (119), were unsure that the age of the mother is vital in conception with a standard deviation of 42.52 meaning the findings were closer to average.

Table 4.5: Rating how respondents agreed to the statements relating to the knowledge on preconception care

VARIABLES	Disagree	Unsure	Agree	Mean	Std.dev	P-value
There is need to consult your doctor concerning Prescription drugs and over the counter medications before pregnancy	11% (24)	72% (155)	17% (37)	72	72.17	0.001
It is important to be screened for infectious diseases e.g. HIV/AIDS before becoming pregnant	16% (34)	10% (22)	74% (160)	72	76.45	0.001

It is important to plan for pregnancy even if you have never been pregnant	14% (30)	68% (147)	18% (39)	72	65.1	0.001
Safe sex practice and HIV prevention is important in preconception period.	13% (28)	15 (32)	72% (156)	72	72.77	0.001
Psychological and mental history of a woman is essential in planning for pregnancy	44% (95)	25% (54)	31% (67)	72	20.95	0.001
A certain type of foods should be avoided during pregnancy period	26% (56)	30.5% (66)	43.5% (94)	72	19.70	0.001
Watching on one's weight and maintaining acceptable BMI before conception is important	40% (86)	34% (74)	26% (56)	72	15.10	0.001
Routine exercises during pregnancy is harmful to the unborn child	38% (82)	35% (76)	27% (58)	72	12.49	0.001

The results on the Table 4.5 shows that the majority 72 % (n-155) with the statement that there is need to consult your doctor concerning prescription drugs and over the counter before pregnancy and has a standard deviation of 72.17 meaning the numbers are more spread out. The results also show that majority 74 % (n-160) agree with the statement that it is important to have appropriate screening for significant infectious diseases e.g. HIV/AIDS before conception, and has a standard deviation of 76.45 meaning the numbers were spread out. In addition, the result shows that the majority 68% (147) were unsure about the statement that it is important to plan for pregnancy even if you have never been pregnant. The results further shows that the majority 72% (n-156) agreed with the statement that Safe sex practice and HIV prevention is important in preconception period while 44% (95) disagree with the statement that Psychological and mental history of a woman is essential in planning for pregnancy and has a standard deviation of 20.95. The majority 43.5

% (n=94) agree with the statement that a certain type of foods should be avoided during pregnancy period and a standard deviation of 19.70 which means that the numbers were closer to the average. Further, the study results indicate that the majority 40% (n-86) disagree with the statement that watching on one's weight and maintaining acceptable BMI before conception is important. The result further shows that (38%) disagreed that routine exercises during pregnancy is harmful to the unborn child. The figure 4.7 below shows respondents ratings on knowledge.

4.3.6: Knowledge Level as performed by the respondents

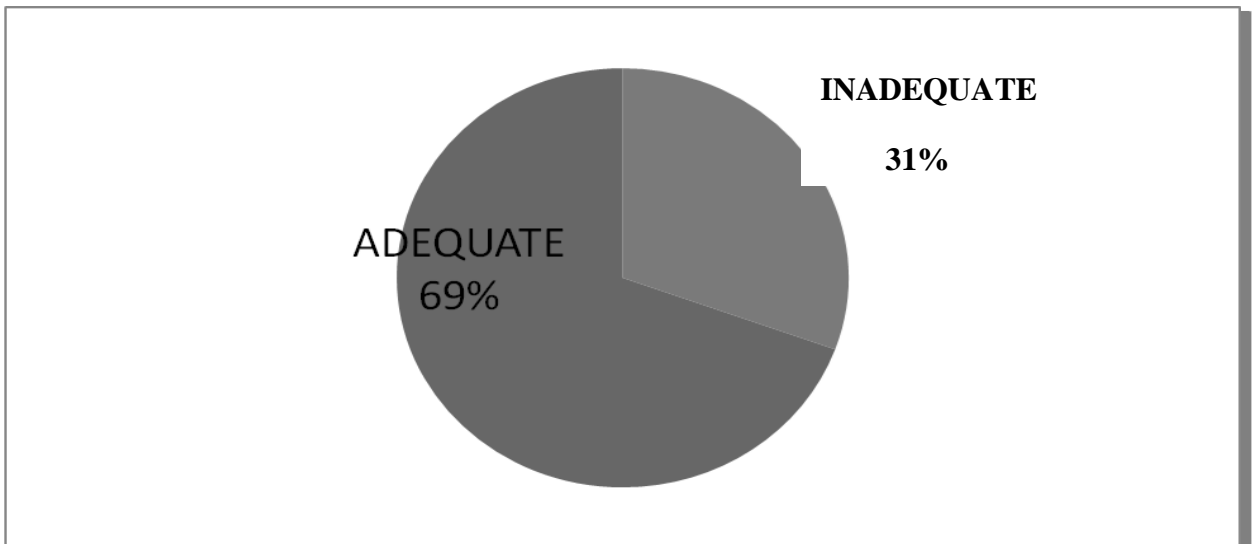


Figure 4.7: The figure shows the overall knowledge level:

As indicated above, the scores were done based on the performance on the 18 knowledge questions. Those who scored 56% and above were considered to have adequate knowledge while those who scored below 56% were considered to have inadequate knowledge.

4.3.7 Exposure to Preconception and Pregnancy Counselling

The responses are represented in table 4.6.

Table 4.6: Exposure to Counselling

Variable	Frequency (%)	
	Yes	No
Ever been counseled by anybody regarding your condition	72 (33.3)	144 (66.7)
Aware on how your condition would affect future pregnancy	68 (31.5)	148 (68.5)

One-third (33.3%) of the women had been counseled regarding their condition whereas 31.5% had been informed on the effect on their future pregnancy. 4.4.8: Routine pre – pregnancy test

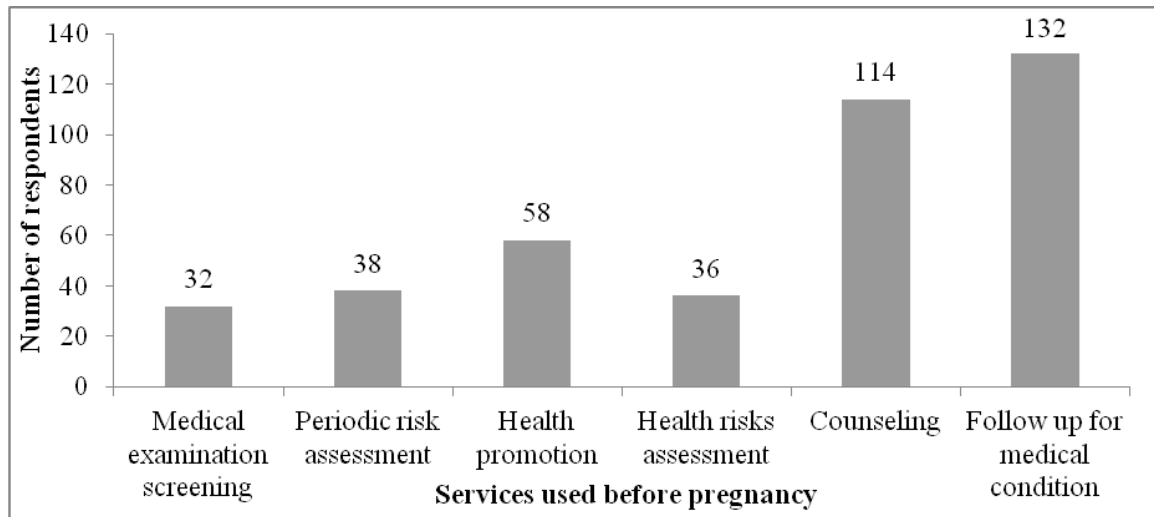


Figure 4.8: Routine Pre-pregnancy Services Received by Respondents

61.1% of the women were followed up for medical condition and 52.8% were counseled before their current pregnancy. Other services included health promotion (26.9%),

periodic risk assessment (17.6%), health risks assessment (16.7%) and medical examination screening (14.8%). Generally, some services are widely provided, thereby contributing towards equipping the women with knowledge on PCC, however, there are important services that are not used for a good proportion of the women, and this may impart negatively towards knowledge of PCC in those aspects.

4.5 Women Attitude and Behaviours

Table 4.7: Respondents' Attitude towards Preconception Care

Variable	Frequency (%)	
	Yes	No
Would you consider preconception care if you are planning to have a child?	198 (91.7)	18 (8.3)
Is preconception care necessary before having another pregnancy?	194 (89.8)	22 (10.2)

The Majority 91.7 % (n-198) of the respondents would consider preconception care in their plans for child bearing and 89.8 % (n-194) thought it was necessary before having another pregnancy.

Table 4.8: Respondents' Rating on Attitude and Behavior on Preconception Care

Statements

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Do you lack time and resources to seek preconception care?	127 (58.8)	34 (15.7)	17 (7.9)	25 (11.6)	13 (6.0)
Would PCC improve chances of having a healthy baby	4 (1.9)	9 (4.2)	40 (18.5)	101 (46.8)	62 (28.7)
Pregnancy is a natural occurrence and I hardly prepare for it	59 (27.3)	73 (33.6)	40 (18.5)	35 (16.2)	9 (4.2)

I know all the things I should not do when pregnant to ensure the baby is fine	63 (29.2)	69 (31.9)	27 (12.5)	25 (11.6)	32 (14.8)
I don't see the need of preconception care when I can take care of myself at home	112 (51.9)	79 (36.6)	13 (6.0)	10 (4.6)	2 (0.9)
The hospital staff are friendly and they provide good and relevant care	48 (22.2)	71 (32.9)	25 (11.6)	40 (18.5)	32 (14.8)

4.5.1 Rating Attitude

The attitude towards preconception care rating was done by use of 8 likert scale questions with five scales. The score was (strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly disagree = 1). Since the questionnaire was filled by the researcher it was easier to indicate for positive response and vice versa and the total score ranged from 8–40 points. The mean score is then determined and converted into percentage. The respondents who scored more than 60% were said to have positive attitude and those with score less than 60% as negative attitude.

Lack of time and resources was not a barrier to seeking preconception care in 74.5% of the women and more than three quarters (75.5%) thought preconception care would improve the chances of having a healthy baby. 61.1% of the women did not think pregnancy is a natural occurrence that one need not prepare for and the same percentage did not know about the things to avoid during pregnancy that could hurt the baby. On the need of preconception care, 88.5% strongly disagreed with the statement that preconception care is not necessary. More than a half (55.1%) thought the hospital staff were unfriendly and did not provide good and relevant care.

4.6 Uptake of Preconception Care

Responses on the uptake of preconception care are summarized as below.

Table 4.9: Uptake of Preconception Care

Variable	Frequency (%)
When you attended the clinic, was your health profile taken	
Yes	198 (91.7)
No	18 (8.3)
Have you ever used preconception care service?	
Yes	49 (23.1)
No	148 (68.7)
Do not remember	18 (8.3)
Were you given information on how your health condition is going to affect your future child bearing?	
Yes	106 (49.1)
No	110 (50.9)
Are you ready to receive preconception care for the subsequent pregnancies?	
Yes	200 (92.6)
No	16 (7.4)

As indicated above 23.1% (49) had uptake of preconception care services despite the fact that 49.1% had received information on how their health conditions would affect their future child bearing and 91.7% had their health profile taken. However, most women (92.6%) were ready to receive preconception care for their subsequent pregnancies.

4.7 Socio- cultural Practices and the Uptake of PCC

4.7.1 Socio- cultural Practices

The responses on existence of socio-cultural practices that would hinder uptake of preconception care and the ratings on the statements on the perceived socio-cultural practices are summarized in figure 4.9.

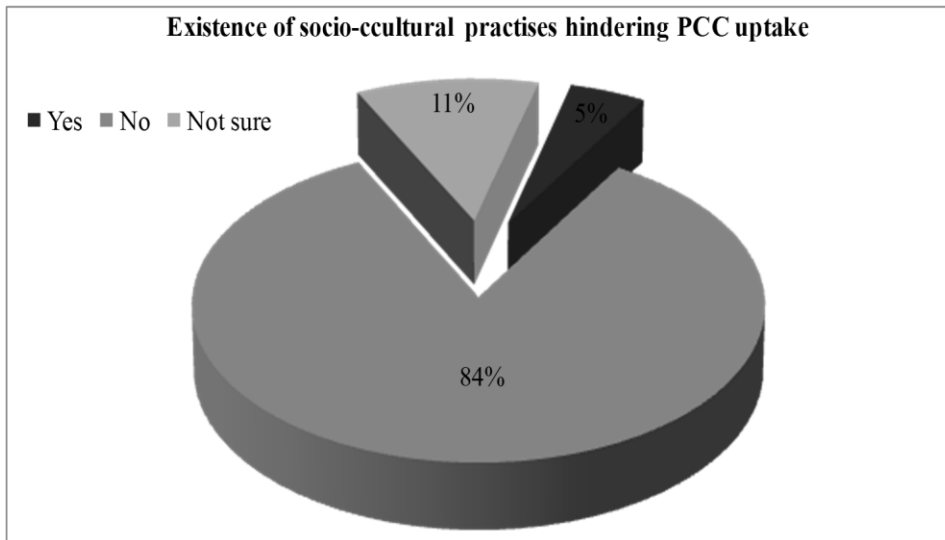


Figure 4.9: Existence of Socio-cultural Practices Hindering PCC Uptake

Majority (84%, $n = 182$) of the respondents did not think there were cultural issues preventing them to seek or utilizing preconception care.

4.7.2 Relationship between Socio-Cultural Background and Uptake of Preconception Care

The chi-square method was conducted to test the association around women's socio-cultural characteristics including knowledge levels and preconception care use. This was to test a null hypothesis that there is no association between socio-cultural factors and uptake of PCC.

The independent factors included questions on preconception care (meaning and importance of preconception care) and socio-cultural factors on preconception care (existence of socio-cultural factors that may prevent seeking preconception care). Dependent factor is the uptake of preconception care (use of PCC before). Before a chi-square test was run, some transformations were made on the category of variables of interest to ensure that the rule of the chi-square is not violated. This involved grouping

strongly disagrees and disagrees as disagree while strongly agrees and agrees as agree and also assuming and grouping those not sure as/with a no response.

Table 4.10: Knowledge, Socio-Cultural Background and Attitude and Uptake of Preconception Care.

Variable Relationship	Category	Uptake of preconception care		χ^2 - value	P – value
		Have you ever used preconception care before?			
		Yes	No		
Knowledge on preconception care					
Do you know what preconception care for a woman in the reproductive age is?	Yes	40.0% (16)	60.0% (24)	$\chi^2=7.837$	0.011
	No	19.3% (34)	80.7% (142)		
Do you consider preconception care important?	Yes	40.0% (36)	60.0% (54)	$\chi^2=24.629$	0.000
	No	11.1% (14)	88.9% (112)		
Socio-cultural practices in preconception care					
Do you think there are socio-cultural issues that would prevent you from seeking preconception care?	Yes	40.0% (4)	60.0% (6)	$\chi^2=1.674$	0.245
	No	22.3% (46)	77.7% (160)		
It is important to go with my husband to the clinic	Disagree	33.3% (6)	66.7% (12)	$\chi^2=1.221$	0.543
	Neutral	25.0% (4)	75.0% (12)		
	Agree	22.0% (40)	78.0% (142)		
My beliefs and spirituality does not allow me to prepare before pregnancy	Disagree	21.2% (36)	78.8% (134)	$\chi^2=2.402$	0.301
	Neutral	27.8% (10)	72.2% (26)		
	Agree	40.0% (4)	60.0% (6)		
Would you say that your spouse allows you to seek preconception counseling when planning pregnancy?	Disagree	14.3% (6)	85.7% (36)	$\chi^2=5.831$	0.000
	Neutral	14.0% (16)	86.0% (98)		
	Agree	46.7% (28)	53.3% (32)		
When it comes to preconception counseling would you want to do what your partner think	Disagree	20.3% (26)	79.7% (102)	$\chi^2=2.101$	0.350
	Neutral	25.0% (16)	75.0% (48)		
	Agree	33.3% (8)	66.7% (16)		

you should do					
My background has great influence on my desire to seek preconception care	Disagree	22.4% (26)	77.6% (90)	$\chi^2=0.113$	0.945
	Neutral	25.0% (10)	75.0% (30)		
	Agree	23.3% (14)	76.7% (46)		
My husband is the one who decides whether I should seek PCC	Disagree	23.5% (40)	76.5% (130)	$\chi^2=2.806$	0.246
	Neutral	10.0% (2)	90.0% (18)		
	Agree	30.8% (8)	69.2% (18)		
It is right in my culture to prepare for pregnancy before it occurs	Disagree	15.9% (14)	84.1% (74)	$\chi^2=4.737$	0.094
	Neutral	31.6% (12)	68.4% (26)		
	Agree	26.7% (24)	73.3% (66)		
Attitude on PCC					
Would you consider preconception care if you are planning to have a child?	Yes	25.3% (50)	74.7% (148)	$\chi^2=5.915$	0.007
	No	0.0% (0)	100% (18)		
Is preconception care necessary before having another pregnancy?	Yes	24.7% (48)	75.3% (146)	$\chi^2=2.721$	0.076
	No	9.1% (2)	90.9% (20)		
Do you lack time and resources to seek preconception care	Disagree	16.9% (26)	83.1% (128)	$\chi^2=.822$	0.001
	Neutral	52.6% (10)	47.4% (9)		
	Agree	32.6% (14)	77.4% (29)		
Would PCC improve chances of having a healthy baby	Disagree	11.1% (2)	88.9% (16)	$\chi^2=12.498$	0.000
	Neutral	4.9% (2)	95.1% (39)		
	Agree	29.3% (46)	70.7% (111)		
Pregnancy is a natural occurrence and I hardly prepare for it	Disagree	24.2% (31)	75.8% (97)	$\chi^2=0.389$	0.823
	Neutral	19.5% (8)	80.5% (33)		
	Agree	23.4% (11)	76.6% (36)		
I know all the things I should not do when pregnant to ensure the baby is fine	Disagree	8.4% (11)	91.6% (120)	$\chi^2=43.145$	0.000
	Neutral	35.7% (10)	64.3% (18)		
	Agree	50.9% (29)	49.1% (28)		
I don't see the need of preconception care when I can take care of myself at home	Disagree	29.2% (40)	70.8% (149)	$\chi^2=9.953$	0.007
	Neutral	15.4% (2)	84.6% (11)		
	Agree	57.1% (8)	42.9% (6)		
The hospital staff are friendly and they provide good and relevant care	Disagree	6.8% (8)	93.2% (109)	$\chi^2=44.556$	0.000
	Neutral	24.0% (6)	76.0% (19)		
	Agree	48.6% (36)	51.4% (38)		

The results shown by table 4.9.4 above indicate a relationship between knowledge level, socio-cultural characteristics and uptake of PCC. Some of the variables were statistically significant while others were not. There was a statistically significant relationship between: understanding PCC and ever used PCC before ($\chi^2= 7.837$, $df = 2$ and $p < 0.05$); importance of preconception and having used PCC before ($\chi^2= 24.629$ $df = 2$ and $p < 0.01$); Involvement of a husband in PCC by allowing their wives to seek the care and having used the PCC before ($\chi^2= 25.831$, $df = 1$ and $p < 0.01$); PCC improving chances of having a healthy baby and ever used PCC ($\chi^2= 12.498$, $df = 1$ and $p < 0.01$) and knowing all things a lady should do when pregnant to ensure the baby is fine and ever used PCC ($\chi^2= 43.145$, $df = 1$ and $p < 0.01$).

In this regard, the null hypothesis which postulated that “there is no association between knowledge, socio-cultural characteristics, attitude and uptake of PCC among women of child bearing age” was rejected and the alternative hypothesis accepted.

4.7.4 Relationship between Level of Knowledge and Uptake of Preconception Care

The 18 questions on knowledge were graded in order of the preferred answers. A preferred answer was awarded one (1) mark while any other answer awarded zero (0) mark. The scores were then collated and put over 18, then changed into percentage. A pass mark was set at 56% (10 answers correct out of the possible 18). Therefore, those who scored 56% and above were considered to have a high level of knowledge while those who scored below 56% were considered to have a low level of knowledge. The pass mark of 56% was set because of the fact that a mother who scored an extra one mark

above the 50% (9 out of 18) was considered or perceived to have demonstrated a better understanding of PCC.

The levels of score (high or low) was then compared with the uptake on PCC represented by the question on whether a respondent had ever taken up PCC before to adduced a significant relationship. This was done through a chi-square when these variables were cross-tabulated

Table 4.11: Relationship between Level of Knowledge and Uptake of PCC

Variable	Category	Level of Knowledge		χ^2 - value	P – value
		High	Low		
Uptake of Preconception Care					
Have you ever used preconception care before?	Yes	68.0% (34)	32.0% (16)	$\chi^2=18.562$	0.000
	No	33.7% (56)	66.3% (110)		

The table 4.11 shows a close relationship between level of knowledge and the uptake of preconception care. Two out of three (68.0%) women who had ever used preconception care before had high level of knowledge compared to one out of three (33.7%) who had never used preconception care before. The relationship is highly significant with chi-square value of 18.562, $df = 1$ and $p < 0.01$).

The null hypothesis is therefore rejected. Hence there is an association between level of knowledge and uptake of preconception care among women of child bearing age.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Knowledge on Preconception

In the study, majority of the respondents (69%) were not aware about preconception care whereas 12% were not sure. Only 19% were aware about preconception care and yet majority had attained college education (40%). The study findings contrast the findings of Mtondera Munthali *et al.*, 2021, which realised that 136 (54%) Malawian respondents were aware of the preconception care. On the other hand, the results on poor awareness was supported by studies in Nigeria in Usmanu Danfodiyo University Teaching Hospital by Amina G. Umar *et al.*, (2019) and among mixed ethnic origin, participating in nine focus groups, 2013 in India. The team were studying Opportunities and challenges for enhancing preconception health in primary care with women from ethnically diverse communities This is consistent with (Khalid *et al.*, 2013, Sudan, Ayalew *et al.*, 2017- Ethiopia, Contrary to PRUCE CE *et al.*, 2012, USA Atlanta.

Another study supporting the findings was done in Ruiru, which realised that (61.7%) had no information on PCC, and the hospital setting was the main source of PCC information, as indicated by 66.3% of the study respondents. Among the respondents, (47%) of those who responded were not aware of the importance of preconception care This is Contrary, Files *et al.*, (2009), Arizona & Krishma Giri *et al.*, 2018, Nepal.

Small proportion received the screening during health promotion practices for major disorders like blood pressure (44.4%), Random blood sugar (13%) to rule out gestational

diabetes, Urinalysis (24%), Hb testing (22.2%). HIV screening was the major test done for the majority (53.7%), owing to the vigorous campaigns for HIV prevention hence early management and prevention of vertical transmission of H.I.V. Notably significant proportions had preexisting medical conditions that required screening: 24.1% had hypertension, whereas 12% had diabetes mellitus among several other conditions that should have been screened for. It appears that a considerable proportion do not benefit from health promotion practices. Due to lack of awareness, majority of the respondents were not screened for the major pregnancy risk medical conditions. Majority (81.5%) were not assessed for pregnancy outcomes with hereditary disease, for congenital anomalies (66.7%), Genetic counseling (90.7%), and specialized care (59%). Other than HIV and blood pressure, and all the other medical examinations were reported by less than 40% of the women. The findings correlate with the study done by Joyce (2016), in which 64.9% of the subjects had been screened for HIV and all the other tests fell below 30%, epilepsy being the least prior to conception. Few women encountered pregnancy outcome with hereditary disease but also significant number of women had hereditary issue that affected their pregnancy.

Genetic risk assessment helps couples make informed choices based on genetic predisposition of the future children. Every year, 300,000 infants are born with major haemoglobin disorders, (Buhi and Goodson, 2007). Likewise, in this study, (40.7%) had congenital anomalies in their infants and good proportions (55.6%) were referred for the genetic counseling in the specialized centers. This correlates with the study done by Aaelfs *et al* (2013) who found that majority of the General practitioners were in favour

of genetic counseling and 31% cases were referred for genetic counseling although 40% of the cases were initiated by the patients themselves.

Majority of the women (62%) were aware that own health condition affects child bearing. This contrary to the study done McGowan *et al.*, 2020 while exploring preconception health beliefs amongst adults of childbearing age in the UK, where he revealed unawareness on preconception health and its importance. There is need to highlight the importance of raising awareness among the respondents.

Majority of the women stated that the source of information about their own health is the clinics (84%). This correlate well with the study done by (Joyce, 2017) where major source of information about preconception care was found to be health workers in the hospital. Ayelew *et al* 2017, noted that health institutions were the major sources of information at 69 (51.5%) while 9 (6.7%) of them heard it from friends.

A few of the respondent also reported low awareness on the risks associated with social habits and health conditions on pregnancy. Further, 30% admitted to be exposed to domestic violence, a finding that was similarly realized by Ayelew *et al* 2017, which showed that the GBV cases among pregnant mothers was 15.6%. In this study, we found that 67% of the women were not aware that domestic violence affects their pregnancy. 63% were aware that alcohol and smoking (51.9%), obesity (29.6%), Mental conditions (22.2%) were health risks to the pregnancy. This is in agreement with Esposito, *et al* (2015) study on knowledge and attitude assessment towards maternal risk factors in Italy, where 42% of the respondents understood alcohol, smoking, passive smoking and obesity as the main maternal risk factors in pregnancy.

It was not surprising that a significant proportion (66.7%) had not received any counseling services in this regard. On knowledge score, majority (69%) had adequate knowledge few (32%) had inadequate knowledge contrary Rosnani K. *et al.*, 2016, Malaysia. Consistent with Keith *et al.*, (2006) study which acknowledged that many reproductive women were not informed on PCC. Moreover, the Ayalew *et al.*, 2016 research that assessed the knowledge levels of PCC among the Ethiopia. women of Adet, equally released that only 27.5% were knowledge of the concept and related factors, which was generally low.

In this study , the Knowledge score is 79.63%, the higher score being in the area of Folic acid administration ,avoidance of recreational drugs and alcohol and importance of maintaining of good health at all times .This in agreement with the study done by Conrod, *et al.*, 2009 where the average knowledge was 76%.

Mean score for the knowledge among the respondents was 30.86 (SD-12.97), contrary to Rosnani K. *et al.*, (2016) where score was 11.37(\pm 3.94) in Malaysia. Majority, respondents were aware that their health condition can affect child bearing, consistent with Zayed F. *et al.*, (2015), but contrary to Rosnah Kassim *et al*, (2016). Majority of the Nigerian respondents are not sure that domestic violence may affect pregnancy outcome (Salami and Efetie, (2009). In the worldwide view, about 35% of women are exposed to gender based violence, perpetrated by intimate partner or non-partner. The WHO notes that the prevalence of violence against women in the developing worlds in African, Eastern Mediterranean and South-East Asia regions is on average higher.

5.1.2 Relationship between Knowledge Level and Uptake of PCC

The relationship between knowledge level and uptake of PCC is highly significant with chi-square value of 18.562, $df = 1$ and $p (0.000)$. Consistent with Owofadeju *et al.*, 2015; in the study done in Nigeria ($X^2=24.76$, $df=3$, $p=0.001$). Also in agreement with the study done by Fekene, D.B., Woldeyes, B.S., Erena, M.M. *et al.* on knowledge of PCC is significantly associated with uptake of PCC. A woman who was a good knowledge of PCC is 4.3 times more likely to utilize PCC than women who have poor knowledge of PCC.

5.1.3 The Attitude of Women towards Preconception Care

The present study has shown that majority of women attending the clinic in KNH (91.7%) had good attitude towards preconception care. 89.8% of the respondents would consider preconception care in their plans for future pregnancy and this correlate with the study by Hamda, (2016) on knowledge attitude and practice on PCC in Erbil, Iraq, where, 84.7% of the women were found to have good attitude about preconception care, while Denkta *et al.*, 2012, noted interviewed women expressed a positive attitude but hesitant about seeking preconception. Similarly, Files *et al.*, (2009), concluded that the majority of women understood the importance of preconception health but did not discuss these issues with their physician.

Majority of the respondents (89.8%), would consider preconception care in their plans in future, contrary to Khalid,(2015)-49% less than the half of the respondents , intended to seek preconception care in their subsequent pregnancy- Sudan. Lack of time and resources is not usually a barrier to seeking preconception care according to the study because many women (58.5%) thought it would improve the chances of having a healthy

baby In addition, (31.9%) did not know about the things to avoid during pregnancy that could hurt the baby and they think pregnancy is a natural occurrence that one need not prepare for.

5.1.4 The Uptake of Preconception Care

Uptake of PCC was generally low. This is consistent with Joan Okemo *et al.* (2020) in her study on determinants' of PCC utilization in Rural and urban Kenya. In this study 23.1% of the respondents reported ever using PCC but contrary to the study done in Machakos by Washington *et al.*, (2018) found out (14.6%) utilized the services and contrary to the study done in Ethiopia on Mothers' utilization and associated factors in preconception care by Asresu *et al.*, 2019, where only 18.5% received the care and Ninety-seven (14.5%) women have utilized PCC services, by Fekene, D.B., Woldeyes,et al 2020. In this study 92.7% of the respondents have been taken health profile in clinic attendance where women were given information on how their health conditions would affect their future child bearing. Most women (92%) had a strong desire to achieve the best outcome possible for their baby and as such were very motivated to access information and engage in preventive care.

5.1.5 The Association between Socio-cultural Background and Uptake of PCC

According to this study there were no cultural issues preventing the women from seeking preconception care. Most women (84%) prefer visiting clinic with their husbands although contrary to this, Chimatiro, (2018) stated that the majority of the men would decline for fear of being tested for HIV.

There were no beliefs that prevented women in the study (91.9%) from seeking preconception care; consistent with POELS, *et al.*, (2016) study who found out benefits as one of the most imperative facilitators for the uptake of PCC, although to the contrary the same women feel that the process of getting pregnant should be surrounded by natural and romantic values and should not become artificial. However, awareness of PCC improve chances of having a healthy baby had a statistically significant association with uptake. ($\chi^2=12.498$, $df = 2$ and $p = 0.000$ contrary to study by Bonareri 2018 p - value of $0.294 > 0.05$ had no influence on preconception care uptake.

5.1.6 Association between Knowledge Level and the Uptake of PCC (Hypothesis testing)

The findings reveal that there exists an association between knowledge and utilization of PCC services among women of reproductive age seeking reproductive healthcare services at KNH. clinic. In this regard, the investigations reject the null hypothesis which stated otherwise. Those with high Knowledge about preconception care were most likely to consider PCC uptake. This is consistent with Owofadeju *et al.*, 2015; in the study done in Nigeria ($X^2=24.76$, $df=3$, $p=0.001$).

5.2 Conclusions

The findings and the discussions in the study, implores the researcher to make the following conclusions:

1. Women attending KNH reproductive clinic have limited knowledge on PCC and most of them receive information on PCC from the clinic, whereas a significant proportion have pre-existing medical conditions that would affect their pregnancy

2. Utilization of medical services provided before pregnancy was erratic.
3. Most of the women have good attitudes towards preconception care but they have poor preconception care practices.
4. The uptake of Preconception Care by the women was poor
5. There was no statistically significant association between most of the socio-cultural practices and uptake of PCC. However, the only influence of the uptake of PCC was, awareness that PCC improve chances of having a healthy baby.
($\chi^2=12.498$, $df = 2$ and $p = 0.000$)

5.3 Recommendations

5.3.1 Recommendation from the Study

- i. There is need for Provision of Health Education on Preconception care to Women attending reproductive clinics to improve awareness and creation of systems for screening comprehensively for pre-existing medical conditions that would affect their pregnancy
- ii. Formulation of Health Policies to enhance utilization of PCC services to be provided before pregnancy
- iii. This study may contribute to the bulk of PCC knowledge and awareness in order to inform policies and practices.

5.3.2 Recommendation for Further Research

More studies to identify barriers to PCC uptake and identify ways of enhancing preconception care practices.

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APPENDICES

Appendix I: Consent Forms

A) INFORMED CONSENT FORM

I, M/s Madina Guye Edalia Masters student of Kenyatta University Department of Population and Reproductive health will be conducting a study on Preconception care among women of child bearing age in Reproductive health clinics. I would kindly request for your participation by providing some information outlined in the questionnaires.

Confidentiality

All the information provided will be handled with confidentiality. Recording of name on the questionnaire will not be accepted. Once filled, the questionnaires will be placed in locked cabinet.

Contact Information

In case there is a need for further clarifications, contact Dr. Daniel Okun on 0722318288, Dr. Mutabazi on 0725984499, Madina Guye Edalia on 0722719977 or University of Nairobi and Kenyatta National Hospital Ethics Committee on **chairmanuonknh_erc@uonbi.ac.ke,or E-mail: secretaryuonknh_erc@uonbi.ac.ke.**

Participants Statement

I ----- {self} confirm that I have been duly informed and acknowledge that there is no monetary gain for agreeing to participated and there are no associated risks for the study. I understand that knowledge gained from this research will be used to improve clients care in the institution

I am well informed of voluntary participation in the study and I may withdraw from study at any time I wish. If I decide to withdraw from this study, I will not be treated in any unusually manner and continue to enjoy the service as a client in this department.

I understand that study data will be kept confidential. However, this information may be used in nursing publications or presentations.

Name of participant (Initials) ----- signature _____ Date _____

B) CONSENT FORM FOR MINOR

Project Title: Preconception care among women of child bearing age at Kenyatta National Hospital Reproductive clinic

Investigator(s): Madina Guye Edalia

We are doing a research study on knowledge, attitude of women towards this practice of care in this clinic

This study is a way to learn more about the care we are given as women before we know they are pregnant. Children who are from fifteen years is allowed to participate in this research study as long as they have consented

If you consent to take part in the study you will be asked to answer some questions which might take some 25 minutes

There are no procedures involved that can hurt you and no any discomfort or other risks.

We think the research findings might help us give good care of women who will be coming to this clinic

By appending your name and signature, you confirm your participation in the study.

I, _____, want to be in this research study.

(Signature/Thumb stamp)

(Date)

Investigators Statement

I, the undersigned, have explained to the volunteer in a language she understands, the procedure to be followed in the study and risks and benefit involved.

Name Of Investigator ----- Sign _____ Date _____

Appendix II: Questionnaire**Women of Reproductive age****PART 1: A. Bio Data**

1. Age in years (tick where appropriate)

15-19 20-29 30-39 40-49

2. Education level

Primary University
Secondary Others Specify
College

3. Marital status

Single Separated
Married Divorced
Widowed

4. Religion

Christian
Muslim
Others Specify

6. Economic activity

Formal employment Retired

Business Farmer self employed

PART 2 B: Knowledge among women on preconception care

1. Do you know what pre conception care for women in the reproductive age is (*tick appropriately*)?

Yes [] No [] Not sure []

2. Do you consider preconception care important?

Yes [] no [] Not sure []

3 Parity :- Para..... +

C Knowledge on Health Promotion ((*tick appropriately*)?)

1 a .Are you aware of how your health condition is going to affect your future child bearing? (Yes/ No)

1 b.How did you learn about It? (Hospital..... Clinic..... Internet..... Friends..... Others (specify).....)

2 Preconception health is only important for people with health problems

Disagree unsure Agree

3 Domestic violence affects the health of the women and unborn child

Disagree unsure Agree

4 A female has decided to have a child she should visit t an obstetrician before conception Agree Disagree unsure

5 Should Folic acid be taken before pregnancy?

Agree Disagree unsure

6 While pregnant smoking occasionally does not impose harmful effects to the unborn

Agree Disagree unsure

7 Achieving and maintaining good health before conception is very important

Agree Disagree unsure

8 In the early stage of pregnancy, drinking alcohol occasionally may not harm the baby

Agree Disagree unsure

9 Woman and her partner need to review their family history & genetic history with their doctor before conception.

Agree Disagree unsure

10 It is important to avoid drugs e.g. Cocaine, when considering conception

Agree Disagree unsure

11 Immunization history of the female client is of paramount importance before conception.

Agree Disagree unsure

12. Mothers age is not important in conception

Agree Disagree unsure

13 Prescription drugs and over the counter medications should involve your primary doctor

Agree Disagree unsure

14 The woman must be tested appropriately to rule out any infectious diseases e.g., HIV/AIDS before becoming pregnant

Agree Disagree unsure

15 Planning for pregnancy even if you have never been pregnant is imported

Agree Disagree unsure

16 Safe sex practice and HIV prevention is important in preconception period

Disagree unsure agree

17 Psychological and mental history of a woman is essential in planning for pregnancy

Agree Disagree unsure

18 A certain type of foods should be avoided during pregnancy period

Disagree unsure agree

D. What is your extent of agreement with these statements relating to your knowledge **on preconception care**? Use 1 – 5 scale with 1; Strongly Disagree, 2; Disagree, 3; Neutral, 4; Agree and 5; Strongly Agree

Statement	1	2	3	4	5
I have information about preconception care					
I know why the needs for preconception					
The clinic I attended provided me with the information regarding preconception					
I consider preconception important and I can readily share the information I have with others					

Part 3: Women attitude and behaviors

10. Would you consider preconception care if you are planning to have a child?

Yes []

No []

11. Is preconception care necessary before having another pregnancy?

Yes []

no []

12 What is your extent of agreement with these statements? Use 1 – 5 scale with 1; Strongly Disagree, 2; Disagree, 3; Neutral, 4; Agree and 5; Strongly Agree

Statement	1	2	3	4	5
Do you lack time and resources to seek preconception care					
Would PCC improve chances of having a healthy baby					
Pregnancy is a natural occurrence and I hardly prepare for it					
I know all the things I should not do when pregnant to ensure the baby is fine					
I don't see the need of preconception care when I can take care of myself at home					
The hospital staff are friendly and they provide good and relevant care					

Part 4: Socio- cultural practices

1. Do you think there are social cultural issues that would prevent you from seeking pre conception care?

Yes [] No [] Not sure

IF yes specify

2. What is your extent of agreement with these statements relating to socio-cultural practices? Use 1 – 5 scale with 1; Strongly Disagree, 2; Disagree, 3; Neutral, 4; Agree and 5; Strongly Agree

Statement	1	2	3	4	5
It is important to go with my husband to the clinic					
My beliefs and spirituality do not allow me to prepare before pregnancy					
Would you say that your spouse allows you to seek Preconception counseling when planning pregnancy?					
When it comes to Preconception counseling would you want to do what you partner think you should do					
My background has great influence on my desire to seek preconception care					
My husband is the one who decides whether I should seek PCC					
It is right in my culture to prepare for pregnancy before it occurs					

Part 1V: Uptake

1. When you attended the clinic, was your health profile taken

Yes No

2. Have you ever utilized preconception care services?

a) Yes (if yes go to 3) b) No c) Do not remembers

3. Were you given information on how your health condition is going to affect your future child bearing Yes No

4. Are you ready to receive preconception care for the subsequent pregnancies?

Yes No

C. Screening Medical Examination done. Have you been assessed for the following before pregnancy? (Tick appropriately)?

	YES	NO
1. Measuring weight (BMI).....	<input type="checkbox"/>	<input type="checkbox"/>
2. Blood Pressure.....	<input type="checkbox"/>	<input type="checkbox"/>
3. Lab tests BG Rh factor.....	<input type="checkbox"/>	<input type="checkbox"/>
4. Hb testing.....	<input type="checkbox"/>	<input type="checkbox"/>
5. Random Blood sugar.....	<input type="checkbox"/>	<input type="checkbox"/>
6. Urine analysis.....	<input type="checkbox"/>	<input type="checkbox"/>
7. Clinical Breast examination.....	<input type="checkbox"/>	<input type="checkbox"/>
8. Breast self examination.....	<input type="checkbox"/>	<input type="checkbox"/>
9. Oral Health screening.....	<input type="checkbox"/>	<input type="checkbox"/>
10. STI.....	<input type="checkbox"/>	<input type="checkbox"/>
11. HIV.....	<input type="checkbox"/>	<input type="checkbox"/>
12. Pap smear.....	<input type="checkbox"/>	<input type="checkbox"/>
13 Assessment for the causes of recurrent pregnancy loss (where applicable).....	<input type="checkbox"/>	<input type="checkbox"/>

D Periodic Risk assessment

1. Parity :- Para..... +

2. Have you ever had a pregnancy outcome with hereditary disease

Yes/No

3. Have you ever had a child with congenital anomalies... (Yes/No)

If the answers to any of the above is true were you referred for specialized care for further investigations.....

4. Have you ever had Genetic counseling? (Yes/No).....

5. Genetic counseling in specialized centers.....

6. Which of the following services have you used before you became pregnant? (Can tick more than one)

i) Medical Examination Screening

ii) Periodic Risk assessment

iii) Health Promotion

iv) Health risks assessment

v) Counseling

vi) Follow up for medical condition

D Counseling

Have you ever been talked to and counseled in detail by anybody regarding your condition (Yes/ no).....

Have you been informed how it would affect your future pregnancy? (Yes? No).....

E Intervention and follow up

Are you suffering from any of the following Medical Conditions?

Are you on treatment? (Tick if yes) (*YOU MAY TICK MORE THAN ON CONDITION*)

Hypertension (Yes/No).....

Diabetes mellitus (Yes/No).....

Hematologic conditions like anemia (Yes/No).....

Thromboembolism (Yes/No).....

Asthma (Yes/No).....

Thyroid disorders (Yes/No).....

Epilepsy (Yes/No).....

Cardiovascular diseases (Yes/No).....

Renal disorders (Yes/No).....

Autoimmune diseases (Yes/No).....

STIs (Yes/No).....

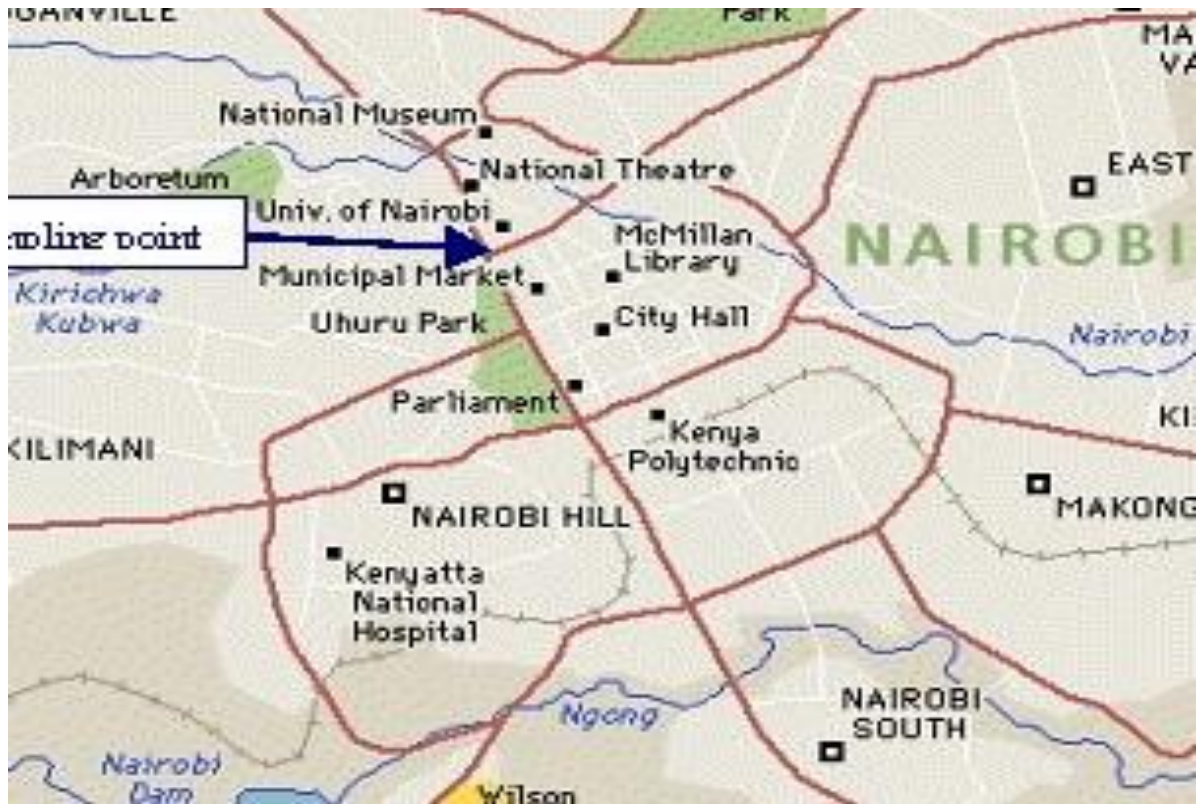
Hepatitis (Yes/No).....

Cancer (Yes/No).....

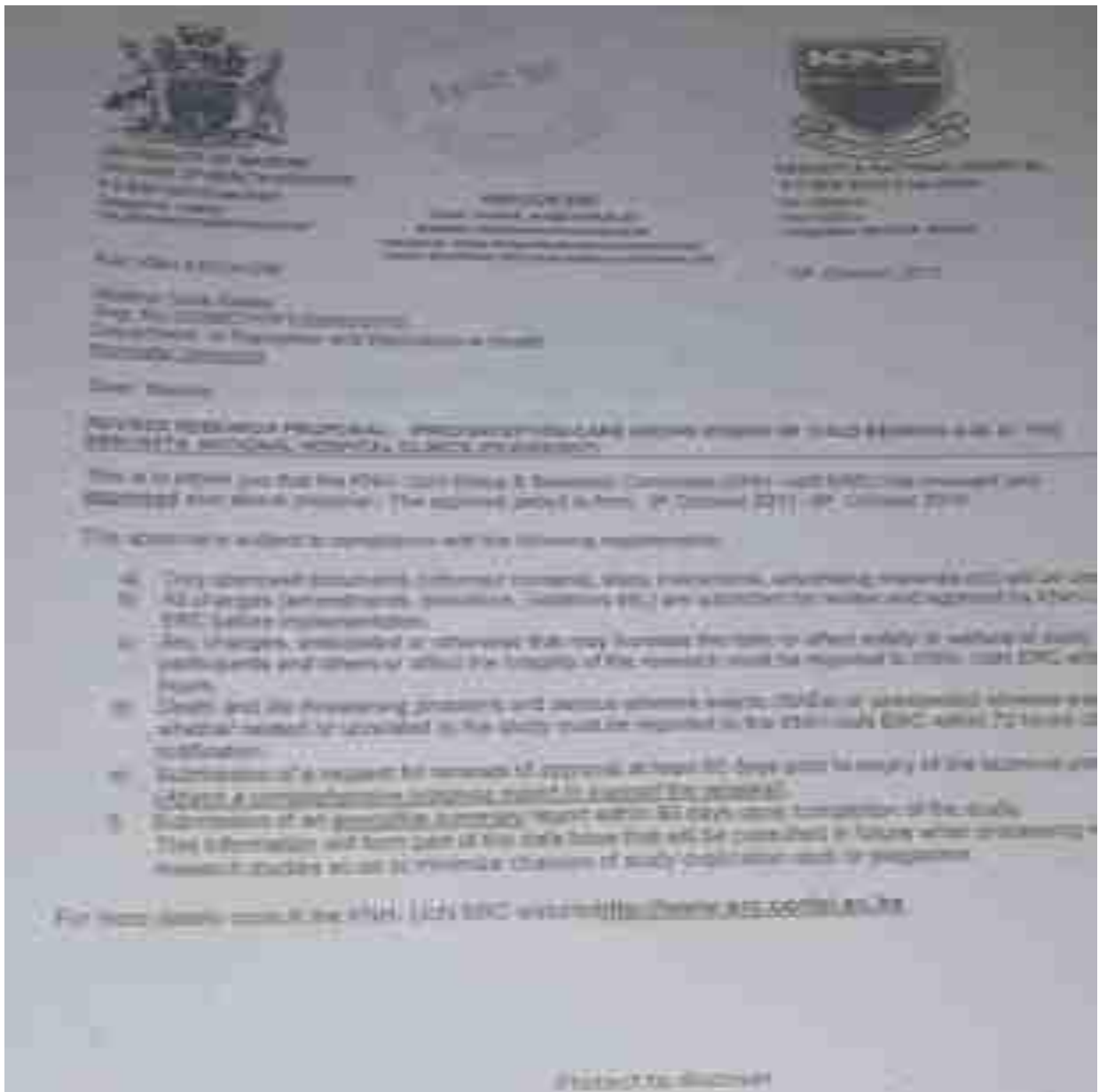
Psychiatric disorders (Yes/No).....

HIV (Yes/No).....

MAP OF KENYATTA NATIONAL HOSPITAL



ETHICAL APPROVAL FROM KNH/UONERC



ETHICAL APPROVAL FROM KUERC



KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE

Email: chairman.kuerc@ku.ac.ke

P. O. Box 43844 - 00100 Nairobi

Tel: 8710901/12

Fax: 8711242/8711575

Website: www.ku.ac.ke

Our Ref: KU/KUERC/EXT VOL.1 (21)

Date: 17th December, 2020

**Madina Guye Edalia
Kenyatta University
P.O Box 43844 - 00100
NAIROBI**

Dear Ms. Madina,

**RENEWAL OF APPROVAL FOR PKU /555/1646 "PRECONCEPTION CARE AMONG
WOMEN OF CHILD BEARING AGE AT THE KENYATTA NATIONAL HOSPITAL CLINICS"**

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic, "Preconception Care Among Women Of Child Bearing Age At The Kenyatta National Hospital Clinics" dated October, 2020 and discussed on November, 2020

2. DECISION

Kenyatta University Ethics Review Committee has **RENEWED THE APPROVAL, and that the research may proceed for one year from December, 2020 to December, 2021** as per the request and NACOSTI approval.